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Sustainability and Indigenous Frameworks of Innovation, Interrelation, and Socio-Economic Organization:

A Case Study of a Misak Community in Western Colombia

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1. Introduction

1.1 Origin and motivation of the research

This research could be titled “How Indigenous Misak Thinking Could Help Address Global Sustainability Challenges”, drawing inspiration from Tyson Yunkaporta’s (2020) work, Sand Talk: How Indigenous Thinking Can Save the World. His book explores Aboriginal Australian thought as a foundation for rethinking socio-economic and environmental approaches. Some key concepts outlined by Yunkaporta serve as a fundamental reference for analyzing the sustainability-oriented governance and resource management systems.

As the author states: "Sometimes I wonder if echidnas ever suffer from the same delusion that many humans have, that their species is the intelligent centre of the universe." (Yunkaporta, 2020). This reflection raises a crucial question about the anthropocentric assumption in many Western societies, a key aspect of this analysis.

Further insights emerge from the book Amazzonia, una vita nel cuore della foresta by Emanuela Evangelista, an Italian biologist who has lived in the Amazon for over twenty years. The comparison with her work, combined with an analysis of the social dynamics observed in the Amazon region near Leticia in October 2024, highlighted significant similarities among Indigenous populations, particularly in terms of collective decision-making, environmental ethics, and resource distribution. Common principles include an ecocentric worldview, democracy based on unanimous decision-making, and the concept of cyclical time.

Evangelista describes this perspective as follows:
"The time of my life changed, the rhythm changed. It was like moving to the other side of a clock. Living here meant adopting the time of this place, which flows under different hands—slow and sticky, made of rains, seasons, harvest periods, egg-laying times, limits imposed by superior forces, with which humans do not compete; they simply surrender, follow them, respect them." (Evangelista, 2023).

This vision contrasts sharply with the Western approach, which is often centered on environmental management strategies driven by economic growth and resource exploitation. This contrast has become even more evident in a period marked by geopolitical polarization and limited progress in climate negotiations, as demonstrated by the limited outcomes of recent international climate conferences, from COP 16 in Cali to COP 29 in Baku. The concept of the West is frequently interpreted as a homogeneous cultural and geographical entity:

"The West was born as a geographical direction, which gave rise to and shaped a sense of belonging. What we cannot do is take it for granted—to assume that we have always been this way, that our history, culture, and civilization have always corresponded to that indistinct space with its feet in Europe and its head in the Atlantic." (Vanoli, 2024).

In Western contexts, sustainability is generally addressed as a challenge to be solved through advanced technological solutions—high technologies and green technologies. However, for the Misak people, as well as for many other Indigenous communities, sustainability is not perceived as an issue to be managed but as a fundamental principle of life, an integral part of a cyclical and interconnected equilibrium. While they do not exclude the use of modern technologies, their environmental management relies primarily on ancestral knowledge and traditional practices, passed down through generations.

1.2 UN definition of Indigenous people

Indigenous peoples are often referred to as "custodians of biodiversity", as they have inhabited the most biodiverse regions of the planet for millennia, developing resource management systems based on ancestral knowledge and sustainable practices (World Bank, 2008; UNDESA, 2020).

The United Nations (UN) does not provide a fixed legal definition of Indigenous peoples, recognizing the complexity and diversity of the groups that identify as such. However, the Special Rapporteur on the Rights of Indigenous Peoples, the Permanent Forum on Indigenous Issues (UNPFII), and the International Labour Organization (ILO) have outlined a commonly accepted description.

According to the UN Commission on Human Rights:

"Indigenous communities, peoples, and nations are those who, having a historical continuity with pre-colonial societies that developed on their territories before invasions, consider themselves distinct from other sectors of society that are now predominant on those territories, or parts of them."

Based on this definition, the United Nations estimates that Indigenous peoples make up approximately 6.2% of the world's population. A particularly significant fact is that about 80% of global biodiversity is found in territories traditionally inhabited by Indigenous peoples (World Bank, 2008; UNDESA, 2020). The majority reside in Asia, while other Indigenous communities are distributed across Latin America, Africa, North America, and Oceania.

The contributions of Indigenous communities are essential for the conservation of ecosystems and climate resilience, due to their centuries-old experience in sustainable land management. The UN has increasingly recognized the value of Indigenous traditional knowledge in combating climate change and protecting biodiversity. However, until the early 21st century, the role of Indigenous peoples in environmental conservation was rarely acknowledged in international policies.

The inclusion of Indigenous peoples in decision-making processes gained momentum in 2000 with the creation of the International Indigenous Peoples' Forum on Climate Change (IIPFCC), an organization aimed at strengthening Indigenous knowledge, technologies, and strategies in responding to climate change while increasing their involvement in UN initiatives.

A further milestone was the adoption of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) in 2007, which states:

"The Declaration prohibits discrimination against Indigenous peoples and promotes their full and effective participation in all matters that concern them, as well as their right to remain distinct and pursue their own visions of economic and social development."

Since then, representatives of Indigenous communities have increasingly played an active role in international environmental governance, participating in Conferences of the Parties (COP) on climate change, global activism, and political processes at local and national levels.

However, their involvement remains primarily consultative and non-binding, and their territorial rights are often not adequately recognized at the national level. Ensuring the protection and formal integration of Indigenous knowledge into global sustainability strategies remains one of the most pressing challenges for international environmental governance.

1.3 Transformation into sustainability: integration of knowledge and strategies

On December 16, 2024, in Windhoek, Namibia, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the leading global scientific authority on biodiversity, approved the Transformative Change Assessment Report. This report defines transformative change as a series of system-wide and structural shifts across three key dimensions: worldviews (ways of thinking, understanding, and perceiving the world), structures (organizational models, regulations, and governance systems), and practices (behaviors, habits, and interactions with the environment).

IPBES underscores the urgency of a profound transformation in how humanity perceives and interacts with the natural world. As stated by Professor Karen O'Brien (Norway/USA), co-chair of the assessment alongside Professor Arun Agrawal (India/USA) and Lucas Garibaldi (Argentina):

"A transformative change for a just and sustainable world is urgent because the window of opportunity to halt and reverse biodiversity loss is narrowing. The decline of ecosystems could become irreversible without immediate action."

According to the report, delaying actions necessary to halt and reverse biodiversity loss even by a decade could exponentially increase restoration costs, whereas acting immediately would foster the development of sustainable economic models such as: nature-positive, ecological and, Earth-centered economies.

Recent estimates suggest that by 2030, these approaches could generate over $10 trillion in new business opportunities and create 395 million jobs globally.

Indigenous traditional knowledge is recognized as a crucial element in fostering and accelerating this transformation. According to Professor O'Brien:

"Many knowledge systems, including Indigenous and local knowledge, provide complementary insights into how to foster, accelerate, and manage the necessary changes for a just and sustainable world."

Indigenous peoples and local communities offer holistic governance models, which integrate ancestral knowledge, experiential learning, and non-human intelligence systems, all of which are critical in conservation decision-making. IPBES highlights that sustainability visions incorporating the active contributions of Indigenous peoples are more likely to succeed, particularly when they stem from inclusive, rights-based approaches and integrate cross-sector collaboration.

Table 1: Key statistics from the Transformative Change Report 2024 on biodiversity, economy, and Indigenous land management. (IPBES, 2024).

Statistic	Description
>50%	Percentage of global GDP generated annually by economic activities moderately to highly dependent on nature, totaling $58 trillion.

$13 trillion	Annual value of industries highly dependent on nature, equivalent to 15% of global GDP.
$31 trillion	Annual value of industries moderately dependent on nature, equivalent to 37% of global GDP.
$10 trillion	Estimated value of business opportunities that could be generated, creating 395 million jobs worldwide by 2030.
55%	Increase in public funding for environmentally harmful subsidies since 2021.
$10.7 trillion	Estimated annual external costs of sectors most responsible for nature decline.
<15%	Global percentage of forests certified as sustainably managed.
46,955	Environmental threats documented and challenged by civil society, analyzed by report authors.
~40%	Percentage of protected areas and intact ecosystems in 87 countries managed by or with ownership rights of Indigenous peoples and local communities.
39.2% / 1.85%	Percentage of global wealth held by the top 1% of the world's population in 2021, with 1.85% owned by the bottom 50%.

2. Literature review on the Misak people

The literature of the Misak people plays a key role in transmitting their identity, spirituality, and cultural resistance. Through writing, Indigenous authors not only preserve the historical memory and traditions of their community but also assert their territorial rights and self-determination in an increasingly globalized world.

In recent decades, both Indigenous and non-Indigenous scholars have contributed to the development of a diverse literary corpus, addressing themes such as the connection to the land, environmental sustainability, and the perception of time and space in the Misak *cosmovisión*.

Literature, therefore, is not just a means of cultural expression but also a political and social tool with multiple functions:

- Strengthening cultural identity: Through stories, essays, and testimonies, writing becomes a means of resistance against the loss of Indigenous traditions and languages.
- Providing visibility and promoting resistance: Literary works serve as instruments of advocacy and struggle for Misak rights, particularly in defending ancestral lands and their sovereignty.
- Fostering intercultural dialogue: Literature helps build bridges between the Indigenous world and Western society, offering an alternative perspective on history and the current challenges faced by Indigenous communities.

2.1 Abelino D*agua* Hurtado, Misael Aranda, and Luis Guillermo Vasco Uribe

One of the most significant works on the history and identity of the Misak people is Guambianos: *Hijos del Arcoíris y del Agua*, written by Abelino Dagua Hurtado, Misael Aranda, and Luis Guillermo Vasco Uribe. First published in 1998 and updated in its second edition in 2015, the book documents the culture, *cosmovisión*, and territorial struggles of the Misak, offering an internal perspective on their history.

The book examines the community's economic and social structure, describing the central role of agriculture, spirituality, and traditional political organization. A key theme is the profound connection between the Misak and water, seen as a vital force and sacred element that regulates natural cycles and community life. The Misak define themselves as "children of the rainbow and water," an expression that reflects their worldview and deep bond with nature.

Beyond its cultural dimension, the book explores the struggles for the recovery of ancestral lands. In 1980, during the First Misak Assembly, the community firmly declared: "We are a people, and we want to recover everything." This statement marked the beginning of a resistance movement that culminated in 1982 with the creation of the Historical Committee of the Guambian *Cabildo* (traditional Indigenous council), tasked with reconstructing historical memory through the collection of oral testimonies. The committee's work helped counteract the loss of tradition caused by cultural colonization and religious indoctrination.

The text also highlights the impact of Western educational policies, which sought to assimilate the community and threatened the transmission of traditional knowledge. In response, the Misak launched autonomous educational programs and promoted the teaching of the *Nam trik* language in schools, strengthening their linguistic and cultural identity.

The work of Dagua Hurtado, Aranda, and Vasco Uribe is essential to this research because it demonstrates the role of literature in preserving historical memory, highlights the connection between spirituality and environmental sustainability, and provides a concrete example of cultural resistance against assimilation policies.

2.2 Raul Arango and Enrique Sánchez

The book *Los pueblos indígenas de Colombia en el umbral del nuevo milenio: Pueblos del suroccidente colombiano* (1998), published by the Departamento Nacional de Planeación, provides a detailed analysis of the situation of Indigenous populations in Colombia at the end of the 20th century, with a particular focus on the challenges and opportunities these communities faced as they entered the new millennium.

The work examines key aspects of Indigenous realities, analyzing their role in cultural conservation, economic and social difficulties, territorial struggles, and public policies affecting their autonomy. A central theme is cultural resistance, described as an active response to external pressures such as modernization, the expansion of market economies, and the risk of assimilation. The book highlights how traditions, spirituality, and social structures have enabled Indigenous peoples, particularly the Misak, to preserve their identity despite adversity.

Another crucial point is the territorial conflict. The text shows how the loss of ancestral lands is not merely an economic issue but deeply impacts cultural identity and spiritual connection to the environment. The research highlights the strategies adopted by the Misak to reclaim their territories, emphasizing that the fight for land is intrinsically linked to the survival of the community.

The book also addresses the issue of socioeconomic marginalization, describing disparities in access to education, healthcare, and economic opportunities. Arango and Sánchez analyze the role of the 1991 Constitution in recognizing Indigenous rights, yet they emphasize the difficulties in its practical implementation. The book exposes the contradiction between the formal recognition of Indigenous autonomy and the bureaucratic and political obstacles that hinder its concrete realization.

A particularly relevant aspect is the focus on the relationship between the Misak and nature. The text describes the community as guardians of an essential ecological heritage, highlighting the importance of their traditional practices in biodiversity conservation. The authors stress the need to integrate Indigenous knowledge into national environmental policies, recognizing their essential contribution to addressing the global ecological crisis.

The work concludes with a reflection on the cultural resilience of the Misak, portraying them as an example of political and social resistance. Their ability to maintain traditions, self-governing structures, and sustainable management models demonstrates that Indigenous autonomy is not only a matter of historical justice but also a valuable resource for developing a more inclusive and respectful society.

2.3 Rosa Elena Oliveros Lozano

Rosa Elena Oliveros Lozano is a prominent scholar who has dedicated part of her academic work to studying the Misak people and the social and cultural issues affecting this Indigenous community. Although she is not of Indigenous origin, her research is based on an in-depth analysis of the territory and the internal dynamics of the community, with particular attention to gender, culture, and environmental topics.

A central aspect of her studies is the analysis of the role of Misak women in society, highlighting their importance in preserving cultural traditions and managing natural resources. Women emerge as key figures in maintaining traditional agricultural practices and transmitting ancestral knowledge, particularly in the use of medicinal plants and land stewardship.

The main themes of her research include:

- The role of Misak women: Oliveros Lozano has examined how women contribute to social cohesion and cultural resistance within the community. As guardians of Indigenous culture

and language, women play a crucial role in educating younger generations, not only in formal settings but also in the transmission of traditional practices.

- Agriculture and sustainability: Her research explores the relationship between Misak women and the land, analyzing their primary role in traditional agricultural activities and the preservation of sustainable farming techniques. These practices are deeply connected to Indigenous spirituality and ecological land management.
- Identity and gender resistance: Oliveros Lozano has studied gender and power dynamics within the community, investigating the challenges faced by women in relation to colonization, land dispossession, and the pressures of modernization. She highlights how women have taken an active role in movements for the recovery of ancestral lands and the fight for the territorial rights of the Misak people.

Rosa Elena Oliveros Lozano's work provides a valuable contribution to understanding the gender dimension in Indigenous societies, shedding light on how these communities confront globalization and environmental crises. Her academic contributions have helped bring visibility to the Misak community in academic discourse, reinforcing discussions on the intersection of Indigenous identity, gender, and sustainability.

2.4 Manuel Quintín Lame

Manuel Quintín Lame (1880-1967) is one of the most significant historical figures in the Indigenous rights movement in Colombia. Born in the Cauca region, home to the Misak community, Lame was an Indigenous Páez (Nasa) leader whose activism had a profound impact not only on his own people but also on the Misak and other Indigenous groups in the region.

His most important work, *En defensa de mi raza* (1971), is a deep reflection on discrimination, the dispossession of Indigenous lands, and the need for autonomy among Indigenous peoples. Through his writings and activism, Lame denounced the injustices faced by Indigenous communities, advocating for land rights and self-determination.

Although he was not a member of the Misak community, his efforts in the fight for the recovery of ancestral lands and the recognition of Indigenous rights greatly influenced later movements in Cauca, including those of the Misak. His ideas contributed to strengthening the political awareness of Indigenous communities, fostering the creation of organizations and resistance strategies that continue to shape the struggle for territorial and cultural rights today.

2.5 Belisario Camayo Güetio

Belisario Camayo Güetio is a Misak author and scholar who has dedicated his work to documenting and promoting the traditions and spirituality of his community. His research focuses on the role of Indigenous beliefs in maintaining social cohesion and strengthening the connection with the land, fundamental aspects of the Misak identity and cultural continuity.

Through articles and academic publications, Camayo has contributed to increasing the visibility of Misak cultural practices and traditional knowledge. His writings explore the Misak cosmological perspective and their spiritual relationship with Mother Earth, emphasizing how these principles shape daily practices and land management. His work serves as a valuable resource for understanding the Misak worldview and how spirituality influences their relationship with the environment and society.

2.6 Eduardo Calambás

Eduardo Calambás is a Misak leader and writer dedicated to defending the territorial and cultural rights of his people. Through numerous essays and academic articles, he has analyzed the process of Indigenous land recovery and the cultural resistance strategies employed by the Misak community to preserve their identity.

In addition to his research and writing, Calambás is an educator who advocates for bilingual and intercultural education as a means to preserve the *Nam trik* language and strengthen the transmission of traditional knowledge. His work highlights the importance of self-determination for the Misak, emphasizing how the defense of territory and culture are inseparable elements in the struggle for Indigenous rights. His contributions are essential for understanding the contemporary challenges faced by the Misak community and their commitment to building a sustainable future rooted in their identity and autonomy.

2.7 Álvaro Ulcué Chocué

Although he was not directly part of the Misak people, Álvaro Ulcué Chocué (1943-1984) was a key figure in the fight for Indigenous rights in Colombia. Born in the Cauca region, he was the first Indigenous Nasa Catholic priest and dedicated his life to advocating for social justice for Indigenous peoples. Through his speeches and writings, he denounced discrimination, land dispossession, and the marginalization of Indigenous communities, promoting a model of autonomy and self-determination.

Ulcué Chocué became a symbol of Indigenous resistance, and his work deeply influenced political and social movements in the region. His ideas also inspired the Misak people in their struggle to protect their ancestral rights and reclaim their territory. His legacy remains a reference point for Indigenous communities seeking justice, dignity, and autonomy.

2.8 José Jairo Rodríguez Cuadros

José Jairo Rodríguez Cuadros is a Colombian anthropologist and researcher who has dedicated part of his work to studying the Misak culture and their relationship with land and the environment. Although he is not an Indigenous author, his research has played a significant role in understanding the importance of ancestral land recovery for the cultural and spiritual continuity of the Misak people.

Through essays and academic publications, Rodríguez Cuadros has examined the deep connection between territory and Misak identity, highlighting how sustainable resource management is intrinsically tied to their worldview. His work has contributed to providing an external perspective that values Indigenous knowledge and its relevance in discussions on environmental sustainability and territorial rights.

2.9 Camila Navarrete González

Camila Navarrete González is an anthropologist who has conducted studies on the Misak people, focusing on education and social transformations within the community. Although she is not of Indigenous origin, she has collaborated with the Misak to collect testimonies on their struggles to preserve their culture and Indigenous identity.

Her work contributes to documenting the importance of Indigenous schools as tools of cultural resistance and transmission of traditional knowledge. Through her research, Navarrete González has analyzed the influence of agricultural practices and spirituality in Misak society, highlighting how these elements are deeply intertwined with their cultural identity and sustainable way of life.

3. Methodology

3.1 Research design

This research adopts an exploratory, qualitative, and inductive approach aimed at understanding the practices and worldviews of the Misak people through the analysis of field-collected data. The chosen approach is characterized by a focus on the Indigenous perspective, avoiding the application of predefined Western frameworks. The thematic categories were defined during the data analysis process, emerging directly from the collected narratives, following a procedure closely aligned with Grounded Theory (Glaser & Strauss, 1967; Charmaz, 2006).

During the field visit, a participant observation approach was adopted (Bernard, 2017; Spradley, 1980), enabling direct interaction with community members, observing their daily practices, and collecting data in an immersive manner. The methodology also incorporates elements of Participatory Action Research (PAR) (Lewin, 1946; Fals-Borda, 1987), emphasizing a participatory and reflective approach. This method positioned the Misak community as an active agent in shaping the narratives and sharing cultural practices.

One of the key methodological choices was to prioritize Indigenous voices by focusing on sources and narratives directly from the Misak community (Smith, 2012; Chilisa, 2012). However, relevant secondary materials were also collected and analyzed to establish a theoretical framework, thereby incorporating field data with external analyses to achieve a more comprehensive and nuanced understanding. This approach allowed for a more authentic comprehension while avoiding the imposition of external paradigms. Respect for privacy and cultural sensitivity guided every phase of the research (Smith, 2012), influencing methodological choices at every stage.

Cultural sensitivity played a central role in the adopted methodology, ensuring that the data collection respected the traditions, beliefs, and practices of the Misak community. Appropriate behaviors and language were adopted to avoid cultural misunderstandings and to foster an interaction based on mutual trust. Furthermore, special attention was given to understanding specific cultural contexts to prevent misinterpretations or the imposition of Western perspectives on Indigenous narratives (Chilisa, 2012).

Since the interviews and data analysis were conducted personally, individual perception inevitably acted as a filter in the collection and interpretation of data. This aspect was addressed by adopting

a reflective approach throughout all phases of the research, aiming to minimize biases, and allowing the interviewees' narratives to guide the interpretative process (Bernard, 2017).

The reflections emerging from the field experience and the reference literature, together with the guidance of Professor Chiara Ravetti from Politecnico di Torino and the consultancy of Professor Nestor David Correa Ortiz from Pontificia Universidad Javeriana in Cali, provided essential academic and methodological support for the in-depth study of the Indigenous Misak population in Colombia. The significant contribution of Professor Correa Ortiz, an expert with extensive knowledge of the community and long-standing research experience in the region, was crucial in gaining access to the Misak people and establishing a relationship of trust with the community members. Without his support, the entire visit and, consequently, the collection of essential data for this research, would not have been possible.

3.2 Primary data collection

The conducted interviews were guided by a flexible list of macro-themes and key questions identified during the planning phase, rather than by a rigid semi-structured questionnaire. These macro-themes, available in the appendix, provided a flexible reference framework during field conversations. Although many questions were formulated spontaneously during the meetings, the prepared list served as a guide throughout the process, especially when it was necessary to steer the dialogue towards specific aspects. In addition to the macro-themes, a series of progressively detailed questions were included to delve deeper into specific topics, allowing for a more comprehensive understanding of the subjects under discussion (Spradley, 1980).

In total, approximately 11 semi-structured interviews were conducted, involving four key informants from the Misak community, whose ages ranged from 30 to 50. These intervieees provided a diverse yet deeply rooted insight into the social dynamics of their community. Each discussion lasted between 30 minutes and two hours, depending on participants' availability and level of interest.

During these encounters, questions were adapted to follow the natural flow of conversation. Initial broad inquiries often led to more specific and targeted discussions, shaped by the interviewees' responses and the immediate context.

An interesting methodological aspect was observing how certain questions led to extensive discussions and unexpected insights, while others resulted in shorter or less relevant responses concerning the research objectives.

Before each interview, a list of general and specific questions was prepared, based on preliminary research and consultations with Professor Correa Ortiz. However, considerable flexibility was maintained to adapt the questions according to the responses and needs of the interviewees. For instance, if a participant emphasized the role of traditional medicine, follow-up questions were asked to explore specific healing practices and their cultural significance.

During the visit, sharing meals and accommodations with the community contributed to creating an environment of trust, allowing for a direct and immersive observation of the community's daily life.

Informed consent was obtained before each interview, explaining the research objectives, and ensuring their right to withdraw from participation or refrain from answering at any time. To ensure privacy and cultural sensitivity, the collected data was anonymized. Direct references to interviewees were included only with explicit consent. Special attention was given to adopting respectful language and behavior during the conversations, guaranteeing that local narratives were valued without being misrepresented or instrumentalized (Chilisa, 2012).

3.3 Secondary data collection

In addition to primary data, the research relied on secondary sources, including books, academic articles, official websites of the Misak community, and other relevant theses. In analyzing secondary sources, priority was given to Indigenous authors or those who provide an internal understanding of the Misak worldview (Smith, 2012; Chilisa, 2012). However, the methodological approach did not exclude contributions from external authors, whose work offers relevant and complementary perspectives.

Professor Ravetti's contribution provided a theoretical framework and useful tools to guide field research, while Professor Correa Ortiz's expertise supported the analysis of secondary data, helping to draw inferences from the collected observations.

3.4 Data organization and analysis

During the analysis phase, a cross-referencing process of sources was conducted to verify the validity of the collected information. For instance, statements from interviewees regarding traditional governance structures were compared with historical and legal documents on Indigenous self-determination, helping to contextualize and validate the findings. This process included comparing data obtained through interviews and field observations with information gathered from

secondary sources such as articles, books, and online documents. This approach allowed for clarification and further exploration of any discrepancies, ensuring that the findings were based on verified and contextualized data.

The analysis phase began with the transcription and cataloging of the interviews. Each interview was analyzed to identify macro-themes, which were subsequently divided into sub-themes to provide a structured and coherent view of the emerging content. To facilitate data organization, spreadsheets and thematic tables were used, where the collected information was first analyzed within each interview, identifying key insights and recurring patterns. Subsequently, similar topics across multiple interviews were grouped together, allowing for a comparative analysis of thematic consistencies and variations.

The thematic categories were defined during the data analysis process, starting from an initial framework aligned with the research objectives. This process enabled the identification and refinement of core analytical themes.

3.5 Accessibility and logistical context

Reaching the Misak community required careful planning. The journey is long and consists of the following steps:

1. with a bus ride of approximately three and a half hours from Cali to Piendamó;
2. one-hour bus ride to Silvia;
3. 15 minutes Jeep journey to reach the entrance of the community;
4. 20-minute walk to reach the center of the *pueblo* (village).

Although the *pueblo* is always accessible, obtaining prior permission and making proper arrangements is necessary, a task that was managed by Professor Nestor David Correa Ortiz. The visit was conducted by Professor Correa Ortiz and two researchers, maintaining a collaborative approach to the fieldwork.

The geographical isolation of the community represents a significant aspect: the nearest urban center, Silvia, is about 20-minute drive. This distance profoundly impacts daily life, as the community is immersed in nature and an extremely peaceful environment. In terms of services and resources, the community is self-sufficient, autonomously providing for its needs. However, for specific goods or services, residents travel to Silvia.

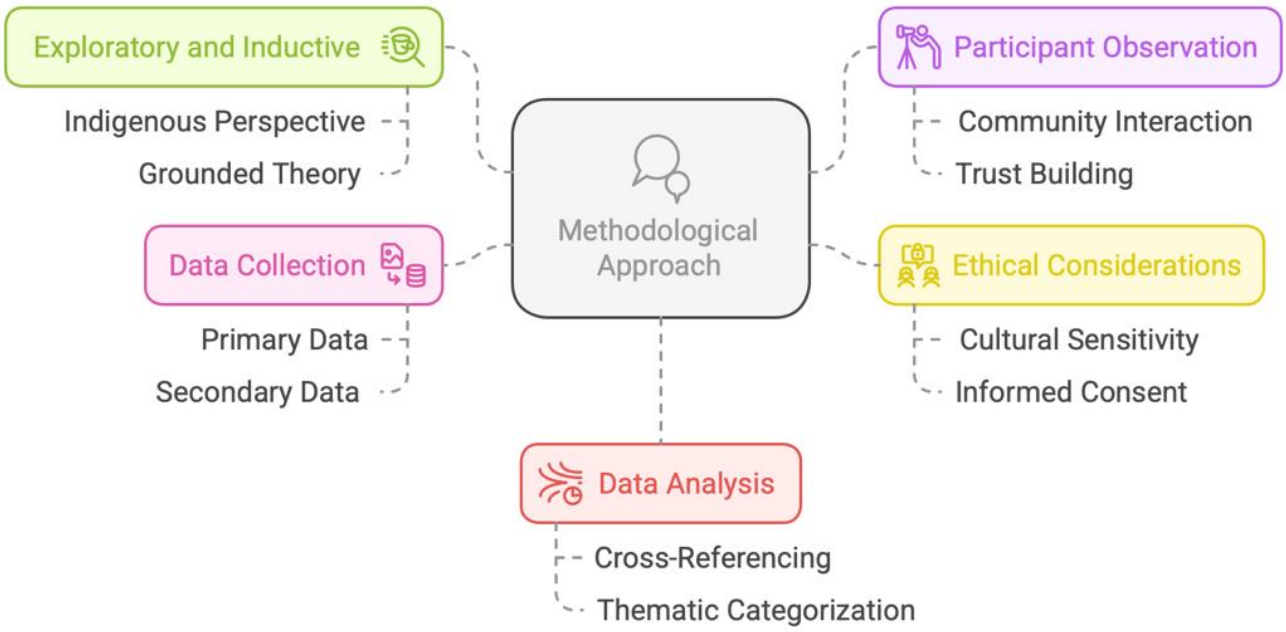

Figure 1: Methodological framework (Author's elaboration)

4. Contextualization and history

4.1 The role of Indigenous peoples in cultural and environmental conservation

Indigenous peoples are essential to preserving cultural heritage and maintaining biodiversity through sustainable land management and traditional knowledge. With over 476.6 million individuals present in more than 90 countries, these communities constitute over 5,000 distinct cultural groups and represent 6.2% of the world's population (International Labour Organization, 2020).

In addition to safeguarding an extraordinary cultural and linguistic heritage, Indigenous communities play a crucial role in ecosystem conservation. According to the World Bank, Indigenous peoples protect and manage approximately 22% of the Earth's land surface, which hosts 80% of global biodiversity (Sobrevila, 2008). These data highlight the deep connection between Indigenous communities and the natural environment, grounded in sustainable management practices passed down through generations.

The relationship between Indigenous peoples and their territories is intrinsically tied to spiritual beliefs, guiding conservation practices such as biodiversity protection, crop rotation, and sustainable water use. Studies show that deforestation rates in areas managed by Indigenous communities are significantly lower compared to other regions. For example, research conducted by Baragwanath and Bayi (2023) revealed that, despite Indigenous lands and protected areas covering more than half of the Brazilian Amazon forest, they accounted for only 5% of net forest loss between 2000 and 2021. These data underscore the effectiveness of Indigenous territorial management practices in forest conservation and biodiversity protection.

However, the study also highlights increasing external pressures on these territories: between 2018 and 2021, annual forest loss rates in Indigenous areas increased 3.6 times, a higher increase compared to unprotected areas, where the rise was 1.6 times. This trend emphasizes the urgency of strengthening protection measures for Indigenous lands, which remain one of the most effective tools in combating climate change and conserving global ecosystems (Baragwanath & Bayi, 2023).

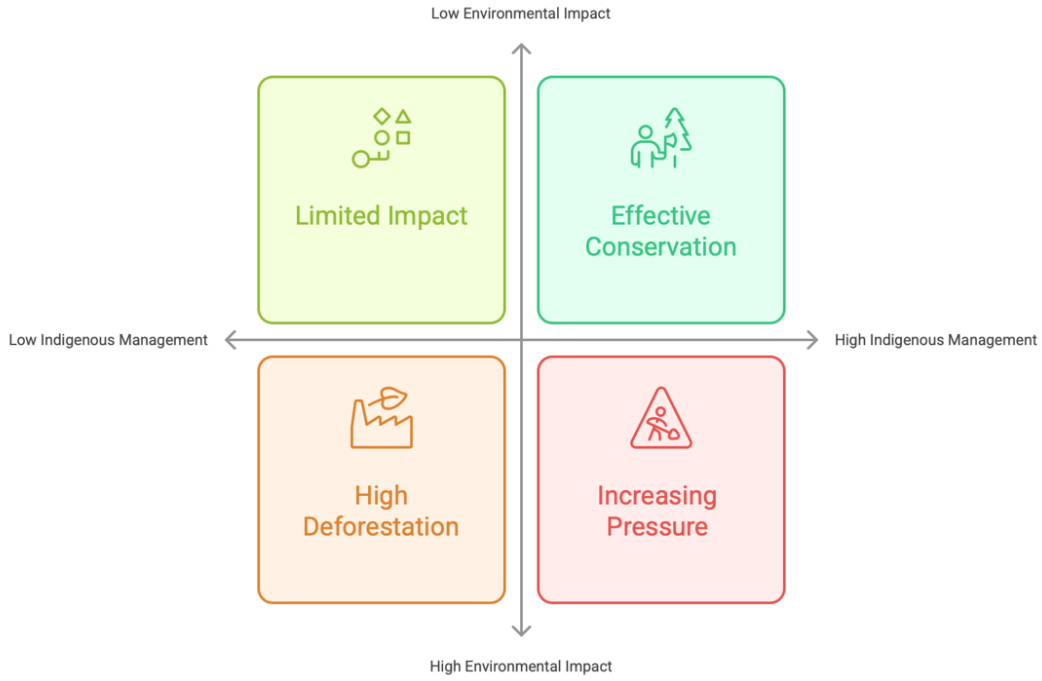

Figure 2: Indigenous land management and environmental impact (Author's elaboration)

Despite their fundamental contribution to environmental sustainability, Indigenous peoples face significant challenges related to lack of legal recognition, cultural and linguistic discrimination, and violations of territorial rights. The economic interests tied to Indigenous-managed lands, especially from extractive industries, represent constant pressure. Many communities choose isolation as a strategy to protect themselves from violence, resource exploitation, and land invasions (Survival International, 2008). Documented lethal attacks against Indigenous rights defenders continue to rise: in 2019, 212 defenders were killed globally, with Colombia being the most dangerous country, where 64 activists were murdered in the same year (Global Witness, 2020). On average, four defenders were killed every week since December 2015, the month the Paris Climate Agreement was signed (Global Witness, 2020). Only 15% of Indigenous populations live in countries that have ratified ILO Convention No. 169 (International Labour Organization, 2020), leaving the majority without necessary protections, even 30 years after the adoption of the convention itself.

With approximately 6,700 languages, Indigenous communities preserve not only their cultural identity but also extensive ecological knowledge, traditions, and worldviews. These languages are more than mere communication tools; they serve as living archives that encapsulate ancestral wisdom on sustainable agriculture, natural resource management, and ecological balance.

However, approximately 40% of Indigenous languages are at risk of extinction within the next century (UNESCO, 2022). The loss of a language entails not only the disappearance of a means of

expression but also a unique knowledge system, with serious consequences for both local communities and humanity as a whole. For instance, many Indigenous languages, such as Kayapó spoken in the Amazon, include specific terms that describe ecological relationships and natural cycles in detail, offering a valuable legacy for global sustainability.

The protection of Indigenous languages is recognized as a priority at the international level. The United Nations 2030 Agenda for Sustainable Development emphasizes the importance of preserving cultural heritage to "leave no one behind" (UN, 2015). Protecting Indigenous languages is closely linked to the Sustainable Development Goals (SDGs), particularly:

- SDG 4: Quality Education
- SDG 16: Peace, Justice, and Strong Institutions

The International Decade of Indigenous Languages (2022-2032), promoted by UNESCO, aims to integrate Indigenous languages into educational systems, media, and cultural policies, highlighting their role in sustainability and social cohesion. These initiatives seek not only to preserve languages but also to actively promote their daily use within communities, ensuring future generations can access and contribute to this rich cultural heritage.

Over 100 tribes live in deliberate seclusion to avoid threats such as epidemics and devastating violence. These groups represent the most vulnerable communities on the planet, facing severe threats due to the lack of legal protections and rising incursions into their territories. The right to self-determination and protection of these communities must be guaranteed globally, recognizing their right to live according to their traditions and in harmony with their territories (Survival International, 2008).

The protection of these tribes is closely connected to the SDGs, especially SDG 16 (Peace, Justice, and Strong Institutions), which promotes equitable access to justice and human rights protection for all. However, ensuring their survival requires stronger global commitments to protect their lands and respect their autonomy.

The international community has a responsibility to adopt policies that ensure the security and non-interference of these populations. Organizations like Survival International continue to emphasize the importance of recognizing and protecting the territorial rights of these communities, as any intrusion can have devastating consequences for their health and cultural integrity.

Furthermore, dialogue between Indigenous knowledge systems and modern science can provide innovative solutions to global environmental, health, and social challenges. Indigenous peoples not only safeguard ancestral traditions but also adapt and integrate them with scientific methodologies, offering new perspectives for sustainability. For example, Sami communities in Scandinavia collaborate with scientists to monitor climate change using traditional seasonal observation methods. These techniques detect subtle environmental changes that might escape conventional scientific analysis, demonstrating the value of Indigenous knowledge in climate resilience.

In pharmacology, Indigenous communities have contributed significantly to modern medicine. Many modern pharmaceuticals derive from medicinal plants traditionally used by Indigenous healers (WHO, 2013). Their ancestral knowledge has influenced natural compound research, playing a crucial role in the development of treatments for various diseases.

This synergy between traditional knowledge and modern science is closely linked to the SDGs, particularly:

- SDG 9: Industry, Innovation, and Infrastructure
- SDG 3: Good Health and Well-being

The 2030 Agenda for Sustainable Development and the Paris Climate Agreement (2015) on climate change recognize the unique and critical role of Indigenous peoples as partners in combating climate change. Their traditional knowledge, combined with modern strategies, can significantly contribute to achieving the SDGs, particularly:

- SDG 13: Climate Action
- SDG 15: Life on Land
- SDG 6: Clean Water and Sanitation

Finally, Indigenous peoples play a key role in achieving the Sustainable Development Goals. By protecting forests, they mitigate CO2 emissions, preserve biodiversity, and improve access to water resources.

Studies show that areas managed by Indigenous communities not only better preserve biodiversity but also function as natural carbon reservoirs, significantly contributing to mitigating global

warming. Only through full respect for these rights can Indigenous peoples continue to serve as guardians of biodiversity and essential partners in combating climate change and building fairer and more sustainable societies.

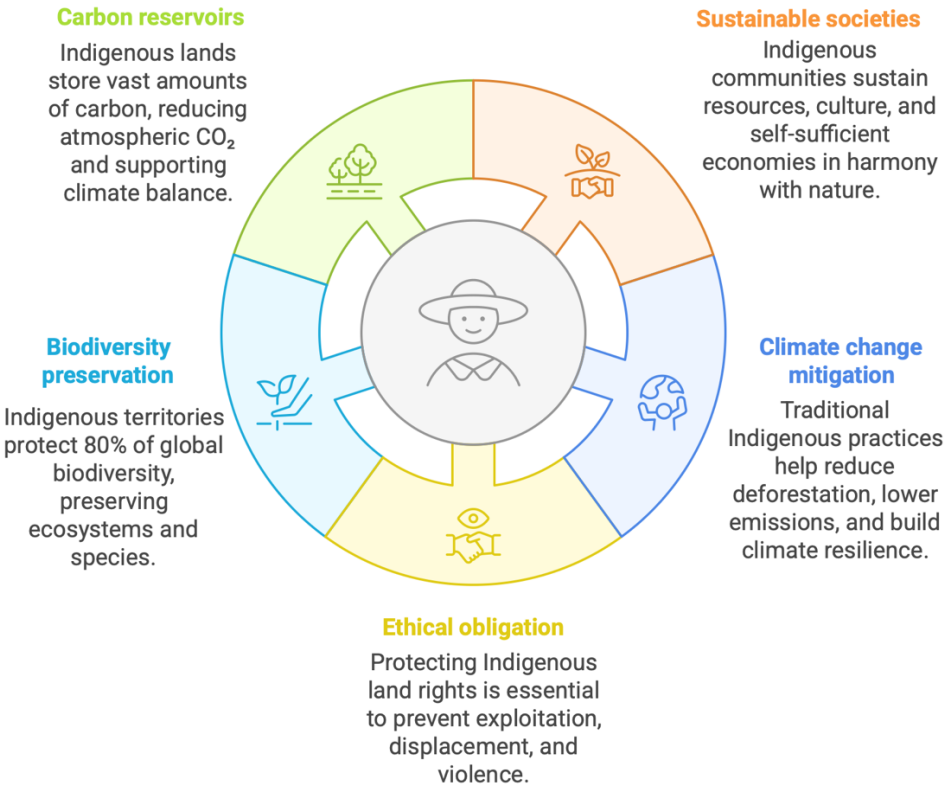

Figure 3: Indigenous custodianship (Author's elaboration)

The resilience of Indigenous peoples, who have managed to preserve their identity and traditions despite centuries of colonization, exploitation, and marginalization, represents an indispensable resource for the global community today.

Integrating this knowledge into the global context is a crucial step toward both historical justice and the creation of a future where humans and nature coexist in harmony. Recognizing Indigenous peoples as active contributors to sustainable development allows for the integration of their ancestral knowledge into contemporary environmental, social, and economic strategies development.

4.2 Guardians of Colombia: culture, territories, and Indigenous biodiversity

Colombia is one of the most culturally and environmentally diverse countries in the world. Indigenous peoples represent a fundamental component of this richness, with approximately 1,905,617 people belonging to 115 distinct groups, constituting 3.4% of the total population

(DANE, 2018). These communities extend across the entire national territory - from the Andean valleys to the Amazon, through the Caribbean, the Pacific, and the eastern plains - maintaining a deep spiritual and cultural connection with their lands.

Ancestral territories, formally recognized as *resguardos* (Indigenous reserves), cover about 31.5% of the national territory, equivalent to 36 million hectares out of a total of 114,174,800 hectares in the country (DANE, 2018). Resguardos are not just geographical spaces but legal bases granting Indigenous communities territorial rights, allowing them to manage natural resources according to ancestral traditions. In other words, resguardos are spaces of autonomy where Indigenous populations can preserve their culture, biodiversity, and natural resources away from external influence. The official recognition of resguardos was established by the Constitution of 1991, which guaranteed the territorial rights of Indigenous peoples and stipulated that these lands cannot be exploited without the consent of the communities themselves. Resguardos are therefore an essential part of Colombia's legal system, ensuring self-determination and sustainable resource management. These territories are also sacred to Indigenous communities, representing places of spirit and deep connection with nature.

Colombia hosts an extraordinary linguistic diversity, with 65 Indigenous languages belonging to 13 different linguistic families (IWGIA, 2020). These languages are not only communication tools but genuine archives of ecological knowledge, cultural traditions, and worldviews, enabling Indigenous populations to transmit sustainable practices and a profound connection with nature.

However, about 45 of these languages are considered severely endangered (UNESCO, 2021), primarily due to the loss of ancestral territories, cultural discrimination, and globalization imposing dominant languages and practices. The disappearance of a language implies not only the loss of a communication medium but also the collapse of a traditional knowledge system, essential for biodiversity conservation.

For example, the Arhuaco of the Sierra Nevada de Santa Marta consider the mountain the "heart of the world" and use their language to transmit a worldview intertwining spirituality and sustainability. Language is essential for preserving their knowledge of agricultural practices and natural resource management. The Tikuna of the Amazon, on the other hand, use their languages to preserve and disseminate knowledge related to polyculture, forest management, and natural cycles, with unique concepts crucial for ecological sustainability.

Indigenous populations serve a crucial function in biodiversity conservation and global sustainability. During COP16 on biodiversity, held in Cali (Colombia) from October 21 to November 1, 2024, one of the most important international events recognizing the contribution of Indigenous peoples, their fundamental role in protecting ecosystems was highlighted. COP16, the UN Conference of the Parties to the Convention on Biological Diversity (CBD), officially acknowledged that Indigenous peoples are among the best custodians of global biodiversity. This event strengthened the link between environmental conservation and Indigenous territorial rights, promoting more inclusive and equitable policies.

In Colombia, the government has recognized the central role of these communities by granting them the status of environmental authorities, giving them decision-making power over the management and protection of their territories. This recognition led to the formulation of laws and regulations ensuring the sustainable management of natural resources and the protection of local ecosystems.

Traditional knowledge of Indigenous communities, such as crop rotation, water resource management, and sustainable harvesting of medicinal plants, contributes to the protection of local biodiversity and also to mitigating the effects of climate change. Areas managed by Indigenous populations are better conserved compared to those administered by governmental or private entities, with a significant reduction in fires and other ecological threats.

One of the main outcomes of COP16 was the creation of the Cali Fund, aimed at ensuring that benefits derived from genetic resources are shared equitably with local communities. Additionally, a permanent working group composed of Indigenous representatives was established, with dedicated resources to support their conservation initiatives.

Recognition as environmental authorities offers numerous benefits to Indigenous populations, including greater autonomy, access to financial resources for conservation projects, and opportunities for sustainable local economies, such as ecotourism and sustainable forest management. This strengthens their cultural rights, allowing the continuation of traditional practices and fostering international collaboration to promote more equitable and inclusive policies.

Indigenous populations can now:

- Directly manage their territories, implementing sustainable practices reflecting their ancestral knowledge.

- Develop sustainable local economies, such as ecotourism and the sale of artisanal products.
- Access international financial resources to support conservation projects.
- Collaborate with global actors to share knowledge and collectively address environmental challenges.

Despite progress, Indigenous populations face significant threats. Among these, territorial conflicts represent a constant challenge, with pressures from extractive activities, deforestation, and intensive agricultural projects compromising the rights and security of communities. Indigenous peoples often face intimidation and violence for opposing harmful projects. Moreover, the effects of climate change alter local ecosystems, threatening food security and traditional practices (Global Witness, 2020).

According to Global Witness, Colombia is one of the most dangerous countries for environmental defenders, with numerous documented murders and threats each year (Global Witness, 2020). Recognizing Indigenous populations as environmental authorities represents a significant transformation for Colombia. Strengthening their autonomy and protection of ancestral territories promotes sustainable natural resource management, benefiting both local communities and the global environment. However, to ensure the success of these initiatives, it is essential to continue providing adequate resources, inclusive policies, and protection against external threats.

4.3 Misak people: history, resistance, and the recovery of collective memory

The Misak people, often referred to as Guambiano in external sources, are an Indigenous community residing in the high Andean valleys of the Cauca department in south-western Colombia. Their land, which mainly extends into the municipality of Silvia and the resguardo of Guambía, is not merely a physical place but a living and sacred entity central to their cosmology.

According to the DANE census (2005), the Misak population was estimated at around 21,000 people, though more recent data suggests growth due to high birth rates in Indigenous communities. The term Misak means "children of the rainbow and water," referring to the community's deep connection with natural elements and life cycles. Water, in particular, plays a central role in their worldview: it is life, movement, and connection, and the rivers flowing through their lands represent the bond between past, present, and future.

In recent decades, the community has implemented bilingual schools to teach *Nam trik* (their Indigenous language) and Spanish, but also to transmit the spiritual and cultural practices embedded in the language. These efforts are crucial in countering language loss caused by colonization and Western educational models imposed on them.

Archaeological traces indicate that the Misak have inhabited this region for at least 2,000 years. Remnants of terraced agriculture, advanced irrigation systems, and stone tools demonstrate how they developed a sustainable adaptation model to the mountainous environment. Their cosmology assigns a spirit and meaning to every natural element - rivers, mountains, trees - considering them part of an interconnected system.

The arrival of the Spaniards in the 16th century marked a period of profound transformation and suffering for the Misak people. Colonization manifested through the confiscation of lands, destruction of native forests, and imposition of an agrarian and pastoral exploitation system alien to their culture. The Misak were deprived of their autonomy and reduced to *terrajeros* (a colonial system of land tenancy in which Indigenous people were forced to work for Spanish landlords on their own ancestral lands under exploitative conditions). But colonization did not stop at material dispossession, as one interviwee stated:

> "They wanted not only our lands but also our souls. With religion and schools, they tried to erase who we are."

Catholic religion, Western educational models, and colonial institutions sought to erode collective memory and impose an identity foreign to the Misak. However, cultural resistance manifested in the preservation of language, spiritual practices, and textile traditions.

Among the most emblematic figures of Indigenous resistance stands Chura Manuela, a spiritual leader who became a symbol of the cultural survival of the Misak. During the colonial period, Chura Manuela took refuge on Mount Churamanela, today considered a sacred place, where she preserved and transmitted the ancestral knowledge of the community. As one interviwee shared:

> "Chura Manuela sacrificed everything to protect our roots. Her memory lives on in the mountain, where we still go today to honor her."

This place remains a spiritual reference point for the community, symbolizing their connection to the land and ancestors.

In 1980, during their First Assembly, the Misak declared firmly:

> "We are a people, and we want to recover everything."

This marked the beginning of a struggle not only for the recovery of lands but also for reclaiming their history and identity. In 1982, the Misak *Cabildo* (traditional Indigenous council) founded the History Committee, an initiative involving elders, community leaders, and scholars to recover collective memory.

The importance of this work is evidenced by the book Guambianos: *Hijos del Arcoíris y del Agua*, written by Abelino Dagua Hurtado and Misael Aranda, members of the History Committee of the Guambian *Cabildo*, along with anthropologist Luis Guillermo Vasco Uribe, a professor at the Universidad Nacional de Colombia. Published for the first time in 1998 and updated in its second edition in 2015, the book aims to tell the Misak story from their own worldview, contrasting official versions that for centuries sought to erase or distort their identity.

The text represents a historical reconstruction based on direct testimonies from the community, collected through extensive ethnographic and collaborative research involving members of the History Committee and external scholars. This project helped overcome a long silence imposed by colonization, restoring the community's voice and worldview.

During the 1970s and 1980s, the Misak successfully recovered part of their lands through community resistance strategies. The recovery of Hacienda Las Mercedes (a former large estate in the Cauca region, reclaimed by the Misak as part of their struggle for territorial rights) was a symbolic moment in this struggle:

> "Recovering the land meant recovering everything for us: our traditions, our language, our future"

Today, the Misak people continue to defend their territory and culture through education, sustainable resource management, and the transmission of ancestral knowledge. Their struggle is not only about identity but fits into the broader context of environmental sustainability and social justice, aligning with the UN SDGs, particularly:

- SDG 4:Quality Education, for the promotion of ancestral knowledge through bilingual schools and Indigenous educational programs.

- SDG 15: Life on Land, for biodiversity protection and sustainable territorial management.

- SDG 16: Peace, Justice, and Strong Institutions, for political and legal recognition of Indigenous rights.

  As state by one intervieewe: “The past is not just memory, but also guidance for the future. The struggle of the Misak shows that the bond with the land and culture is not just a matter of identity, but of survival.”

Table 2: SDGs highlighting the role of Indigenous communities and Misak community (Author’s elaboration)

SDG	FOCUS	DETAILS
SDG 3: Good health	Indigenous peoples worldwide	Guard traditional medicinal knowledge and practices Face challenges in accessing healthcare Protect biodiversity with holistic resource management
	Misak	Emphasize sacred waters and their role in community health Preserve knowledge of medicinal plants through the Nam trik language Implement bilingual schools to integrate traditional healthcare concepts
SDG 4: Quality education	Indigenous peoples worldwide	Hold a vast linguistic heritage, many languages at risk of disappearing Strive to integrate ancestral knowledge into formal education Face remote geographic barriers and cultural discrimination
	Misak	Use bilingual schools (Spanish + Nam trik) to keep cultural and spiritual teachings alive Employ an autonomous educational model rooted in Misak cosmology Link land recovery efforts with culturally relevant educational spaces
SDG 6: Clean water and sanitation	Indigenous peoples worldwide	Rely on community-based water resource management Protect vital water sources through spiritual and cultural practices Face increasing threats from deforestation and extractive activities
	Misak	Treat rivers as sacred entities, with collective norms to safeguard them Maintain traditional terraced agriculture adapted to local water cycles Link water protection directly to territorial defense
SDG 9: Industry, innovation	Indigenous peoples worldwide	Combine traditional wisdom and modern science (e.g. climate monitoring) Develop agroforestry and sustainable production models

and infrastructure		Often lack essential infrastructure (roads, connectivity) due to remoteness
	Misak	Encourage local craftsmanship and terraced farming techniques for potential eco-friendly innovation Use *cabildo* (Indigenous council) for decision-making on sustainable tech projects Collaborate with universities for agricultural research
SDG 13: Climate action	Indigenous peoples worldwide	Safeguard extensive lands rich in biodiversity Rely on low-carbon traditional practices and microclimate adaptations Face land loss due to deforestation and competing interests
	Misak	Live in high-Andean areas with resilient farming systems Pass on oral stories warning against resource overuse Engage politically and legally to slow deforestation in surrounding areas
SDG 15: Life on land	Indigenous peoples worldwide	Practice traditional forest management and crop rotation Show lower deforestation rates on Indigenous lands Under pressure from illegal exploitation and weak legal protections
	Misak	Consider mountain forests and lagoons as living, sacred entities Use terracing to reduce erosion and maintain local tree coverage Defend sacred sites like Mount Churamanela as a spiritual guardian of biodiversity
SDG 16: Peace, justice, and strong institutions	Indigenous peoples worldwide	Struggle with territorial disputes, violence against environmental defenders Often lack full legal recognition Advocate globally for self-determination and protection of isolated communities
	Misak	Utilize *cabildo* as recognized Indigenous authority Recover ancestral lands to ensure peace and justice Develop autonomous structures in education and health to strengthen local institutions

5. Knowledge management

5.1 Cultural transmission and knowledge management in the Misak identity

Education model is heavily focused on transmitting Misak people's identity and cultural values. Unlike Western educational models, which tend to compartmentalize knowledge into distinct disciplines, the Misak follow a holistic, communal, and decentralized approach that preserves knowledge as a collective resource.

A key figure in this process is the *sabedor* (wise elder), who serves as both an authority and a knowledge manager. This role is analogous to mentorship programs in engineering and corporate settings, where experienced professionals guide their juniors to retain core competencies.

Education within the Misak community follows a cyclical structure, described through the metaphor of "unrolling and rewinding" the thread of authority and knowledge. This cyclical system resembles feedback loops in learning organizations, where ensures knowledge is continuously acquired, refined, and reintegrated, reinforcing adaptive learning, an approach increasingly adopted in sustainable engineering and innovative business models.

A fundamental principle of Misak culture is collective responsibility for knowledge transmission, mirroring open-source knowledge-sharing models. In this system, where the community itself ensures that learning remains communal and dynamic.

Simultaneously, the connection with nature underpins Misak education, treating the environment as an interactive platform for learning. Children learn technical skills, such as plant recognition and land management, along with a systemic view of sustainability. This reflects modern frameworks, for example, ISO 14001, that integrate environmental knowledge into strategic decision-making.

Finally, cross-cultural exchanges enable young Misak to share their knowledge with Western institutions, fostering innovation and co-creation.

Table 3: Misak knowledge management vs organizational learning (Author's elaboration)

Element	Misak Knowledge Management	Modern Organizational Learning
Mentorship	Sabedores guide the community	Senior employees mentor younger workers

Knowledge Transfer	Oral, experiential, and collective learning	Structured in databases and training programs
Adaptability	Cyclical and evolving learning process	Continuous learning and adaptation models
Sustainability	Integrated with environmental management	Applied to ESG strategies and corporate sustainability

5.2 Education

5.2.1 Community learning in the circular school

Education in the Misak community follows a circular approach. Instead of a teacher-centeric model, students sit in a circle, creating room for dialogue and co-construction of knowledge. This is not just a logistical choice but a broader conception of learning.

Formal and informal education intertwine, integrating traditional wisdom with modern learning. In this circular framework, the *abuelos* (the elders) pass down the Misak cultural heritage, teaching topics like medicinal plant use, agricultural techniques, and local history. Their involvement ensures that learning is grounded in real experience and collective memory.

A key element is linguistic and cultural revitalization. Faced with a decline in *Namuy Wam* (Misak language) usage, caused by assimilation and external cultural pressures, the Misak use education to reclaim their language, traditional names, rituals, and symbols. As the *abuelos* say, “each word carries the sound of the earth, rivers, and wind”, underlining the deep bond between language, identity, and territory.

Misak education does not proceed linearly but follows a cyclical model represented by the spiral of life, embodying the concept of “*ir y venir*” (coming and going). Young people leave the community to acquire skills and return to share their learning, ensuring continuous enrichment. Fire is a powerful symbol in this process: learning traditionally begins around the fire, where elders share stories and values.

5.2.2 Academic exchanges and the integration of Indigenous knowledge

Misak education is notably open to collaboration with universities and research centers. Rather than viewing external academia as a threat, the community leverages these interactions to reinforce its cultural and environmental heritage while enhancing ancestral knowledge.

San Fernando is known for welcoming researchers and university students who conduct field studies and implement projects useful to the community. These interactions create a two-way flow of knowledge, where the Misak are active co-creators of insights.

Young Misak leaders play a crucial role by guiding visiting academics to ensure that external knowledge aligns with local needs, while researchers collaborate in daily activities, producing outcomes that benefit the entire community.

5.2.3 The Misak university: a model of knowledge management and sustainable education

The Misak University integrates ancestral wisdom with contemporary approaches, offering a distinct educational model anchored in the community's worldview. Founded to preserve and strengthen cultural autonomy, it merges tradition with modern tools, preparing youth to confront present challenges while retaining their identity.

Its curriculum ranges from sustainable resource management and traditional medicine to agriculture and artistic expressions. Each course aligns with core Misak principles, including *Namuy Wam* language instruction, spiritual rituals, and identity symbols, creating an immersive experience, where nature and culture are inseparable.

Active involvement of *abuelos* and community leaders ensures that teaching is not unidirectional but involves oral transmission of practical skills and values such as land stewardship, reciprocity, and solidarity.

Spirituality is central: every discipline acknowledges the interconnectedness of humans, nature, and ancestral spirits, with rituals of gratitude to the earth integrated into the learning process. This immersive approach transforms the university into a tool for self-determination, encapsulated by the motto mentioned in chapter 4 "recovering the land means recovering everything."

5.3 Case studies

5.3.1 Proyecto Educativo Guambiano (PEG): A model of self-determined education

The Proyecto Educativo Guambiano (PEG) is the foundation of the Misak autonomous education system, acting as both a knowledge management framework and a strategy for sustainability. More than an educational plan, PEG is an example of self-determination and cultural resilience, ensuring that knowledge transmission aligns with the Misak *cosmovisión* (a term frequently used for mesoamerican cultures *Weltanschauung*) while adapting to contemporary challenges.

Through PEG, the Misak counteract knowledge erosion and resist assimilation into the national system. Distant from linear educational models, PEG is holistic, cyclical, and interconnected, mirroring modern learning organizations where knowledge evolves through communal participation.

According to the official PEG document,

"La educación propia se fundamenta en el conocimiento ancestral, en la cosmovisión Misak y en la relación armónica con el territorio, garantizando la pervivencia cultural y social de la comunidad."("Self education is based on ancestral knowledge, in Misak world vision and in the harmonic relation with territory, guaranteeing cultural and social survival of the community.").

This statement underscores that Misak education goes beyond transferring facts, serving as an intergenerational system where students learn through the environment and social structures.

Avoiding compartmentalized knowledge into distinct disciplines, PEG promotes a systemic and interdisciplinary approach. Its structure is built upon four fundamental dimensions that reflect core elements of organizational learning and sustainability frameworks.

- The first dimension is *territorio* (territory), which is not merely a physical space but an integral part of identity and spirituality, reinforcing place-based learning. This aligns with environmental governance models and sustainable land management frameworks, such as ISO 14001.
- The second dimension is *espiritualidad* (spirituality), which permeates the educational process and manifests through a strong connection with *Pishimisak*, the ancestral and spiritual guides of the community. This approach mirrors corporate culture strategies and

purpose-driven leadership models often linked to SDG 4 (Quality Education) and SDG 15 (Life on Land).

- The third dimension is *comunidad* (community), which forms the foundation of individual development, strengthened through collective practices like *minga* (collective labor) that reinforce social cohesion and solidarity. This dimension can be compared to open innovation practices and peer-learning organizations that prioritize shared knowledge systems.

- The fourth dimension is *identidad* (identity), maintained through the central role of the *Namuy Wam* language and the preservation of oral traditions, aligning with cultural sustainability models and corporate strategies focused on knowledge retention.

Table 4: Strategic structure of PEG (Author's elaboration)

Dimension	Educational Function	Strategic Business Parallel
Territory	The land is not just a physical space but an identity and spiritual element, reinforcing place-based learning.	Environmental governance and sustainable land management (ISO 14001).
Spirituality	Education is not neutral; it is rooted in Misak cosmology and collective values, which influence governance and decision-making.	Corporate culture and purpose-driven leadership (alignment with SDG 4 & SDG 15).
Community	Knowledge is shared, not owned, and reinforced through collective learning and *Minga* (collaborative labor).	Open innovation and peer-learning organizations.
Identity	The *Namuy Wam* language is the cornerstone of education, ensuring continuity in knowledge transmission.	Cultural sustainability & knowledge retention models in businesses.

Moreover additional elements are integrated into PEG: the importance of sustainability and food autonomy, encapsulated in the concept of "*Parásat*" (being prepared for life), and bilingualism as

a core pillar to preserve cultural identity. Furthermore, the governance of PEG is autonomously managed by the *Cabildo*, which ensures decentralized decision-making that reflects the Misak perspective on education and cultural preservation.

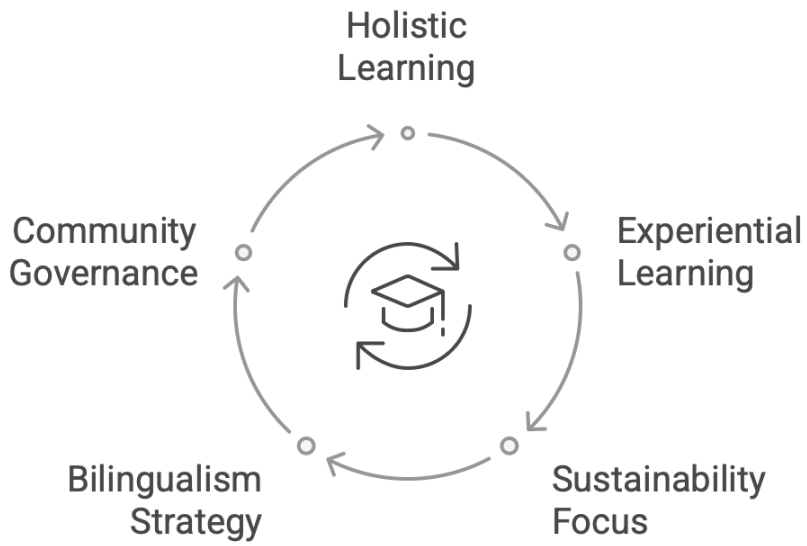

Figure 4: Key Principles of the PEG educational model (Author's elaboration)

Ultimately, PEG transcends a mere educational initiative to embody a comprehensive, strategic framework for long-term cultural sustainability. Its holistic design ensures that learning is dynamic, interconnected, and deeply rooted in the community's way of life, thereby offering valuable insights for integrating resilient and adaptive knowledge systems within broader organizational contexts.

5.3.2 *Tulampiya* (sacred learning space) and the transmission of knowledge

The *Tulampiya* is a circular structure symbolizing the maternal womb, serving as a sacred space where *abuelos* safeguard collective memory and ancestral wisdom. Through storytelling and dialogue, they impart practical knowledge alongside the community's core values of reciprocity, harmony with nature, and collective responsibility.

The *Tulampiya* epitomizes intergenerational connection and the cyclical nature of life. Its architectural design features four pillars symbolizing the four elements - air, water, fire, and earth - as well as the duality of man and woman, while the central *Nakú* (sacred fire) beats as the heart of the community.

Education within the *Tulampiya* follows a circular logic that reflects the Indigenous perception of time as non-linear; here past, present, and future intertwine. *Abuelos* not only teach but also listen, fostering a reciprocal flow of knowledge: when youth acquire new insights, they return them to the community, thus perpetuating the cycle of learning.

Moreover, the *Tulampiya* hosts rituals and collective reflection sessions that reinforce the connection between ancestral know-how and the sacred dimension of life. The concept of *pervivencia Misak*, denoting the continuity of life and culture, is embodied in this space, where learning entails preserving, adapting, and co-creating knowledge to address contemporary needs.

Families also gather around the central fire to share, discuss, and transmit knowledge, reinforcing the *Tulampiya* as a bastion of cultural resistance and a dynamic knowledge hub.

Figure 5: Tulumpiya (Author's elaboration)

5.3.3 *Yatul* (family garden) as educational spaces

The *Yatul* is a cornerstone of Misak education, merging knowledge transmission, sustainability, and food autonomy. Each family cultivates a garden that, on top of ensuring food and medicinal plants, provides an everyday learning environment where children acquire practical skills.

Within this intergenerational, participatory model, *abuelos* teach essential techniques for plant and resource management, and biodiversity conservation, extending learning to traditional medicine, water management, and the spiritual relationship with the land. Cultivation becomes a mean to form a reciprocal bond between humans and nature, aligning with principles in sustainability engineering and social responsibility.

Children learn by observing and actively contributing to agricultural tasks—such as measuring seed quantities and monitoring growth cycles—thus internalizing cooperation, responsibility, and respect. The harvest is transformed into community products (e.g., ointments and essential oils), fostering a circular economy that integrates ancestral practices with modern needs.

Environmental education is further reinforced in the *Jardín Botánico*, which serves as both a conservation space for native plants and a practical learning environment. Here, students, families, and visitors engage in activities such as composting, recycling, and constructing *techos vivientes* (living roofs) from recycled materials, exemplifying sustainable architecture through intercultural exchange.

Moreover, tourists can participate in immersive educational experiences focusing on plant harvesting, natural remedies, and Misak spirituality, thereby promoting intercultural dialogue and reinforcing the community's commitment to tradition in everyday life.

Figure 6: Repurposed shoes as plant pots (Author's elaboration)

Figure 7: Living roof (Author's elaboration)

5.3.4 Jardín Botánico de Las Delicias

The *Jardín Botánico de Las Delicias* represents one of the most significant examples of integrated sustainability within the Misak community, combining environmental conservation, education, and cultural autonomy. Founded in 1999, the garden is the result of decades of struggles for land and a commitment to preserving local identity and the ecosystem. Its origins trace back to the vision of *abuelo* Javier Calambás, a community leader who imagined a place where ancestral knowledge could coexist with scientific understanding, always maintaining a relationship of balance and reciprocity with nature.

Known in the Namrik language as *Θsik Waramik PurΘk Tapshik*, the Jardín embodies the idea of *an Escuela Viva de la Naturaleza*, where environmental protection is intertwined with Misak culture and spirituality, an instrument through which the Misak people defend their right to live in harmony with their territory.

Figure 8: At the entrance of the Botanical Garden with Professor Nestor David Correa (Author's elaboration)

The initiative was made possible thanks to the joint efforts of *Taita* (healer) Javier Calambás, leader in the movement for Misak land and culture preservation, Gustavo Adolfo González, filmmaker and screenwriter, and Sandra Cecilia León, anthropologist and environmental studies expert. A key moment in its creation was the 2002 purchase of 74 hectares of high Andean cloud forest, with the support of the Fondo Para Acción Ambiental and Corporación ECOFONDO. This action initiated an extensive project focused on ecological restoration, the creation of nurseries for endangered species, and the development of a community-based environmental education program.

Located in the Department of Cauca, the Jardín Botánico is situated in an area of extraordinary ecological significance, within the Macizo Colombiano, the Andean Biosphere, and the Pacific Biological Corridor. This region, one of the most biodiverse in the world, is also among the most threatened by deforestation and monoculture farming. Instead of passively succumbing to external pressures, the Misak people have transformed their territory into a center for learning, research, and cultural transmission, demonstrating that environmental protection is inseparable from the defense of their identity.

One of the Jardín's primary goals is the preservation of local biodiversity, achieved through reforestation projects that involve the replanting of native species, such as *aliso* (alder) and *laurel de cera* (bay tree), which are essential for maintaining the Andean ecosystem's balance. This effort goes beyond mere environmental restoration: for the Misak community, restoring vegetation also

means re-establishing a spiritual connection with the land, which is not viewed as a resource to be exploited, but rather as a sacred entity to which they belong.

At the same time, the Jardín plays a crucial role in environmental education, offering workshops, educational trails, and practical activities for both community members and external visitors. These initiatives teach sustainability practices such as composting, material recycling, and the construction of living roofs, which integrate ecological architecture principles with Indigenous knowledge. Education is not a one-way process: through sustainable tourism, the Jardín creates opportunities for intercultural exchange, allowing visitors to learn from Misak practices, while the community, in turn, integrates new tools without compromising its identity.

Figure 9: Living roof of the artisan house (Author's elaboration)

Beyond education, the Jardín is also a scientific research center, collaborating with universities and academic institutions to study local biodiversity, the medicinal properties of plants, and traditional agricultural techniques. This dialogue between ancestral knowledge and academic research represents an example of cultural hybridization, where Misak knowledge is actively valued as an integral part of scientific research. Through this approach, the community demonstrates that Western science and Indigenous wisdom are not opposing models but can coexist in a relationship of reciprocity.

The Jardín Botánico is also a space for cultural recovery, where spirituality and traditions find expression through ceremonies and collective rituals. Events such as *siembra de la placenta* (burial of umbilical cord) symbolize the connection between new generations and the land, reaffirming the continuity of Misak culture. In this context, cultural sustainability plays a crucial role: the community does not simply preserve its heritage, but constantly renews it, adapting it to present-day challenges without losing its fundamental principles.

Another critical aspect is territorial autonomy, which is realized through community-led management of natural resources, in accordance with the rights recognized by the Colombian government for Indigenous peoples. The Misak reject the idea of centralized control over their lands and assert their right to make autonomous decisions about their environment. The Jardín Botánico is a symbol of resistance and self-determination, a place where the community reaffirms its right to live according to its own values, without having to accept externally imposed models.

To fulfill its mission, the Jardín Botánico has developed six main programs, known as "*estantillos*", which guide its activities:

- *Fortalecimiento Cultural*: Aims to preserve cultural practices related to Misak *cosmovisión*, the traditional food system, and artistic expressions.
- *Conservación*: Focuses on protecting local ecosystems through sustainable strategies.
- *Educación*: Promotes traditional and intercultural learning methods to improve quality of life.
- *Investigación*: Dedicated to research on medicinal plants and ancestral agricultural practices.
- *Turismo Comunitario*: Highlights Misak culture through sustainable tourism initiatives.
- *Comunicaciones*: Manages the dissemination of activities and community awareness campaigns.

Furthermore, the Jardín Botánico hosts numerous spaces and initiatives that embody the fundamental values of the Misak community. Among the Herbolaria, an area dedicated to the cultivation of medicinal plants, where families learn to transform herbs into essential oils,

ointments, and soaps, ensuring the continuity of traditional medicine. Another key element is the *Tulumpiya* (described in section 5.3.2). In parallel, the *Laboratorio de Transformación* is a developing space aimed at the production of natural remedies and other products, centralizing family activities and optimizing the processing of medicinal plants.

The Jardín also includes the *Senderos Ancestrales*, educational trails that cross the territory, allowing visitors to deepen their understanding of Misak *cosmovisión* and local biodiversity. Essential for the community's self-sufficiency are the *Yatul*, community gardens managed by families, which ensure food security and the protection of traditional species, cultivated using sustainable methods.

Finally, the Jardín is at the center of a large-scale reforestation project, which involves the reintroduction of native plant species essential for the restoration of high Andean ecosystems and the preservation of environmental balance.

Through these initiatives, the Jardín Botánico de Las Delicias demonstrates that sustainability cannot be reduced to a technical or economic concept, but must be understood as an integrated process of conservation, education, and cultural self-determination. Thanks to this approach, the Misak community not only protects its environment but also builds an alternative development model, based on reciprocity between humans, nature, and the spirit of the land.

5.4 Language

5.4.1 The role of language: knowledge transmission, identity and sustainability

For the Misak people, language is a fundamental pillar of identity, governance, and sustainability. *Namuy Wam* (or *Nam Trik*) serves as a cognitive and epistemological framework that encodes historical memory, ecological knowledge, and spiritual philosophy into a structured linguistic system. Unlike dominant languages that primarily facilitate information exchange, *Namuy Wam* is a performative and knowledge-driven language.

The *territorio*, for the Misak, is a living system that constantly communicates through signs, sounds, and rhythms. The language functions as the primary tool to interpret and respond to these environmental cues, maintaining a dynamic equilibrium between people and nature: "*Para el indígena el territorio no es sólo un espacio físico para producir; es una construcción cultural y simbólica del espacio, es decir, del territorio*" (Tunubalá, 2019). ("For the Indigenous person, territory is not merely a physical space for production; it is a cultural and symbolic construction of

space, that is, of territory."). This perspective parallels modern theories of knowledge-based economies, where language is a core component of decision-making and strategic adaptation.

The word, in the Misak spiritual context, is never neutral: it is a performative act that generates effects on both the physical and spiritual realms. During ceremonies and rituals, *Namuy Wam* is a mechanism that activates sacred energies, renews environmental balance, and reinforces social cohesion. The use of language in ritual and ecological contexts aligns with scientific theories on symbolic interactionism and performative linguistics, which emphasize how language is not just descriptive but transformative. This highlights the intrinsic connection between communication and sustainability, as words are directly tied to actions that influence environmental governance and collective well-being.

A critical aspect of Misak spiritual and governance systems is the role of dreams as a channel of knowledge transmission. Through *Namuy Wam*, dream messages are interpreted not only as personal visions but as indicators of collective needs. These messages often provide guidance on resource management, health interventions, and sociopolitical decisions. This directly aligns with knowledge-based decision-making models, where qualitative data (symbolic interpretations) and collective intelligence are used to shape governance strategies. In this way, Misak linguistic and cognitive structures offer a decentralized yet highly effective knowledge system, comparable to modern adaptive governance models.

In traditional Misak education, language and sustainability are deeply intertwined. The names of medicinal plants, for example, encode historical knowledge about their properties, ecological interactions, and spiritual significance. Each term in *Namuy Wam* serves as an entry in a cognitive archive, ensuring that future generations inherit not only linguistic skills but also the strategies necessary for long-term environmental stewardship. This holistic knowledge system can be compared to modern environmental informatics and Geographic Information Systems (GIS)-based resource management, where language and data visualization work together to preserve ecological knowledge.

For the Misak, the *territorio* is often described as a "*libro viviente*", a living book that records history, governance, and sustainability practices. Through myths, oral traditions, and toponymic markers, the community "reads" the landscape, ensuring that land management remains consistent with ancestral wisdom and ecological principles. This approach is comparable to GIS and other data-driven territorial management tools, where landscapes are mapped not only in physical terms but also in cultural and ecological dimensions. The Misak model suggests that effective governance

requires integrating environmental knowledge into cognitive and linguistic structures—a principle that can be applied in urban planning, conservation efforts, and circular economy models.

One of the central elements of Misak cultural identity is the meaning of the name "*Namuy Wam*" itself, which translates as "very much ours". This emphasizes the intrinsic value of the language in preserving the community's sovereignty and sustainability strategies. For the Misak, language is a strategic asset that enables long-term resilience, much like intangible cultural heritage in corporate knowledge management models. Preserving *Namuy Wam* is a governance necessity that ensures knowledge transmission, ecological balance, and social cohesion.

5.4.2 Structure and linguistic features: A system for knowledge encoding and adaptability

The Misak language is characterized by a highly structured yet flexible system that reflects the community's deep connection to its culture, spirituality, and environmental governance. Beyond its communicative function, Namuy Wam acts as a cognitive framework that encodes traditional knowledge, ecological insights, and social hierarchies. In this way, it functions as a dynamic repository of Indigenous wisdom, using its phonetics, syntax, and morphology to transmit complex information efficiently.

A defining feature of Namuy Wam is its syntactic flexibility, which allows speakers to modify word order based on context, emphasis, and rhetorical needs. While the Subject-Verb-Object order is common, the system permits structural variations that enhance expressive potential without loss of meaning. This flexibility is comparable to modular design principles in engineering and computational linguistics, where adaptability improves system efficiency and supports effective negotiation and collective decision-making.

Namuy Wam also employs an agglutinative morphology, utilizing extensive suffixes and prefixes to expand informational density. Suffixes modify verbs to convey aspects, intensity, or social politeness, while prefixes assign grammatical roles and relationships, reducing the reliance on a fixed word order. This morphological system functions like a data compression tool, conveying multiple layers of meaning within compact word forms, ensuring clarity and precision.

Furthermore, the language enables the formation of complex verbal structures that express temporal nuances, modality, and degrees of emphasis, allowing speakers to articulate events and states with precision akin to specialized terminologies in scientific and legal contexts.

Overall, these advanced linguistic features support strategic adaptability and social resilience, serving practical roles in governance, environmental management, and collective decision-making.

5.4.3 Language loss and strategies of resistance

The process of colonization and forced assimilation had a profoundly disruptive impact on the Misak language and culture. Throughout the 19th and 20th centuries, state policies of linguistic repression sought to eliminate *Nam Trik*, imposing Spanish as the sole legitimate language in official, educational, and administrative contexts. Missionary schools, aligned with assimilationist policies, banned the use of *Nam Trik*, labeling it as "uncivilized," and systematically replacing it with Western educational models. This not only undermined linguistic diversity but also attempted to erode the Misak cultural framework, severing intergenerational transmission of knowledge, spiritual practices, and governance traditions.

Language loss is a critical factor in the disruption of knowledge systems. *Nam Trik* encodes ecological, medicinal, and governance strategies, ensuring that expertise in resource management, social structures, and sustainability practices is passed down through generations. When a language is suppressed, the information storage and retrieval mechanisms embedded in its structure become fragmented.

Despite these pressures, the Misak community developed adaptive resistance strategies to safeguard and revitalize their language. *Nam Trik* was transformed into a symbol of identity and defiance, serving as both a cultural safeguard and a political tool in the struggle for Indigenous rights. Key linguistic preservation strategies include: intergenerational oral transmission through storytelling, songs, and dialogue as primary knowledge transfer mechanisms; integration of *Nam Trik* into education through bilingual educational programs such as the Proyecto Educativo Guambiano (PEG), ensuring institutional support for language learning and maintenance; media and digital archiving via radio programs, printed materials, and digital platforms to expand linguistic reach beyond immediate community boundaries; and linguistic activism and policy advocacy through participation in legislative and academic discussions to recognize and protect Indigenous languages under national and international legal frameworks.

These strategies mirror corporate knowledge retention practices, where critical intellectual capital is safeguarded through structured mentorship, documentation, and adaptive learning processes. In the context of sustainable governance, language acts as a cognitive infrastructure, ensuring that

localized expertise remains accessible and functional for future generations. *Nam Trik* is an integral component of the Misak *cosmovisión*. It serves as a structural mechanism for organizing time, space, and human-nature relationships, reinforcing the concept of a continuous cycle where past, present, and future intertwine.

The language encodes place-based knowledge, linking specific environmental cues to decision-making processes in agriculture, conservation, and land rights claims. Its preservation fosters social cohesion and political agency, enabling the Misak to assert their sovereignty and negotiate legal protections for their linguistic and territorial rights.

By recognizing language as a strategic asset, the Misak community highlights how linguistic revitalization is directly connected to cultural sustainability, environmental governance, and self-determination. This aligns with global efforts to integrate Indigenous knowledge into broader sustainability frameworks, emphasizing the necessity of linguistic diversity as a tool for resilience and innovation.

5.4.4 Identity preservation in the kitchen

The Misak kitchen, known as *Nak Chak*, is a cultural and educational hub where *Namuy Wam* is actively transmitted, experienced, and internalized. This setting serves as a "cultural altar" where language, spirituality, and community identity converge, reinforcing intergenerational knowledge transfer. Far from being a passive site of food preparation, the *Nak Chak* is an immersive linguistic and cognitive environment, where oral traditions, rituals, and ecological knowledge are practiced and passed down through lived experience.

A clear example of this process is meal preparation, where children learn specialized vocabulary related to ingredients, cooking techniques, and ecological knowledge. Symbolic meanings are embedded in food-related terminology, reinforcing the spiritual relationship between humans and nature. Intergenerational social roles are also developed, as knowledge is transferred in a collaborative, participatory framework. This approach aligns with cognitive science principles on situated learning, where knowledge is contextually embedded and socially constructed. By integrating language with everyday activities, the Misak ensure that *Namuy Wam* remains a dynamic, functional, and living system.

In the broader struggle for Indigenous autonomy, the Misak have institutionalized a comprehensive education model—the "Propio Programa de *Educación*", established in the 1980s. This program integrates *Namuy Wam* into formal education, ensuring linguistic continuity in academic contexts.

It recognizes traditional spaces (*Nak Chak*, *Yatul*) as legitimate sites of learning, valuing non-Western educational methodologies. It also bridges Indigenous knowledge with contemporary educational demands, reinforcing linguistic resilience while adapting to modern realities. This hybrid approach aligns with global educational trends in culturally responsive pedagogy and bilingual education, positioning *Namuy Wam* as a strategic asset for sustainable development. By embedding language learning within functional, lived experiences, the Misak have created a model of linguistic resilience that balances tradition with innovation.

Figure 10: The kitchen as heart of learning (Author's elaboration)

5.4.5 Bilingualism

Bilingualism plays a crucial role in shaping identity, cultural resilience, and social integration, particularly in Indigenous communities. In the Misak context, Spanish language has become increasingly prevalent, coexisting alongside *Nam Trik* as a reflection of this population's interaction with Colombia's broader social, economic, and political landscape. While Spanish is the dominant language in administrative, educational, and commercial settings, *Nam Trik* remains the core of Misak cultural identity, primarily used in family life, communal rituals, and knowledge transmission. This linguistic duality creates a complex dynamic, where bilingualism serves as both a bridge to wider opportunities and a potential risk to the survival of the Indigenous language.

"Bilingualism is not only a linguistic ability; it is a cultural resource that strengthens the social and political identity of Indigenous communities" (Fishman, 1991). However, bilingualism also

introduces potential identity conflicts, particularly among younger generations. Urban migration, exposure to media, and socioeconomic pressures often push youth to prioritize Spanish, perceived as a tool for social mobility and professional advancement. In some cases, speaking *Nam Trik* may be viewed as a disadvantage, leading to its gradual abandonment. This phenomenon can generate a generational divide, where elders struggle to preserve linguistic traditions, while younger individuals distance themselves from their cultural roots. "Indigenous languages are a key to understanding not only a people's culture but also their struggle for self-determination and survival" (Ginsburg, 1991).

The coexistence of two linguistic frameworks creates a sense of ambivalence, forcing individuals to navigate between Indigenous and dominant cultural expectations. This tension often leads to internal identity conflicts, where individuals feel "too Indigenous" for full integration into mainstream society but "too Westernized" to be fully accepted within their own community. "The dominant culture attempts to dismantle and assimilate Indigenous cultures, and language becomes a battleground in this struggle for cultural survival" (Freire, 1986). From a knowledge management perspective, bilingualism can be understood as a strategic adaptation tool, enabling communities to engage with external systems while preserving their internal knowledge structures. This dual competency can enhance social mobility, economic participation, and political advocacy, positioning bilingual individuals as cultural mediators between Indigenous and non-Indigenous societies.

Cultural mediation strengthens intercultural communication and supports Indigenous rights. "Cultural mediation, including language, is a fundamental tool for resistance and inclusion of Indigenous populations in global networks" (Ginsburg, 1995).

At the same time, bilingualism poses significant risks. Language shift and assimilation occur as Spanish becomes dominant, leading younger generations to prioritize its use and gradually displace *Nam Trik*. Marginalization of Indigenous identity is another consequence, as speaking Spanish fluently can enhance social acceptance while distancing individuals from their linguistic and cultural heritage. Power dynamics in globalization also play a role, as "languages and media are crucial tools in defining the inclusion or exclusion of Indigenous communities in the globalization process" (Appadurai, 1996). These contrasting effects highlight the need for strategic policies that support linguistic equity and cultural preservation. One of the most effective ways to preserve linguistic and cultural balance is integrating *Nam Trik* into formal education.

“A genuinely intercultural education values Indigenous languages and recognizes their fundamental role in shaping cultural identity” (Pérez, 2012). By positioning bilingualism as a resource, rather than a source of cultural erosion, education can act as a key instrument for sustainable linguistic policies.

5.5 Results

5.5.1 Two worldviews in comparison

Ethnic identity and educational systems play a crucial role in shaping knowledge and perceptions of the world. Educational models vary significantly according to the cultural values a society transmits. While Western education typically divides knowledge into separate disciplines and follows a linear, analytical approach, the Misak develop knowledge through a fluid, interconnected process in which identity, sustainability, and the relationship with nature are inseparable from daily life.

For the Misak, identity is not fixed but a dynamic, relational process that adapts to life experiences and community interactions. In contrast, Western perspectives often define identity through rigid categories such as citizenship, ethnicity, and social status. As José Eduardo Sánchez Reyes (2015) observes, young Misak attending Western universities experience a continuous renegotiation of their identity by integrating academic knowledge with ancestral wisdom, “*Ser indígena en la universidad es una experiencia de resistencia, no de asimilación*.” ("Being Indigenous at university is an experience of resistance, not of assimilation.")

Taita Lorenzo Muelas describes this dual engagement as “*double cultural work*,” highlighting the need for the Misak to master both their Indigenous knowledge system and Western methodologies. This dual competence enables them to interact with different realities without losing connection to their roots.

Western education relies on a rigid division of disciplines—science, literature, history, mathematics—acquired sequentially, reflecting a worldview that separates nature from culture, the individual from the community, and theory from practice. In contrast, Misak knowledge is circular and interdisciplinary, integrated into the community’s everyday activities. Children learn by observing, participating in agricultural activities, managing natural resources, and practicing traditional medicine, with teaching occurring as a reciprocal exchange rather than a one-way transmission.

One of the most significant differences between Misak and Western thought is their relationship with nature. The Western perspective, grounded in anthropocentrism, treats nature as a resource to be exploited for economic growth, as evidenced by industrialization, urbanization, and the pursuit of unlimited expansion. Conversely, the Misak view themselves as integral parts of the ecosystem, maintaining a balanced, reciprocal relationship with the land. They recognize that community survival depends on respecting and protecting the environment, making sustainability a natural condition of human existence.

The *Mandato de Vida y Pervivencia Misak* (2004) emphasizes that environmental knowledge must be transmitted through practice, oral memory, and direct engagement with nature rather than solely through academic study. Living in harmony with *Pachamama* (Mother Earth) requires direct interaction with the land, reinforcing that nature is inseparable from human life.

The increasing number of Indigenous students in Western universities has led to cultural hybridization, where Misak students integrate elements of scientific knowledge with ancestral wisdom. Many young Misak now apply skills acquired in academia to develop environmental and resource management projects that adapt modern techniques to traditional practices. This synthesis illustrates that the interaction between these two educational models offers opportunities for mutual enrichment rather than conflict.

The Misak educational approach, based on direct experience and the integration of diverse knowledge systems, provides a complementary alternative to Western models. It suggests that the future of sustainability may depend not only on technological innovation but also on rediscovering forms of knowledge deeply rooted in the relationship with nature.

Table 5: Two educational models compared: Misak vs. western education (Author's elaboration)

Aspect	Misak Identity and Education	Western Identity and Education
Concept of Identity	Fluid and dynamic, adapting to social context and life experiences.	Fixed and categorized, based on citizenship, ethnicity, and social status.

Learning Method	Experiential and participatory, based on observation, oral transmission, and practice.	Formal and theoretical, learned through school and university.
Knowledge Structure	Interconnected and holistic, without separation between disciplines.	Compartmentalized into separate disciplines, leading to fragmented knowledge.
Approach to Sustainability	An integral part of daily life, experienced through practice and rituals.	Treated as a distinct academic subject, often theoretical and detached from everyday life.
Knowledge Transmission	Oral transmission and community practice guided by elders, rooted in collective memory.	Based on manuals, theoretical studies, and formal education.
Relationship with Nature	Spiritual and harmonious relationship with Mother Earth; humans are an integral part of nature.	A resource to exploit, separated from human culture, viewed as an economic asset.
Role of Formal Education	Not separate from life; learning also means living according to community principles.	Formal system with assessments, degrees, and institutional validation.
Evolution of Identity	Evolves in a context of cultural hybridization, adapting without losing essence.	Tends to assimilate dominant models, with a risk of cultural roots being lost.

Integration of Modern Knowledge	Combines ancestral wisdom with scientific knowledge without losing its cultural foundation.	Focuses on scientific and technological advancements, often disregarding traditional wisdom.
Perception of Human Role in Nature	Humans are part of nature, coexisting in reciprocity and respect.	Humans are the dominant species, controlling and exploiting nature for progress.
Community Involvement in Education	Education is a community process, involving elders, families, and collective responsibility.	Education is an individual achievement, primarily guided by institutional frameworks.

5.5.2 The management of knowledge and the circular vision of learning: a sustainable model inspired by the Misak

In the era of ecological transition and innovation, knowledge management emerges as a strategic element for enhancing business competitiveness, accelerating the circular economy, and fostering new forms of sustainability. While in the Western context, knowledge is often regarded as a resource to be protected and defended, in Misak Indigenous culture, it is conceived as a collective and continuously evolving asset. This circular approach to learning suggests an innovative perspective for rethinking knowledge management through a sustainability lens.

In the Western model, knowledge is often safeguarded through patents, intellectual property rights, and information segmentation, ensuring a short-term strategic advantage but hindering collaboration. Competitive dynamics limit the creation of shared knowledge ecosystems, fragment technological progress, and obstruct access to sustainable solutions for emerging economies. In contrast, the Misak have developed a knowledge transmission system based on sharing and constant adaptation, where *sabedores* pass down their knowledge from generation to generation, ensuring a continuous learning flow that does not get lost.

This perspective recalls the theory of Nonaka and Takeuchi (1995), which describes knowledge as the result of a dynamic process of socialization, externalization, combination, and internalization.

In a business context, drawing inspiration from the Misak model would mean promoting open innovation practices and co-creating value, fostering greater information exchange among stakeholders.

The Misak vision also involves a cyclical form of knowledge, constantly redefined by the needs of the community. In an organizational setting, this could translate into reverse mentoring programs, where young talents and senior figures exchange skills and perspectives, as well as community learning methods that encourage continuous knowledge-sharing and dialogue.

Such a transformation also requires a different governance model for knowledge: instead of hierarchical structures that limit access to information, a participatory model may prove more effective, allowing each stakeholder to contribute transparently. Companies could, for instance, develop sustainability data-sharing platforms, similar to smart city models, to optimize resource use and improve operational processes.

Another key aspect of the Misak perspective is the harmonious relationship between knowledge and nature. In Western tradition, knowledge is often used to exploit the environment, whereas in Indigenous thought, the principles of reciprocity and respect for the land prevail. From this perspective, a circular knowledge economy emerges, where ideas and information—like natural resources—are continuously regenerated and disseminated.

Moving beyond the paradigm of accumulation and exclusivity, adopting open-source innovation practices and building collaborative networks fosters the development of more resilient and sustainable models. A concrete example is Interface, a company that made its CO_2 emissions database open-source, allowing industry-wide access to sustainability solutions. A similar knowledge-sharing model could further drive the ecological transition, creating a system where collaboration becomes a key success factor.

The Misak approach provides a tangible example of how knowledge management can be integrated with principles of equity, circularity, and ecosystem respect. Incorporating this approach into corporate policies means embracing more inclusive governance models and strengthening intellectual and social capital, generating shared and long-term value. Adopting a cooperation-based model not only accelerates the ecological transition but also enhances long-term business competitiveness.

5.5.3 Knowledge management and sustainability: a bridge between the Misak vision and international standards

The convergence between Indigenous culture and Western reporting systems is clearly reflected in the Global Reporting Initiative (GRI), an international framework that emphasizes transparency and accountability, principles closely aligned with Misak philosophy, which is centered on collective engagement and respect for the land for future generations. Specifically, GRI 304 (Biodiversity) requires businesses to identify and reduce their impact on local ecosystems, a concern that has always been a priority for the Misak people, who act as guardians of their territory through sustainable practices and the conservation of native species.

In Misak tradition, biodiversity is an integral part of community and spiritual life: knowledge of medicinal plants, for example, is passed down orally and through hands-on experience, without the use of formal documentation or patents. Companies could draw inspiration from this approach to adopt more open collaboration models, including the active involvement of local communities in environmental protection and knowledge-sharing initiatives.

Another example of alignment between the Indigenous perspective and corporate tools is ISO 14001, which focuses on environmental management and a cyclical approach to continuous improvement. This principle mirrors the Misak idea of constant adaptation to the natural environment, a practice applied for centuries through crop rotation, soil conservation, and the responsible use of medicinal plants. Integrating this vision into a business framework would mean viewing the environment not as a mere production asset but as a living system, fostering circular practices such as material recovery and resource regeneration.

The Misak people also offer an example of participatory governance, expressed through the *Cabildo*: a decision-making body that operates on the principle of collective leadership, where every community member has a say in strategic choices. This model, based on reciprocity and shared responsibility, could positively influence businesses by encouraging the development of more open governance structures, where employees, customers, and local communities actively contribute to decision-making processes.

Lastly, the connection between Misak knowledge management and the Sustainable Development Goals (SDGs) is evident:

- SDG 4 (Quality Education) benefits from intergenerational learning deeply connected to the environment.

- SDG 15 (Life on Land) is reflected in biodiversity protection and the oral transmission of ecological knowledge.

- SDG 13 (Climate Action) aligns with Indigenous agricultural techniques, which aim to preserve natural resources in response to climate change.

On the social front:

- SDG 10 (Reduced Inequalities) highlights the need to respect Indigenous rights.

- SDG 16 (Peace, Justice, and Strong Institutions) emphasizes environmental justice and the recognition of native territories.

- SDG 17 (Partnerships for the Goals) stresses the urgency of collaborations between Indigenous communities, governments, and businesses, to build a fully shared and sustainable knowledge and resource system.

The Misak experience demonstrates that Indigenous traditions can effectively engage with Western frameworks, offering a more balanced, inclusive, and forward-thinking approach to knowledge and environmental management.

6. Socio-economic flourishing: circular economy and integrative well-being

The Misak economy is based on self-sufficiency and mutual support while also integrating external resources such as government funding, international cooperation, and cultural tourism. This model reflects community values and sustainability, maintaining a balance between tradition and innovation.

Strongly oriented towards sustainability, it relies on traditional agriculture, bartering, collective resource management, and the promotion of Indigenous culture. These elements preserve the cultural identity of the community and its spiritual connection with nature. The Misak economy is inspired by the principles of solidarity economics, fostering cooperation, sustainability, and cultural appreciation. The main challenge is balancing the preservation of traditions with adaptation to

contemporary economic dynamics, ensuring that development remains consistent with community values.

6.1 Economy

6.1.1 Economic autonomy

The Misak economy is designed to be autonomous, reducing dependence on external markets. Local production and collective resource management help protect the community from external economic crises.

This approach ensures that resource use is fair and sustainable, preventing soil depletion and water resource exhaustion while defending their lands from exploitation by external industries (mining, deforestation, etc.).

Protecting the territory is crucial both for Misak identity and for maintaining access to the natural resources on which their economy depends.

The Misak communities practice forms of solidarity economy:

- Sustainable and community-based agriculture & natural resource management**:** Sustainability is seen as an obligation toward future generations.
- Cultural preservation: Maintaining cultural traditions and traditional economic practices.
- Cooperation and mutual aid: Bartering and exchange.
- Microfinance: Ethical banks, Indigenous organizations, or government programs.
- Community funds: Helping families in need and collective contributions to finance projects such as schools, infrastructure, or religious ceremonies.
- Community innovation: New sustainable techniques, such as recycling and the use of renewable energies, integrated into a community-based framework that respects their ecological vision.

Table 6: Misak economic autonomy: key principles and practices (Author's elaboration)

Principle of Misak solidarity economy	Description	Practical examples
Sustainable and community-based agriculture & resource management	Ecological farming practices and collective management of natural resources.	Crop rotation, community-managed water sources.

Cultural preservation	Maintaining cultural traditions and traditional economic practices.	Handicraft production, agricultural rituals.
Cooperation and mutual aid	Economic models based on reciprocity and exchange.	Bartering, shared use of agricultural tools.
Microfinance	Financial instruments supporting economic autonomy.	Indigenous ethical banks, support for local small businesses.
Community funds	Economic support for collective well-being.	Funding schools, infrastructures, and community events.
Community innovation	Integration of sustainable technologies while respecting Indigenous vision.	Use of renewable energy, recycling projects.

6.1.2 Water

The Misak self-identify as the "People of Water" due to their deep spiritual, cultural, and ecological connection with water, which they consider a sacred and fundamental element of life. This designation reflects not only their respect for water resources but also their worldview, in which water plays a central role. They see water as a sacred element that ensures not only physical survival but also the spiritual and cultural balance of their community. This deep connection drives them to respect, preserve, and celebrate water as an essential part of their identity.

Here are the main reasons behind this designation:

- The Misak believe that water is a sacred gift from *Pachamama*, representing the primary source of life for all living beings.
- In their rituals and celebrations, water is often central to prayers and offerings, symbolizing abundance, purification, and protection.
- Living in the mountainous areas of the Cauca department, many Misak communities are located near natural springs, rivers, and lakes.
- Their survival and agricultural practices strongly depend on water, used for irrigating their *yatul*es and sustaining local biodiversity.
- According to their *cosmovisión*, water is not just a physical element but a living energy that connects humans to the spiritual world.

- The Misak tell myths in which water is the origin of all things and a medium for maintaining balance between humans and nature.
- The Misak consider themselves guardians of water and actively engage in its protection against pollution and indiscriminate exploitation.
- Communities participate in environmental conservation initiatives, defending their water sources from extractive activities such as mining.
- Water is an integral part of daily practices and rituals, including personal and community purification.
- It is also seen as a symbol of renewal, growth, and connection with ancestors.
- The Misak territory, located in the Cauca department, is rich in waterways, springs, and rivers that have shaped their way of life and relationship with nature. The role of water in Misak culture

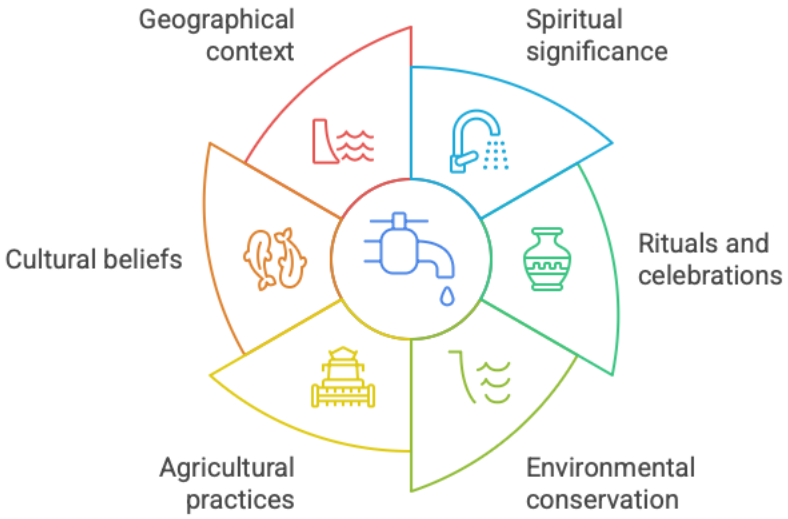

Figure 11: The role of water in Misak culture (Author's elaboration)

6.1.3 Traditional agricultural systems

The Misak agriculture is the foundation of the community economy and a model of sustainable land management, centered on self-sufficiency, reciprocity, and respect for the environment. The production system combines cultivation, livestock farming, and exchange to ensure food security and economic autonomy, integrating traditional techniques that preserve soil fertility and biodiversity.

The main crops include potatoes, corn, quinoa, cassava, oca, mauja, onions, garlic, and cabbage, selected for their adaptability to the Andean climate. Agriculture is closely linked to livestock

management, with the raising of chickens, guinea pigs, cattle, and sheep providing proteins and essential organic fertilizers to maintain soil quality. Fishing in local waterways serves as an additional resource for the community, contributing to dietary variety and ecological balance.

The Misak territory is divided into *tierra fría* and *tierra caliente*, two climatic zones that determine the distribution of crops and internal trade dynamics. In *the tierra fría* areas, located at higher altitudes, crops such as potatoes, quinoa, cabbage, and onions thrive, while in *tierra caliente*, crops such as cassava, sugarcane, coffee, cocoa, and tropical fruits are cultivated. This territorial differentiation allows for a continuous exchange of products, ensuring a balanced diet and reducing dependence on external markets.

Figure 12: Market in Silvia (Author's elaboration)

*Yatul*es, traditional family gardens, are a central element of Misak agricultural production. These spaces are integrated ecosystems where each plant serves a specific function to maintain soil fertility and ensure continuous production. Located near homes, they are mainly managed by women, who pass down ancestral knowledge related to cultivation and the use of natural resources. In *tierra fría*, *Yatul*es host Andean crops, while in warmer regions, they include cassava, sugarcane, and tropical fruits. These gardens follow advanced agroecological principles, combining food, medicinal, and ornamental plants to create a self-sufficient system.

The Misak practice traditional agricultural techniques, perfectly integrated into a circular economy model, which minimizes waste and optimizes resource use. One of the fundamental aspects is the

use of native seeds, selected and preserved over time to maintain crop genetic diversity, protecting the soil from the effects of monocultures and genetically modified seeds. Seed conservation ensures food sovereignty and agricultural resilience for the community.

Polyculture is one of the key practices: instead of growing a single species on a large scale, the Misak combine different crops within the same land to promote ecological balance. Some plants fix nitrogen in the soil, others protect against erosion, while others act as natural pest repellents, reducing the need for chemical fertilizers and pesticides. This diversification decreases risks associated with pests and diseases and ensures more stable harvests.

Another advanced agricultural technique is spiral cultivation, a method that optimizes space and improves water efficiency. Plants are arranged in an ascending spiral, allowing water to naturally flow towards the center, maintaining consistent humidity and maximizing resource use. This system creates diverse microclimates, ideal for growing plants with different needs within the same area.

Cultivation follows the rhythm of lunar cycles, an ancestral knowledge that determines the best periods for sowing, caring for, and harvesting crops. Aligning agricultural activities with lunar cycles helps optimize growth conditions, increasing yield without artificial interventions.

Misak agriculture operates on a closed-loop production model, where every resource is reintegrated into the system to prevent waste. Agricultural and food scraps are converted into natural compost, enriching the soil without chemical fertilizers. Agricultural by-products are used as livestock feed, closing the resource cycle and maintaining the balance between production and consumption.

Barter and local trade are the community's primary economic tools for managing resources. Barter enables fair exchange of products between communities in different climates, reducing reliance on a purely monetary economy. However, monetary trade is also present in local markets, where the Misak sell their agricultural and artisanal products, generating income without compromising self-sufficiency. This combination of trade and exchange creates a flexible and resilient economic model.

The Misak agricultural system is a living model of resilience, autonomy, and regeneration. It proves that true sustainability is a way of designing systems in harmony with nature. By closing cycles, minimizing waste, and integrating biodiversity, their approach challenges conventional farming, showing that productivity and environmental balance can coexist without exploitation. More than an alternative, it is a vision of the future where food security, economic sovereignty, and ecological stewardship are inherently connected.

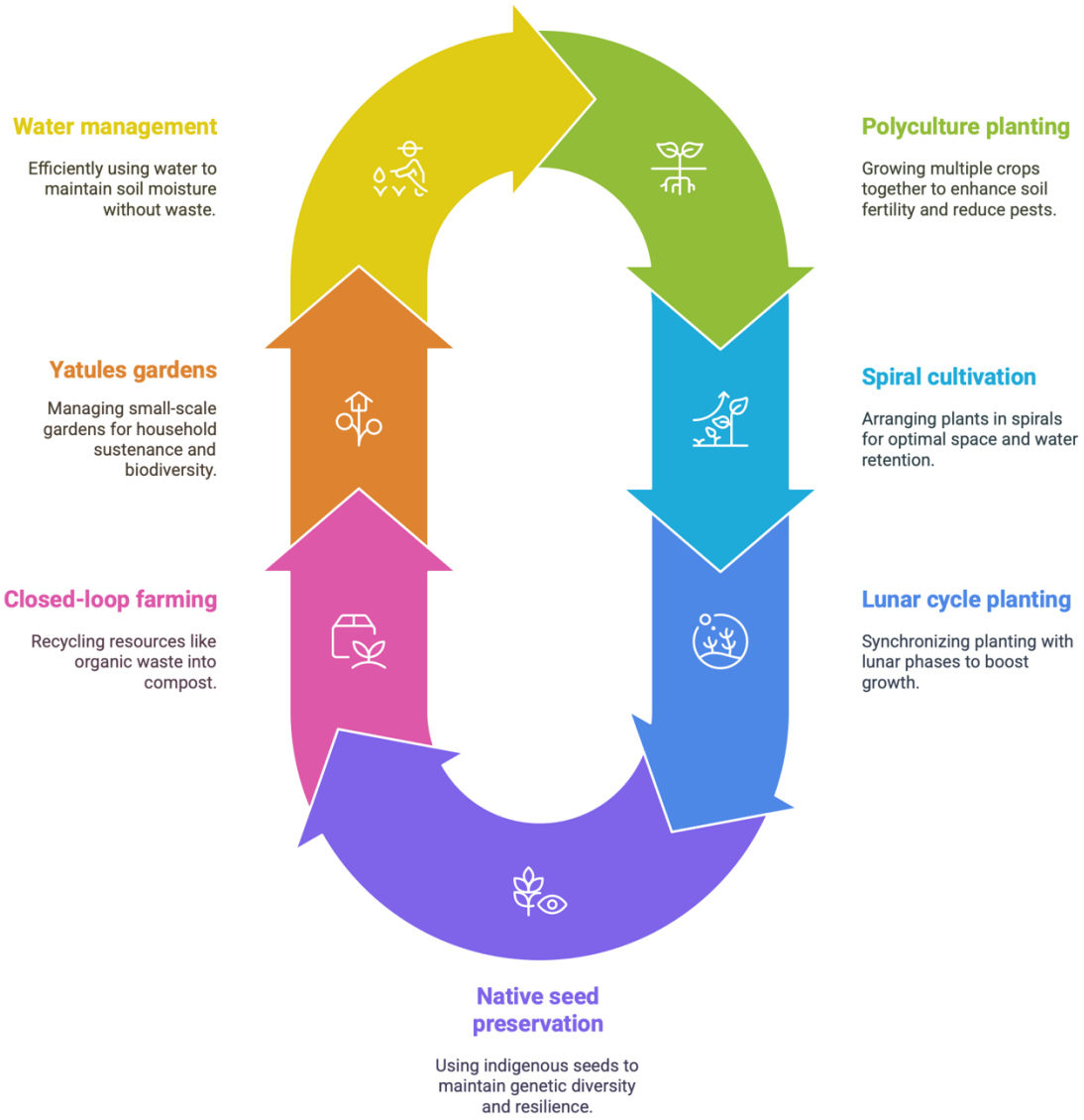

Figure 13: Misak agricultural cycle (Author's elaboration)

6.1.4 Critique of monocultures

Monocultures represent one of the main challenges to environmental and cultural sustainability faced by the Misak community. These agricultural practices, characterized by the intensive cultivation of a single crop variety, have negative impacts on multiple levels. From an ecological perspective, the use of monocultures leads to soil depletion, biodiversity loss, and increased vulnerability to diseases and pests. This issue is further exacerbated by the heavy use of pesticides and chemical fertilizers, which contaminate water resources and air but also compromise the health of local inhabitants.

From a social and cultural standpoint, monocultures distance families from traditional polyculture practices and the principles of self-managed food production that are fundamental to Misak culture.

Some families, attracted by immediate profit, engage exclusively in strawberry cultivation, using intensive agricultural methods that require large amounts of chemical inputs. This choice has led to tensions within the community and to a reduction in the variety of food available for local consumption, as observed in the field.

An interviewee from the community describes how their neighbor cultivates strawberries in monoculture, using chemical pesticides whose residues spread through the air and end up damaging their *yatul*es. 'When the wind blows in our direction, the chemical smell reaches our gardens and risks compromising the quality of our plants,' explains the interviewee.

Dependence on monocultures creates a fragile and unsustainable economic model. The community becomes more vulnerable to market price fluctuations and extreme climatic events, compromising food security. Moreover, the use of pesticides negatively affects neighboring traditional gardens. This phenomenon has been reported by some families who have observed damage to their *yatul*es due to chemical residues carried by the air.

In response to these issues, the community's Botanical Garden has committed to promoting sustainable agricultural practices and reviving ancestral farming traditions. The *yatul*es represent an alternative model to monocultures.

A concrete example of the positive impact of these initiatives is the reintroduction of crops such as uyuco, a traditional tuber, and mauja, a small, nutrient-rich potato variety that had almost disappeared. These foods, besides being more sustainable to cultivate, have been shown to improve people's health due to their nutritional qualities.

To counter this situation, the interviewee has chosen not to engage in direct conflict with their neighbor but to demonstrate through action that it is possible to cultivate sustainably without chemical inputs. ''I don't want to argue with them,'' the interviewee states, ''I just want them to see with their own eyes that my garden, without pesticides, is healthier and more productive than their chemically treated field.'' This silent resistance strategy aims to highlight, over time, the differences between the two agricultural methods and to encourage reflection on sustainability.

The main challenge remains raising awareness among all families in the community about the benefits of returning to traditional practices and the necessity of abandoning the monoculture model. This requires a collective commitment to highlighting the long-term advantages of a sustainable and regenerative approach that not only protects the land and biodiversity but also strengthens the cultural identity and social cohesion of the Misak people.

6.1.5 *Minga* (collective work for the common good)

*Minga*s, collective labor and reciprocity practices, are a central element of the culture and social life of the Misak people. Based on solidarity and cooperation, they embody the principle of collaboration for the common good and reflect a worldview in which unity and mutual support are fundamental. The term "*Minga*" comes from the Quechua language and means "collective work for the common good." Within the Misak community, this practice has evolved into a system of mutual aid, where each member contributes their effort, strengthening social bonds and giving back to the community the support they have received.

*Minga*s are applied in various aspects of Misak life. In the construction of infrastructure such as houses, schools, and bridges, they are a fundamental resource for community development. In agriculture, they allow for the collective preparation of land, sowing, and harvesting, promoting shared management of natural resources. During significant events, such as weddings, funerals, or traditional celebrations, *Minga*s reinforce social and cultural bonds, while in times of emergency, they provide essential support to families in need.

An interviewee recounts participating in a *Minga* to build a house for a community member who had lost their home due to a landslide. Within a few days, thanks to collective labor, the walls and roof were rebuilt, giving the affected family a home once again. "No one asked for anything in return," the interviewee explains, "because we know that one day we might be the ones in need of help." This example shows that the *Minga* is not just an economic practice but a true pillar of community resilience.

Participation in *Minga*s involves all community members, regardless of age or gender. Each person contributes according to their abilities, ensuring a balance between individual effort and collective benefit. This practice is based on a system of reciprocity, where the work offered today will be repaid in the future, creating a continuous cycle of solidarity. There is no direct economic compensation, as the value of the *Minga* lies in strengthening social ties and achieving shared goals.

Beyond their economic and organizational function, *Minga*s play a fundamental role in reinforcing community identity. Through these activities, young people learn traditional values and cultural practices, ensuring the continuity of Misak traditions. Additionally, they promote economic self-sufficiency and contribute to the conservation of natural resources, integrating respect for the environment into daily activities.

From an ecological perspective, *Minga*s contribute to reforestation of degraded areas, sustainable water management, and biodiversity protection. In particular, some community projects have focused on cleaning and restoring local water sources, protecting them from pollution and drought. These collective efforts strengthen the bond between the community and the land, ensuring that natural resources are managed sustainably for future generations.

However, *Minga*s face various challenges today, including youth migration and the growing influence of the capitalist economy, which risks diminishing the sense of collective participation. Despite this, they remain a pillar of Misak culture and a model of sustainable development capable of adapting to contemporary changes.

6.1.6 Handicraft production

Handicrafts represent a key element of the Misak economy, intertwining cultural and economic value. The community produces a wide range of traditional crafts, including textiles, clothing, ceramics, and agricultural tools. These products not only meet the internal needs of the community but are also sold at local markets and cultural events, generating income that is reinvested in agricultural tools, seeds, and essential goods not available locally.

In addition to traditional crafts, the community has developed an artisanal production system based on the transformation of local natural resources. Essential oils, ointments, soaps, and jams are made from medicinal plants and fruits grown in the *yatul*es and the botanical garden. The production process follows traditional and sustainable methods: herbs are naturally dried, oils are extracted manually without the use of chemicals, and jams are made without artificial preservatives, preserving the nutritional and medicinal properties of the local plants.

Currently, artisanal activities are decentralized and managed by families, each specializing in a specific aspect of production. However, to improve the quality and visibility of their work, the Misak are working on the creation of a community workshop. This space will not only optimize production processes but also offer visitors the opportunity to observe and participate in the creation of these products, transforming handicrafts into a cultural and educational experience.

From an economic perspective, handicraft production represents a source of income for many families. Although there are no precise data on the economic impact of handicrafts within the community, it is clear that they play a vital role in ensuring self-sufficiency and reducing dependence on external goods. Some families manage to sell their products outside the community, shipping orders to cities such as Cali and Bogotá, and they are working to expand their market

through fair trade networks. However, challenges remain, including logistical difficulties and competition from low-cost industrial products.

The integration with cultural tourism is a key strategy to strengthen the sector. Handicraft workshops and live demonstrations are essential tools for increasing product visibility, encouraging sales, and passing on ancestral Misak knowledge to visitors. The botanical garden plays a central role in this dynamic: not only does it provide raw materials for the production of oils and ointments, but it is also a space for environmental education and experimentation with material reuse, promoting circular economy practices and waste reduction.

Figure 14: Handcrafted Misak products: natural soaps, essential oils, creams, and herbal infusions (Author's elaboration)

6.1.7 Culture and community tourism

The Misak community have decided to open their doors to visitors to promote ancestral tourism, generating income through cultural and artisanal experiences while educating the public about their way of life. In recent years, cultural tourism initiatives have been developed to share this rich heritage with visitors, contributing to the sustainable economic development of the community.

However, tourism in Misak territories is not open and unrestricted. To visit the community, visitors must coordinate with the members responsible for tourism management, who organize the visits and establish the terms of reception. The community independently decides when and how to welcome visitors, ensuring authentic and respectful experiences while avoiding mass tourism that could disrupt cultural and social balance.

Tourists have the opportunity to explore Misak villages, interact directly with residents, and discover their traditional way of life. Local guides, often members of the community, provide insights into history, traditions, and daily practices, making the experience authentic and engaging.

Culinary experiences are a key aspect of community tourism: meals are prepared using local ingredients and traditional recipes, allowing visitors to connect with Misak culture through food. Guided walks through the surrounding landscapes complete the experience, where visitors learn about traditional techniques for using medicinal plants and sustainable resource management practices.

The benefits for the Misak community are numerous. Cultural tourism generates income that can be reinvested in improving infrastructure, education, and healthcare services, as well as preserving and passing down cultural practices to future generations. Management costs are covered by visitor contributions, as they do not stay for free but financially participate in the experiences offered. Tourism activities are collectively organized, ensuring an equitable distribution of benefits among the families involved.

However, it is essential that the Misak community maintains control over tourism activities to ensure that they always respect the local culture and environment. To minimize the impact on the ecosystem, the number of visitors is regulated, and activities follow sustainability principles. Additionally, tourists are provided with guidelines on appropriate behaviors within the community to prevent disrespectful or inappropriate attitudes.

6.1.8 Government programs and grants

The Colombian government provides funding and grants to Indigenous communities to promote socioeconomic development, preserve local cultures, and secure territorial rights. These funds cover various areas, including:

- Sustainable Agricultural Development: Programs that offer technical training, access to agricultural resources, and support for product commercialization to improve farming practices in Indigenous communities.
- Education and Cultural Preservation: Grants aimed at developing intercultural education programs that integrate Indigenous traditions, ensuring access to bilingual education and promoting cultural heritage.
- Community Development: Funds allocated to improve infrastructure, healthcare, education, and cultural conservation, contributing to the overall well-being of communities, including the Misak.
- Environmental Conservation: Initiatives that finance projects for the protection and sustainable management of natural resources, recognizing the importance of Indigenous territories for biodiversity.
- Territorial Rights Protection: Legal and financial support for obtaining recognition and protection of ancestral territories, helping communities defend their rights against external threats.

Like many other Indigenous communities in Colombia, the Misak have access to these programs, which aim to improve their quality of life and strengthen their autonomy. However, despite the availability of these funds, several challenges hinder their effective use:

- Complex bureaucracy: Administrative procedures are intricate and require specific skills, making it difficult for many communities to complete funding applications.
- Lack of information: Funding programs are not always clearly communicated, limiting communities' ability to access available resources.
- Delays in fund distribution: Even after approval, funds often arrive late, delaying project implementation.
- Project discontinuity: Frequent changes in leadership within the *cabildo*s (Indigenous councils) result in the interruption of previously initiated programs. Each new administration tends to redirect resources to different initiatives, leaving incomplete projects that could have had a long-term positive impact.
- Employment instability: With changes in *cabildo* leadership, personnel working on government-funded programs are often replaced, making jobs in these projects unstable for local workers.

A concrete example of this issue is a community nursery project aimed at preserving local plants. It was successfully launched with public funding and was benefiting the community, but after a

leadership change, it was abandoned, and the funds were redirected to other initiatives, wasting the progress already made.

To overcome these barriers, it is essential for government agencies and educational institutions to provide specific training to the Misak community, enhancing their project management skills and ability to access funding. Additionally, close collaboration with local government bodies can facilitate program access and ensure that funds are used effectively.

Some larger and better-organized *cabildo*s manage their resources more independently, reducing their reliance on state funds and ensuring greater continuity in project management. However, smaller *cabildo*s often struggle to maintain administrative consistency, making them more vulnerable to bureaucratic interruptions.

6.1.9 International cooperation projects

NGOs and international organizations support numerous community projects in Misak territories, focusing on environmental conservation, sustainable agriculture, and strengthening Indigenous governance. These initiatives, carried out through funding and technical training, aim to enhance the cultural and natural heritage of the community while contributing to their socioeconomic development.

In particular, some international organizations have actively collaborated with the Misak to preserve and promote their language, traditions, and ancestral knowledge. Intercultural education projects have been implemented to integrate elements of Misak culture into the school curriculum, reinforcing community identity and a sense of belonging.

At the same time, initiatives have been launched to support traditional and sustainable agricultural practices. The adoption of agroecological techniques has not only improved food security and economic self-sufficiency but also helped preserve the environment while increasing agricultural productivity in accordance with local traditions. Community tourism projects have been developed to generate income by promoting the cultural and natural heritage of the Misak, offering visitors an authentic experience.

International cooperation has also supported the Misak in defending their territorial and cultural rights, providing legal assistance and creating platforms to raise international awareness of their claims. Additionally, programs for the sustainable management of natural resources have been promoted in line with traditional practices and current environmental needs. Joint projects have

facilitated access to healthcare services while respecting traditional Misak medicinal practices, and training programs for local healthcare workers have strengthened the community's capacity to manage its own health needs.

Despite the positive impact of these initiatives, challenges remain. The Misak continue to face obstacles in accessing funding due to bureaucratic barriers and a lack of clear information about available programs.

To ensure that initiatives truly meet the community's needs, active participation of the Misak in the planning and implementation of programs is crucial. Strengthening local capacities through training is a key factor in the long-term sustainability of these projects, allowing the community to maintain and develop initiatives even after external support ends.

6.1.10 *Plan de vida* (life plan)

The *Plan de vida* of the Misak is a *pervivencia* (ensuring cultural survival) strategy that guides the community in consolidating its social, cultural, and economic autonomy, promoting an alternative model to the linear growth of Western capitalism. At the core of this vision are the principles of reciprocity, self-sufficiency, and sustainability, shaping a circular economic system deeply connected to the protection of the land and natural resources.

In the fourth pillar of the *Plan de Vida*, dedicated to economic and social reconstruction, the Misak define a productive system based on community resource management and the rejection of capitalist accumulation, favoring an economy centered on solidarity and ecological balance. The key components of this model include:

- Associated agriculture and food sovereignty: The community promotes traditional agricultural practices with diversified crops, protecting native seeds and ensuring food security through agroecological methods. This approach strengthens economic autonomy, reducing dependence on external markets.
- Collective labor and *Minga*: Cooperation in production and resource management is the foundation of the Misak economy. Through the *Minga*, work is carried out collectively, preventing land fragmentation and ensuring an equitable distribution of the value created.
- Economic self-sufficiency and resilience: The community rejects a development model based on consumption and unlimited growth, instead favoring a system that values the balance between community needs and the availability of natural resources. Trade is

primarily conducted within the community's internal circuit, limiting the influence of external market forces.

- Community governance and economic rights: The Indigenous authority regulates economic activities through their law, the Misak customary justice system that protects natural and cultural heritage. This ensures that resources are managed collectively and sustainably, preventing privatization and exploitative practices.

6.2 Results

6.2.1 Rethinking circular economy: the Misak perspective on resource management

The current global economic system is characterized by a linear and unsustainable model based on extraction, production, consumption, and disposal. This approach has led to an unprecedented environmental crisis, with resource depletion, waste accumulation, and increasing economic inequalities. To address these challenges, the concept of the circular economy has emerged as an alternative and sustainable model, structured around the framework of the 9R principles (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, Recover).

0. Refuse: Eliminating unnecessary materials and environmental impact at the source
The first principle of the 9R framework focuses on preventing waste and unnecessary materials from entering the production process. While Western systems tend to introduce disposable materials that must later be managed as waste, the Misak have developed an economic system that inherently rejects unsustainable products and processes.

They refuse plastic and synthetic materials, eliminating the problem of non-biodegradable waste from the outset. They avoid chemical inputs in agriculture, protecting the soil and biodiversity without introducing toxic substances. They produce only what is necessary, avoiding overproduction and unnecessary consumption. Their approach perfectly applies the principle of "Design for Sustainability," eliminating waste management issues at the source, something that remains a distant goal in industrial economies.

1. Rethink: An economic structure based on self-sufficiency and cooperation
While in Western systems, production is separate from consumption and regulated by market laws, among the Misak, every member of the community is simultaneously a producer, consumer, and resource manager.

The *Minga* (collective labor) eliminates wasted time and resources, ensuring efficiency without introducing competition or overproduction. Internal redistribution of resources prevents the concentration of goods in the hands of a few, ensuring equity and self-sufficiency. The *Plan de Vida* regulates the use of resources and production, ensuring long-term sustainability. This model aligns perfectly with the "Circular Business Model" and "Sharing Economy" systems, concepts that are widely theorized in the West but rarely implemented on a large scale.

2. Reduce: Minimizing resource consumption
The Misak actively reduce resource consumption through practices such as optimized water use with traditional irrigation canals, sustainable construction based on local materials designed for long-term durability, and a low-impact diet centered on local products, minimizing transportation and waste.

They effortlessly apply the concept of "Lean Management" and "Resource Efficiency," whereas in the industrial world, efforts to reduce waste remain only partially successful.

3. Reuse: Maximizing the useful life of objects
Tools, clothing, and utensils are repaired and reused until they are completely worn out. Bartering and the exchange of used goods are common, creating a circular system for product utilization.

While Western economies are attempting to develop "Product as a Service" models, the disposable culture remains dominant. The Misak have already embraced an "extended use" mindset for generations.

4. Repair: Continuous maintenance to extend the life cycle of goods
They continuously repair agricultural tools, avoiding replacements, and regularly maintain houses and infrastructure, extending their useful life without the need for new resources.

They spontaneously apply "Total Productive Maintenance" without relying on advanced maintenance management systems.

5. Refurbish: Giving new life to used products
Damaged objects are restored for renewed use, such as agricultural tools being repaired or textiles being reinforced and adapted for new functions. This practice prevents the production of new goods, reducing pressure on natural resources.

6. Remanufacture: Creating new products from existing materials
The Misak repurpose obsolete tools into new instruments, disassembling and reassembling them with salvaged components, unknowingly applying advanced remanufacturing techniques.

7. Repurpose: Finding new uses for existing materials
Old wooden and stone structures are reused in new construction projects, reducing the need for new raw material extraction. Recycled fabric is used to create blankets and rugs.

8. Recycle: Keeping materials in continuous use
The Misak integrate recycling into their economic model by ensuring that materials are not discarded but reprocessed for further use. Organic waste is composted to enrich soil fertility, while materials such as wood, stone, glass, and metal are carefully collected and reintegrated into new production cycles. Instead of relying on large-scale industrial recycling systems, they maintain a localized, low-impact recycling approach, where resources are repurposed within the community.

9. Recover: Extracting value from non-recyclable waste
For materials that cannot be recycled or repurposed, the Misak apply energy recovery and secondary material utilization. Biomass combustion provides a renewable source of heat and energy, reducing dependence on external energy inputs. Additionally, residual materials, such as ashes from biomass burning, are repurposed in agricultural processes or construction applications. Unlike industrial economies, where waste is often managed through landfills or energy-intensive processing, the Misak ensure that even non-recyclable materials contribute to the circular system, leaving minimal waste impact.

While the Western industry attempts to improve recycling and recovery processes, the Misak demonstrate that managing resources "upstream" prevents the problem of waste altogether.

The analysis of the 9R framework applied to the Misak is not merely an academic exercise but a concrete demonstration of how an economic system can be circular and functional without relying on advanced technologies or complex industrial infrastructures.

While the Western world is still trying to implement circular economy models through legislation, incentives, and material recovery technologies, the Misak demonstrate that sustainability is not a product of technological innovation but of cultural and organizational innovation. Their approach to resource management is not based on top-down regulations but on a collective system that governs the use of resources in a flexible and adaptive way, maximizing efficiency and resilience.

The Misak model offers an alternative perspective on sustainability, one that goes beyond waste management or improving production processes: they do not need to close the loop because the loop is never inefficiently opened. If we examine Western industrial policies on the circular economy, a contradiction emerges: efforts are made to reduce waste by optimizing processes that are inherently based on waste. The Misak, on the other hand, demonstrate that the circular economy can be a starting point, not an objective to be reached.

The most revolutionary aspect of their economic organization is the absence of a waste market. While in Western systems, waste becomes a commodity to be managed through recycling, energy recovery, or reverse logistics, in Misak communities, materials never become a problem to be solved because everything already has a well-defined use cycle. There are no complex collection and sorting systems because every element, from biomass to textiles, already has a second and third use planned at the community level.

Another aspect that differentiates their model from Western circular economy initiatives is the distribution of value and access to resources. In a capitalist system, even circular economy strategies are applied with a profit-driven logic: reuse, remanufacturing, and recycling are leveraged to create new value chains within existing markets, where access to resources remains tied to exclusive economic dynamics. Among the Misak, however, value is distributed horizontally, and scarcity is managed not through pricing but through community regulatory mechanisms.

This perspective could lead to a new interpretation of the circular economy, where the key is not technological optimization but social and economic optimization of resource management. In other words, sustainability may not be a matter of scientific innovation but rather a change in how we structure production and consumption at a systemic level.

From this analysis emerges a crucial question for industrial engineering and the future of the circular economy: can the Misak's systemic thinking be integrated into current ecological transition strategies? If the circular economy is to be genuinely effective on a large scale, it may need to abandon the notion of sustainability as a "correction" of a flawed system and instead begin designing economic systems that do not produce structural inefficiencies in the first place.

The most innovative lesson that the Misak offer is not just about resource management but about how societies can redesign their economic and social organization so that sustainability is not an exception to be pursued but the natural condition of the system's functioning. In this sense, the Misak circular economy is not a model to be "achieved" but a demonstration that an economic

system can be conceived and developed as circular from the outset, without resorting to post-industrial solutions to correct its flaws.

This perspective represents a radical challenge for contemporary economics, which could gain tremendous insights from a deeper study of models like that of the Misak to rethink resource organization, value distribution, and collective self-sufficiency dynamics.

Table 7: 9R model Misak analysis (Author's elaboration)

9R principle	Definition	Application to the Misak economy	Strategic advantages
R0 - Refuse	Eliminating unnecessary materials and environmental impact at the source.	They reject plastic and synthetic materials, eliminating non-biodegradable waste at the source. Avoid chemical inputs in agriculture, protecting biodiversity.	Prevents waste generation rather than managing it later, reducing environmental impact from the outset.
R1 - Rethink	Reevaluating economic structures to prioritize self-sufficiency and sustainability.	Every community member is a producer, consumer, and resource manager. The *Minga* (collective labor) ensures efficiency without overproduction.	Creates a resilient economic system where efficiency and equity are inherent. Eliminates market dependencies.
R2 - Reduce	Minimizing resource consumption through efficient practices.	Water use is optimized with traditional irrigation systems. Sustainable construction uses local, durable materials. Low-impact diet reduces transportation and waste.	Reduces demand for external resources, lowering environmental footprint and increasing self-sufficiency.

R3 - Reuse	Maximizing the useful life of products by reusing them.	Tools, clothing, and utensils are repaired and reused until they are fully worn out. Bartering extends product life cycles.	Extends material utility, reducing the need for new products and decreasing resource extraction.
R4 - Repair	Extending product life cycles through continuous maintenance.	Agricultural tools and infrastructure are regularly maintained to avoid early replacement. Houses and communal spaces are constantly repaired.	Avoids unnecessary consumption and waste generation by keeping products functional for longer.
R5 - Refurbish	Restoring used products to a functional state.	Damaged objects such as agricultural tools and textiles are reinforced for extended use, reducing demand for new products.	Prevents premature disposal of materials, reducing pressure on natural resources.
R6 - Remanufacture	Creating new products by reassembling existing materials.	Obsolete tools are disassembled and reassembled into new instruments, applying remanufacturing principles.	Reduces reliance on raw material extraction by transforming existing components into useful products.
R7 - Repurpose	Finding new applications for materials instead of discarding them.	Old wooden and stone structures are reused in new constructions. Recycled fabric is repurposed for blankets and rugs.	Minimizes waste while maximizing resource utility through creative repurposing.

R8 - Recycle	Processing materials to be reused in new production cycles.	Organic waste, glass, and metal materials are processed and reintegrated into new production cycles.	Keeps materials in use for as long as possible, reducing the need for virgin resources.
R9 - Recover	Extracting energy or useful components from waste that cannot be recycled.	Biomass combustion provides energy. Residual materials are used for insulation or secondary raw materials in new applications.	Ensures that even non-recyclable materials contribute to the circular economy through energy recovery or secondary applications.

6.2.2 The 7S Model applied to the Misak: A strategically perfect economy without industry or markets

In strategic management, the 7S Model by McKinsey is used to analyze the alignment between strategy, structure, and organizational culture. Applying this framework to the Misak economy highlights a radically different system—highly efficient, resilient, and sustainable, functioning without industry, global markets, or advanced technology. While Western economies continuously strive to correct inefficiencies through sustainability policies and governance reforms, the Misak demonstrate that a system can be designed to be optimal from the outset, ensuring stability and balance without requiring constant adjustments.

The Strategy of the Misak is not centered on expansion or economic growth but on self-sufficiency, balance, and long-term sustainability. Unlike market economies, where success is measured in short-term financial cycles, the Misak plan for sustainability across generations, building an economic model independent of market volatility and rooted in environmental stability. Their system does not need to adapt to external pressures—it renders them irrelevant by creating a self-contained, inherently stable economic environment.

Their Structure is fundamentally different from hierarchical industrial economies. There is no separation between those who produce and those who decide, nor is there a vertical leadership

model. Instead, they operate a collective governance system, where power is distributed and economic decisions are made with the primary objective of maintaining a dynamic balance between available resources and community needs. Unlike centralized market-driven economies, the Misak system is self-regulating, eliminating issues such as speculation, overproduction, economic bubbles, and systemic waste.

The Systems governing their economy are both simple and highly effective. While Western economies rely on global supply chains, predictive analytics, and complex logistics, the Misak operate within a closed-loop system, where every resource is reintegrated into the cycle. Food production is localized and autonomous, consumption is aligned with real needs, and the very concept of accumulation is absent. This model eliminates the need for warehousing, complex distribution networks, or artificial scarcity, ensuring operational efficiency and direct resource management.

At the core of this system are Shared Values that inherently shape economic decisions, preventing unsustainable practices. In corporate environments, organizational culture is often imposed from the top down to improve cohesion and efficiency. Among the Misak, however, economic behaviors are naturally governed by deeply embedded principles. Reciprocity regulates exchanges, preventing economic imbalances and ensuring that every transaction maintains community-wide equilibrium. Land management is not dictated by external regulations but is an integral part of their identity, making exploitative practices unthinkable. Unlike industrialized nations, where sustainability requires regulatory frameworks and financial incentives, the Misak naturally integrate sustainability into their economic logic.

The Skills within the Misak economy are not based on rigid specializations but on a shared and evolving knowledge base. Every individual is trained to be self-sufficient, possessing the ability to cultivate, build, repair, and manage resources autonomously. Knowledge transfer is seamless and embedded in daily life, ensuring that expertise is preserved and adapted over time. This structure grants them a level of resilience that is unattainable in hyper-specialized economies, where the collapse of a single sector can destabilize the entire system.

Their Style of Leadership further distinguishes them from conventional economic systems. Governance in industrial economies is often centralized, with decisions made by a select few. Among the Misak, leadership is distributed and emerges dynamically, based on the needs of the community. This prevents power concentration, ensuring flexibility and adaptability while eliminating bureaucratic inefficiencies.

The Staff within the Misak economy are not merely workers but active participants in the management of resources. The organization of labor is fundamentally different from market economies, where work is treated as a resource to be optimized, often at the expense of quality of life. Among the Misak, labor is a collective activity based on the principle of *Minga*, where participation is driven by shared necessity rather than coercion. This model eliminates competitive pressure, ensuring efficiency without exploitation and creating an economy where productivity and collective well-being are directly linked.

Applying the 7S Model to the Misak economy reveals a sophisticated and highly functional system that outperforms many aspects of industrial economies. It does not require corrections or sustainability adaptations because it was designed from the outset to be circular, self-sufficient, and optimized.

This model challenges conventional economic theories, demonstrating that true sustainability is not achieved through technological innovation or regulatory adjustments but through designing economic systems that do not create imbalances in the first place. While Western corporations continue searching for ways to reduce environmental impact and improve production efficiency, the Misak prove that an economy does not need corrections when it is built to function in harmony from the beginning.

Table 8: 7s model Misak analysis (Author's elaboration)

7S model element	Definition	Application to the Misak economy	Strategic advantages
Strategy	Defines long-term objectives and how resources are allocated to achieve them.	The strategy is not based on expansion or economic growth but on long-term sustainability, balance, and self-sufficiency. It is designed to maintain generational stability rather than respond to market volatility.	Avoids reliance on external markets, ensures economic independence, and promotes long-term resilience.

Structure	The organizational framework, decision-making hierarchy, and relationships between different actors.	There is no separation between decision-makers and producers. Governance is collective, power is distributed, and economic choices are made to ensure equilibrium between available resources and community needs.	Prevents hierarchy-related inefficiencies, fosters adaptability, and eliminates speculation and market-driven fluctuations.
Systems	Processes and procedures used to manage resources and operations efficiently.	A closed-loop system where every resource is reintegrated into the cycle. Food production is localized, consumption aligns with real needs, and there is no accumulation or artificial scarcity.	Eliminates supply chain dependencies, optimizes local resource use, and minimizes waste.
Shared Values	Core principles and cultural beliefs that guide decision-making and economic interactions.	Reciprocity governs exchanges, ensuring economic transactions align with community-wide equilibrium. The connection to land is central, preventing exploitative practices without the need for regulations.	Naturally embeds sustainability in the economic system, reducing the need for external incentives or regulations.
Skills	Competencies and knowledge base required to maintain system efficiency and resilience.	Knowledge is fluid and collectively maintained. Every individual is self-sufficient, capable of cultivating, constructing, and managing resources autonomously, ensuring adaptability and resilience.	Ensures knowledge retention across generations, reducing dependency on external education systems and promoting self-sufficiency.

Style of Leadership	Leadership approach and governance model within the economy.	Leadership is distributed, emerging dynamically based on community needs rather than being imposed. Decisions are made collectively, eliminating inefficiencies of hierarchical governance.	Enhances governance efficiency, fosters flexibility, and eliminates centralized power dynamics that can lead to inequality.
Staff (People Management)	Human capital management, work organization, and labor distribution.	Labor is structured around the principle of *Minga* (collective work). Productivity and well-being are interconnected, eliminating competition and exploitation while ensuring efficiency.	Creates a balanced, sustainable workforce model where productivity aligns with communal well-being rather than profit maximization.

6.3 Traditional medicine and connection with nature

Traditional medicine in the Misak community is a complex, integrated system that reflects their cosmovisión and deep connection with nature. Rooted in centuries of empirical observation and spiritual practice, it relies on orally transmitted knowledge and techniques, ranging from the use of medicinal herbs to healing rituals, that have been refined over generations. This system enables the sustainable and respectful use of natural resources, ensuring that the healing properties of local flora are optimally harnessed.

For the Misak, nature is not merely a backdrop but a living, sacred force with which they maintain a symbiotic relationship. This connection manifests in their spirituality, agricultural practices, and healing traditions. Medicinal plants are viewed as spiritual entities with inherent energy; elders pass on the specific functions and uses of each plant through oral tradition, ensuring that every remedy is tied to the community's ecological and cultural balance.

A key aspect of Misak traditional medicine is the integration of dreams into healing practices. Elders and traditional healers often receive spiritual guidance through dreams, which inform the selection and combination of medicinal plants. For example, in childbirth, traditional *taitas* (healers) and *parteras* (midwives) use medicinal herbs to facilitate delivery and protect both

mother and child, receiving symbolic offerings, such as coca leaves or *chirrincho*, (a traditional alcoholic beverage) instead of monetary payment.

Medicinal herbs are primarily administered as infusions, though some are also processed into essential oils and ointments. Plants are combined according to their energy properties to produce remedies and *saumeris* (purifying smokes) that play a crucial role in both prevention and treatment. Traditional healers work to preserve the energetic balance between the body and the earth through rituals such as the "*hermanita*" and the "*pishi*" (in which plants are applied with the left hand while four steps are taken with the right foot to invoke the four elements: earth, water, fire, and air).

Rituals hold a central place in the Misak approach to health. During the inauguration of a new *yatul* (sacred space), for instance, the taita channels the "*soplo de la vida*" (a regenerative life force) to restore vital energy. These ceremonies, often accompanied by traditional music, vocal performances, and dances, aim to renew internal balance and strengthen the bond between humanity and nature. Rituals also mark agricultural activities, such as during sowing and harvesting, to maintain the connection with the land, often symbolized by the presence of birds considered as spiritual messengers.

In this holistic framework, illness is understood as an imbalance that may affect the body, mind, and spirit. Rather than treating symptoms in isolation, Misak traditional medicine seeks to restore overall equilibrium through a combination of medicinal remedies and spiritual interventions, such as purification ceremonies and prayers. External factors, ranging from "malevolent spirits" to environmental degradation, are seen as potential causes of imbalance, emphasizing that health is a collective, community-wide concern.

The effectiveness of these practices is evidenced by the community's response during the COVID-19 pandemic, when traditional healing methods were combined with modern health measures. Many families relied on these ancestral practices, and as one interviewee noted, the crisis served as an opportunity to reclaim and revitalize many traditions, including reforestation, the restoration of yatules, and the revival of rituals.

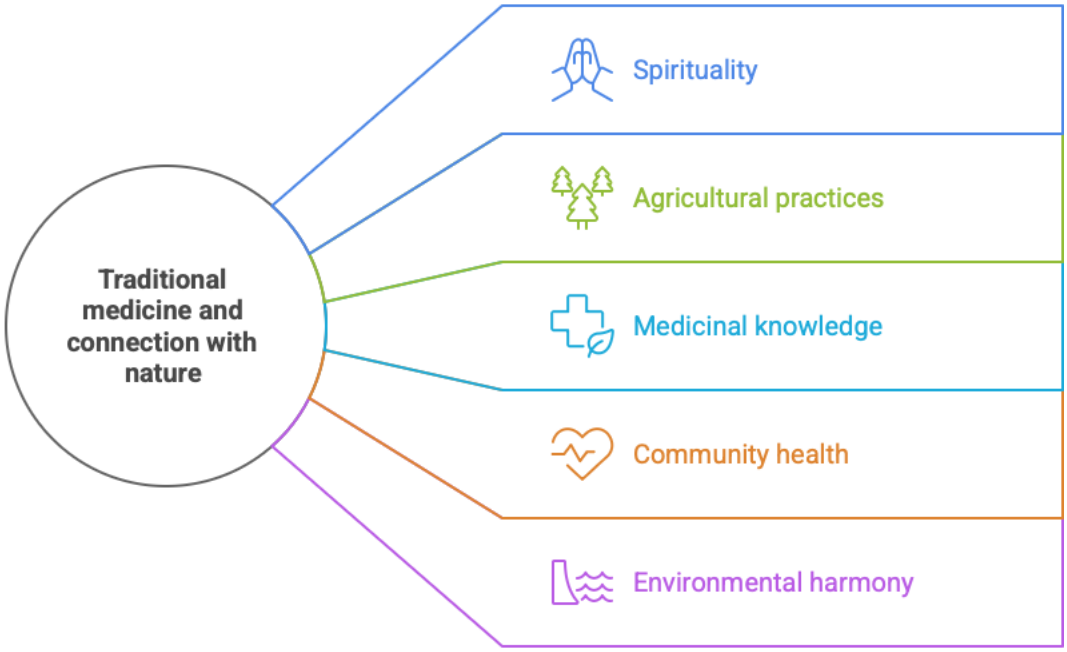

Figure 15: Multifaceted nature of Misak traditional medicine (Author's elaboration)

6.4. Circularity and spiral

6.4.1 Circular time

The concept of circularity of time in the Misak people's worldview is deeply connected to their relationship with nature. Unlike the Western conception, where time is seen as a linear progression from past to future, for the Misak, time is cyclical: events repeat, intertwining with community life, nature, and spirituality. While in the Western perspective, time is an arrow pointing towards progress and innovation, for the Misak, it is a circle where each passage is a repetition with new nuances. Nothing is abandoned; everything returns transformed.

This vision is not exclusive to the Andean Indigenous world but is also found in many other cultures. In ancient Greek mythology, before the rationalization of philosophy, time was conceived as a series of cycles. Similarly, in Nordic and Germanic traditions, the myths of the Nibelungs and Viking sagas depict a reality where events repeat, and destiny is an eternal return.

What makes the Misak vision unique is the relativity between past and future: these are not considered fixed or separate but interchangeable. According to an interviewee from the Misak community:

"For us, the future is not what has yet to come, but what has already happened. This is the part we manage: our future is not ahead, but behind."

In the Misak temporal model, knowledge develops along a double spiral, starting from the center (symbolically, the fire) and then expanding through experience, travel, and learning. However, upon reaching old age, the process reverses: knowledge is no longer accumulated but transmitted. As explained by a community member during an interview:

"When we are old, from that moment on, we no longer learn but teach. Everything you have learned becomes heritage, which you pass on, pass on, pass on, until you leave."

This concept of time is also reflected in the way the Misak speak about life and death: one does not "be born" or "die," but rather one "goes" and "comes" (*ir* and *venir*). This language clearly expresses the vision of life as a continuous flow, where individual existence is just a passage within a larger cycle. Birth is not seen as an absolute beginning but as a return, and death is not an end but a transformation and a new journey.

In this vision, the past is not a distant memory but a guide for the future. This concept is also reflected in the community's educational models: the learning process is not linear but circular, represented by the concepts of desenrollar (developing experience) and enrollar (wrapping and transmitting knowledge to new generations).

This conception is also clearly expressed in the Misak *Plan de Vida*:

"Life does not move in a straight line but in circles like a spiral that 'unfolds' with the events and advances of existence, only to later 'wrap' itself again to another starting point from which another cycle, another stage, begins, whether personal or collective."

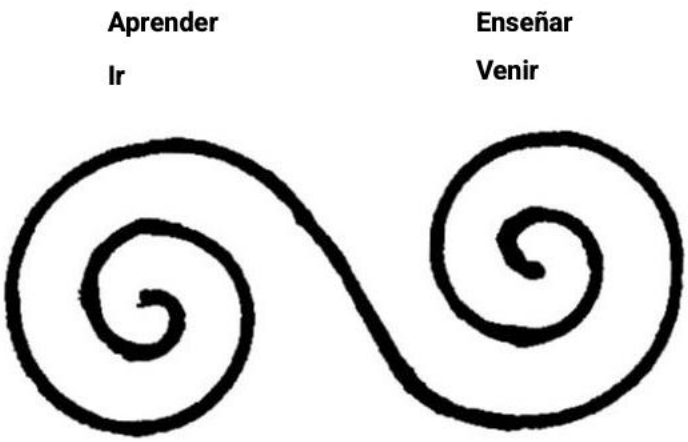

Figure 16: Spiral (Author's elaboration)

Jorge Luis Borges explored the concept of cyclical time in many of his works, describing it not as a linear progression but as a cycle in which events repeat, sometimes in identical ways, sometimes with variations. This vision, closely related to the Misak people's perception of time, emerges in stories such as El Aleph, El jardín de senderos que se bifurcan, and La biblioteca de Babel.

For Borges, time is an enigma, a labyrinthine dimension where past, present, and future do not exist as distinct entities but as simultaneous possibilities. The present is not a fixed point but a fluid transition between the advancing past and a future that has already been written. As he wrote:

"The future is as irrevocable as the rigid yesterday. There is nothing that is not a silent letter in the eternal, indecipherable script whose book is time."

One of the key concepts in his work is the idea of an infinite book, where all possibilities are realized simultaneously. In El jardín de senderos que se bifurcan, time is represented as a network of paths that multiply, where each choice creates a new branch, yet all possibilities exist at the same time. This idea aligns with the Misak conception, in which the future has already happened, and each moment is connected to others in a spiral with neither beginning nor end.

In El Aleph, Borges introduces the idea of a point in space that contains all other points, allowing one to see the entire universe in a single instant. This point symbolizes a vision of time where past, present, and future coexist simultaneously, a concept that reflects the cyclical view of time in many Indigenous cultures.

In La biblioteca de Babel, Borges extends this idea to knowledge, imagining an infinite library containing every possible combination of letters and words, and therefore every possible book. In

an infinite universe, human experiences and events repeat endlessly, much like in the Misak worldview, where knowledge is passed on cyclically through generations.

This vision of time, which challenges the linear perception typical of modernity, finds a strong parallel in the Misak *cosmovisión*, where past and future are not separate entities but interconnected in a continuous cycle.

The fundamental concepts developed by Borges on the circularity of time can be summarized as follows:

- Eternal return: Everything that happens repeats in an infinite cycle. In El Aleph, Borges imagines a point that simultaneously contains the past, present, and future.
- Infinite possibilities and repetitions: La biblioteca de Babel represents an infinite universe in which every experience is destined to repeat itself.
- Time as an illusion: In El jardín de senderos que se bifurcan, time is a network of simultaneous possibilities, where each choice generates a new branch.
- Cyclical nature of history and human destiny: Humanity's history repeats cyclically, making people experience similar situations in different eras.
- Abolition of past and future: In Nueva refutación del tiempo, Borges questions the very existence of time as a chronological progression, arguing that past, present, and future exist simultaneously.

For Borges, the circularity of time is both an enigma and an opportunity: on one hand, it subverts the linear view of history; on the other, it opens new possibilities for interpreting reality. Time is not a chronological sequence but a multidimensional prism in which each moment reflects the whole.

In his most poetic reflections, Borges identifies himself with time, perceiving his own existence as part of an unstoppable flow:

"Time is the substance I am made of. Time is a river that carries me away, but I am the river; it is a tiger that devours me, but I am the tiger; it is a fire that consumes me, but I am the fire. The world, unfortunately, is real; I, unfortunately, am Borges."

Nueva refutación del tiempo

And again, in his verses:

To watch the river made of time and water
and remember that time is another river.
To know we drift like the river
and that faces pass like water.
To feel that wakefulness is another dream,
a dream of not dreaming, and that death
which our flesh dreads is that very death
of every night, which we call sleep.
To see in the day or in the year a symbol
of the days of man and of his years,
to turn the outrage of the years
into a music, a sound, a symbol,
to see in death a sleep, in sunset
a sad gold—this is poetry
that is poor and immortal. Poetry
returns like dawn and sunset.
At times in the evening, a face
looks at us from the depth of a mirror;
art must be like that mirror
that reveals to us our own face.
Ulysses, weary of wonders,
wept with love at the sight of his Ithaca
humble and green. Art is that Ithaca
of green eternity, not of wonders.
It is also like an endless river
that flows and remains; it is the mirror of one
same, inconstant Heraclitus, one and the same
ever-changing, like the endless river.

6.4.2 Applications of circularity

This vision of circularity is closely linked to the land, which is considered a living and regenerative entity with its own natural cycle that must be respected to maintain cosmic balance. The rhythms of agriculture and the cycles of the seasons are concrete manifestations of time's repetition and renewal. Crop rotation, environmental conservation practices, and resource management reflect this

cyclical concept: the time for sowing and harvesting is sacred and follows lunar phases, ensuring a continuous alternation of preparation, growth, and renewal.

Rituals and traditional celebrations aim to reconnect past, present, and future. Some ceremonies serve to restore cosmic order, bringing harmony between humans, nature, and the spiritual world. The oral transmission of history and knowledge also embodies this concept of time: it is not merely the preservation of memory but an act that continuously renews the identity of the Misak people.

However, this vision is challenged by Western modernity, which imposes a more rigid, linear, and productivity-driven conception of time. The Western model is based on accumulation and efficiency, contrasting with the cyclical and regenerative approach of the Misak. Despite these pressures, the Misak strive to maintain and adapt their circular model, particularly in education, community management, and sustainable resource use.

This concept can be analyzed in relation to the principles of sustainability and circular economy. By rejecting a linear model of resource exploitation and embracing a system based on regeneration and balance, the Misak offer an alternative perspective on the relationship between humans, nature, and economic development.

The following table provides a detailed overview of the various applications of circularity in Misak life, highlighting how this principle is not only at the core of their worldview but also shapes the concrete practices that regulate community life.

Table 9: Misak circularity applications (Author's elaboration)

Field	Application of Circularity
Agriculture and Resource Management	• Crop rotation: The Misak avoid intensive soil exploitation, following cultivation cycles that allow the land to regenerate and maintain fertility. • Cultivation based on lunar phases: Sowing and harvesting do not follow a rigid calendar but are determined by lunar and seasonal cycles, reflecting an interconnected concept of time. • Self-sufficiency system: Agricultural production is not aimed at accumulation or large-scale trade but at sustaining the community, ensuring a balance between present needs and future continuity. • Respect for the land as a living being: Each phase of cultivation is seen as part of a sacred cycle in which the land gives and receives, maintaining its energetic and spiritual balance.

Economy and Resource Management	• Rejection of the linear production-consumption-waste model: Resources are not consumed irreversibly but reintegrated into the system. • System of exchange and reciprocity: Based on a circular economy model, where resources are shared within the community, avoiding waste. • Reuse and regeneration: Objects and materials are reused or repurposed for new uses, preventing waste accumulation. • Economic autonomy: The community seeks to maintain sustainable management without relying on external economic systems imposing linear growth logics.
Education and Knowledge Transmission	• Cyclical and oral learning: Knowledge is passed down through storytelling and direct experience, without separation between theory and practice. • Central role of elders: Elders act as the living memory of the community and are responsible for transmitting knowledge to younger generations, creating a continuous cycle. • Return to the community: Those who study outside are encouraged to return and reinvest acquired knowledge, ensuring a continuous cycle of learning and renewal. • Natural knowledge management model: Knowledge is considered a common good that must be continuously shared and enriched, reflecting modern models of open innovation and continuous learning.
Spirituality and Life Perception	• Rituals as tools of balance: Rituals are not mere commemorations of the past but acts that restore cosmic order and maintain harmony between humans, nature, and spirits. • Death as transformation and return: Death is not seen as an end but as a return to the land, in a continuous cycle of renewal. • The Rainbow as a cyclical symbol: Considered a sacred element, it represents the connection between different worlds and the link between past, present, and future.

Governance and Community Organization	• Circular and collective decision-making system: Decisions are made through community assemblies, where the past (experience of elders) and the future (ideas of youth) are in constant dialogue. • Principle of reciprocity in social relations: Those who receive help are expected to give back in the future, ensuring a mutual support system. • Rotating leadership mandate: Leaders do not remain in power permanently but are chosen for a limited period and then replaced, preventing power concentration and ensuring renewal. • Sustainable governance: This model can be compared to shared leadership and participatory decision-making practices used in corporate and social environments.
Use of Medicinal Plants and Bioeconomy	• Healing based on balance between body and spirit: Illness is not just a physical disorder but an energetic imbalance that needs to be restored, reflecting a holistic health perspective. • Sustainable collection of medicinal plants: Plants are harvested respecting nature's regeneration times and using only the necessary amounts. • Oral and community transmission of medical knowledge: Medicinal plant knowledge is passed down through generations, ensuring that wisdom remains within the community. • Biodiversity conservation and ethnobotany: The approach to traditional medicine is based on the sustainable management of natural resources, connecting to bioeconomy principles.
Architecture and Community Spaces	• Circular structure of Misak houses: Homes are round-shaped, symbolizing continuity and inclusion, designed to promote sharing and dialogue. • The hearth as the center of social life: The fire is the central point of the house, around which collective activities such as conversations, dances, and handicrafts take place. • Harmonious flow of spaces: Architecture is designed so that energies flow without causing disturbance, fostering community cohesion.

Bioeconomy and Ethnobotany	• Cyclical use of natural resources: The Misak do not exploit plants in a linear way but follow natural renewal cycles, ensuring that ecosystems can regenerate and maintain biodiversity. Harvesting is done with respect for ecological balance, using only what is necessary and allowing time for regrowth. • Oral transmission of knowledge: The understanding of medicinal plants is not written in fixed systems but passed down orally through generations. This ensures that knowledge evolves continuously, rather than being depleted or forgotten, reinforcing a dynamic and adaptive cycle of learning. • Integration of sustainability and bioeconomy: The Misak's approach aligns with circular bioeconomic models, where plants are seen not just as resources to be extracted but as part of an interconnected system that sustains both the environment and the community over time.

Figure 17: Traditional round house (Author's elaboration)

6.4.3 Spiral

The concept of the spiral (*lumaca* or *sombrero*) among the Misak people is deeply connected to their *cosmovisión* and the circular perception of time. This symbol represents a fundamental principle in their way of understanding time, space, and life itself.

The spiral is not just a decorative motif or an abstract element; it embodies the cyclical and ascending movement of existence, where the past, present, and future are not separate linear entities but rather intertwine in a continuous process of evolution and return. Each stage of life is a transformed repetition of the previous one, a cycle that regenerates itself without ever being identical.

The following table illustrates how the concept of the spiral is applied in different aspects of Misak life, influencing their traditions, governance, spirituality, and relationship with nature.

Figure 18: The spiral as a visual reference in the Misak community (Author's elaboration)

Table 10: Application of the spiral concept (Author's elaboration)

Field	Application of the Spiral Concept
Oral Tradition and Memory	The spiral represents the transmission of knowledge across generations. Wisdom is not passed down in a static way but continuously evolves, enriched with each cycle. Elders explain past and future events through this model, emphasizing that nothing is lost but rather transformed.
Spirituality and Rituals	The spiral serves as a bridge between the material and spiritual worlds. It appears in rituals, dances, and sacred symbols, signifying the interconnection between the cosmic and earthly dimensions. Many ceremonies involve circular movements to reflect the spiral's dynamic nature.
Life and Transformation	Life is seen as an ongoing process of change. Every phase, from birth to death, follows a spiral path, where experiences accumulate and return in new forms. Personal and collective growth are perceived as spirals, never truly repeating but constantly evolving.
Nature and Environmental Harmony	The spiral shape is found in nature (e.g., snail shells, river currents, and wind patterns), reinforcing the idea that humans must follow the natural rhythms of renewal and transformation. Agriculture and environmental practices are guided by these cycles.
Community Decision-Making	The governance model follows a spiral structure, where discussions and decisions evolve through multiple rounds of consultation, ensuring that previous insights are reconsidered and refined. This prevents abrupt decisions and fosters continuous improvement.
Architecture and Symbolism	The spiral appears in Misak architectural patterns and textiles, symbolizing continuity and unity. Traditional houses incorporate circular elements to promote social cohesion and a harmonious energy flow.

6.4.4 Spiral and agriculture

The concept of the spiral in Misak agriculture manifests in various ways. For the Misak, agriculture is much more than a productive activity; it is a spiritual, cyclical, and communal act that reflects their relationship with the land and their *cosmovisión* based on the spiral. This principle guides their

approach to cultivation, sowing, and harvesting, integrating ancestral knowledge with a deep respect for nature.

As an interviewee explains: “Here in the Botanical Garden, we have spiral-shaped crops, and this is not just because we decided so, but because there is a deep reason behind this practice. The land itself teaches us that there are other ways to perceive agriculture. In the Western world, it is always linear, linear, linear. For us, however, the sowing of food and life always happens in a spiral, from the center outward.”

The following table illustrates how the concept of the spiral is applied in Misak agriculture, influencing their farming techniques, rituals, and sustainability practices.

Table 11: Agricultural applications of the spiral concept (Author’s elaboration)

Field	Application of the Spiral Concept in Agriculture
Cultivation Cycle	The Misak consider the land as a living organism that follows natural cycles similar to the spiral movement. Sowing and harvesting are not merely seasonal events but moments that repeat in a sacred rhythm, linked to the moon, the sun, and natural forces.
	The phases of cultivation are not linear but follow a process of return and transformation, like a constantly evolving spiral.
Crop Rotation and Permaculture	The Misak follow a model of diversification and crop alternation to respect the cycles of the land and ensure its fertility. Instead of depleting the soil with a single crop, they practice a system similar to permaculture, where each plant has its place within a circular and regenerative ecosystem.
	This process recalls the movement of the agricultural spiral, where the land is cultivated following a continuous evolution while remaining connected to the past.
Spiral Gardens and Agroecological Design	Some Misak communities adopt spiral-shaped cultivation models (a practice also spreading in Western countries), a traditional technique used by Indigenous peoples to optimize space and light exposure, retain moisture, and protect plants from the wind.

	This method aligns with the principles of biodynamic agriculture, where the organization of crops follows natural patterns to improve yield and sustainability, such as companion planting and ridge arrangements.
The Spiral in Agricultural Rituals	Before sowing, the Misak perform rituals involving circular or spiral movements (as observed in meetings and interviews), symbolizing the return to the land and the eternal connection with ancestors.
	Traditional dances related to fertility and harvest also feature circular movements, representing the continuous cycle of life and nature.
The Spiral as a Metaphor for Sustainability	Misak agriculture is based on the idea that every resource is regenerated and returned to the land in a continuous movement, just like a spiral that never ends.
	This model reflects the principles of sustainability and circular economy, where every element of the ecosystem has a function, and nothing is wasted.
Comparison with Western Models	While modern industrial agriculture follows a linear logic (production - consumption - waste), the Misak approach is circular and regenerative, aligning more closely with agroecology and permaculture.
	The use of the spiral in their agricultural vision integrates nature, time, and ancestral knowledge, merging past, present, and future into a single harmonious flow.

6.4.5 Spiral and medicine

For the Misak, the relationship between medicinal plants and the spiral is deeply rooted in their *cosmovisión* and traditional healing practices. The spiral is not merely a graphic symbol or abstract model but represents the flow of vital energy, the cycle of healing, and the way knowledge about plants is passed down and applied.

The spiral is a recurring symbol in many Indigenous cultures, often representing the cyclical nature of life, evolution, and the connection between humans and the divine. Among Native American traditions, for example, the spiral is seen as a universal symbol of eternity and the sacred essence

of the spirit. When placed on the palm of a hand, it represents healing and the therapeutic energy flowing from the hands of the shaman.

Moreover, the spiral is a fundamental shape in nature, widely recognized across cultures as a symbol of life's cycles and its spiritual connection. Since ancient times, it has been used to represent renewal, transformation, and the continuous link between humans and the natural world.

The following table illustrates how the concept of the spiral is applied in Misak medicine, influencing their understanding of healing, sustainability, and knowledge transmission.

Table 12: Medical applications of the spiral concept (Author's elaboration)

Field	Application of the Spiral Concept in Medicine
Natural Growth and Plant Forms	Many medicinal plants follow a spiral growth pattern, observable in their leaves, flowers, and roots. The arrangement of leaves (phyllotaxis) and floral structures (such as in the Compositae family, including sunflowers and daisies) reflects a natural order that mirrors the universe's harmony.
Spiral Medicinal Gardens	Some Misak gardens are designed in a spiral layout, a principle also adopted in permaculture to optimize space and support the harmonious growth of plants.
	This arrangement allows for natural sunlight regulation, improved coexistence of different plant species (reducing pests and diseases), and the creation of an energy flow that mirrors nature's cyclic dynamics.
Sustainability and Biodiversity Regeneration	The spiral model applied to medicinal plants demonstrates how Indigenous medicine is deeply sustainable and tied to natural regeneration.
	There is no concept of resource exploitation, as every plant's use is balanced through rituals and practices that ensure its reproduction.
Cyclical and Progressive Healing Process	Healing, according to the Misak, is not an immediate or linear process but follows a spiral path where each phase brings a deeper understanding of one's body and its balance with nature.

	Plant-based remedies are not seen as 'cures' in the Western sense but as part of a rebalancing process in which body and spirit must gradually restore harmony through time and connection with the earth.
Ancestral Knowledge Transmission	The knowledge of medicinal plants is not transmitted in a rigid or linear manner but follows a spiral logic, where each generation adds new experiences and adaptations.
	Elders and traditional healers (the' wala) teach the younger generation through stories, experiences, and ritual practices that reinforce the concept of cyclical learning.
The Role of the Curandero: Spiral Diagnosis and Treatment	Misak healers use a holistic approach to health, considering the patient as part of a broader balance. Diagnoses and treatments are performed following circular patterns, such as rotating hand movements, rituals with sacred plant smoke, or the symmetrical arrangement of medicinal herbs.
	Healing sessions often follow a progressive path, starting from physical symptoms and moving toward deeper causes related to the soul and spirit.
The Spiral in Healing Ceremonies	During healing rituals, the curandero and participants often move in circles or spirals, symbolizing the return to origin and the process of regeneration.
	Sacred herbs such as tobacco, coca, and other local plants are burned in circular motions to purify the environment and establish a connection with ancestral spirits.
The Spiral as a Model of Natural Balance	Western medicine follows a linear approach: symptom - drug - recovery. In contrast, the Misak approach is circular and holistic: listening to the body - connecting with nature - gradual healing - returning to balance.

7. Conclusion

The exploration of sustainability within the Misak community in Colombia provides innovative insights into global sustainability practices. Misak society exemplifies a holistic system aligning knowledge management, ecological balance, and socio-economic organization with circular economy principles, contrasting significantly with Western models. Through concepts such as circular time, collective governance, biodiversity utilization, and intergenerational education, their sustainable agricultural practices, water resource management, and cultural environmental stewardship promote ecological harmony and community resilience, offering viable alternatives to conventional, market-driven economies.

Table 13: SWOT analysis

STRENGTHS	**WEAKNESSES**
Economic self-sufficiency (barter, collective labor, local production)	Low scalability: practices are deeply context-dependent
Embedded knowledge system: oral, intergenerational, land-based learning	Knowledge hard to formalize: mostly oral and experiential
Circular economy in action: reuse, no waste, closed material loops	Limited access to infrastructure and capital
Community-led development plan (Plan de Vida) integrates sectors	Time-consuming transmission processes
Strong cultural-ecological coherence	—
OPPORTUNITIES	**THREATS**
Inspiration for post-growth, degrowth and solidarity economy models	Land pressure, deforestation, climate change
Inform public policies: ESG, circularity, rural resilience	Cultural erosion due to migration and globalization
Hybridization with low-impact technologies (agroecology, permaculture)	Risk of knowledge appropriation without community governance
Applicability in similar rural, land-connected, low-resource communities	Indigenous frameworks often excluded from institutional and policy spaces

However, the research also encountered several limitations. The primary constraints were logistical and temporal, as fieldwork was limited in duration due to security conditions in the Cauca region.

Additionally, language barriers required constant mediation, potentially affecting the depth and nuance of data collection and interpretation. The inability to conduct follow-up visits limited further exploration of themes emerging late in the research process. Moreover, having a non-Indigenous advisor could have influenced interpretative frameworks despite active measures to mitigate bias. Future research directions include extended longitudinal studies to observe and document the evolution and adaptation of Misak practices over time, particularly in response to external pressures such as globalization, climate change, and governmental policies. Additionally, comparative studies involving other Indigenous communities could enhance understanding of the commonalities and divergences in sustainable practices across different cultural contexts. Another critical research trajectory involves exploring how elements of Misak sustainability frameworks can be effectively integrated into broader regional, national, and global policies to promote systemic change. Lastly, expanding interdisciplinary collaborations involving Indigenous knowledge holders, policy makers, and sustainability experts can facilitate the mutual exchange of practices, enhancing global efforts towards sustainable development goals (SDGs). This approach would ensure a more equitable, inclusive, and practical application of Indigenous sustainability models, thus recognizing and preserving cultural diversity while collectively addressing global environmental crises.

Appendix

Table 14: Analysis of interview themes: Education (Author's elaboration)

Main Theme	Subtheme	Details	Examples or Notes	Interpretation	Connections	Interview
Traditional Education	Traditional Education	Traditional Education	Traditional Education			
Recovery of Traditional Names	Linguistic Recovery	Cultural Recovery	Fire-centered Educational Method			
Revival of traditional names linked to nature, such as Guaira and Tsenai.	Specific courses to recover the Misak language, transmitted by elders.	School subjects dedicated to language, rituals, music, and craftsmanship.	Education takes place around the fire, with oral teachings and community values.			
Names like 'Guaira' (wind) and 'Tsenai' (light) restored to the community.	Linguistic teaching programs for children and youth.	Inclusion of craft workshops to revitalize lost traditions.	The central fire is seen as the heart of shared knowledge.			
4	4	4	4			4

Table 15: Analysis of interview themes: History and colonization (Author's elaboration)

Main Theme	Education	Education	Education	Education
Subtheme	Circular Model	Cultural Transmission	Role of Schools as Learning Centers	Knowledge Transmission
Details	The school integrates cultural and spiritual elements with a practical approach and bilingualism (Indigenous and Spanish)	Education begins in the family around the fire, where cultural and spiritual values are taught.	Schools integrate scientific and traditional education into their curriculum.	Community projects to transfer intergenerational knowledge.
Examples or Notes	Children participate in activities such as cultivation and food preparation.	Children learn about medicinal plants and their connection to natural elements.	Collaborations between local schools and the Botanical Garden.	Lessons on natural cycles and traditional practices.
			Schools as central spaces for preserving traditional knowledge.	An educational method that connects generations and cultural values.
			Linked to programs for enhancing cultural heritage.	Connected to the educational projects of the Botanical Garden.
Interview	10	10	5	5

Table 16: Analysis of interview themes: Jardín Botánico (Author's elaboration)

Impacts of Colonization	Impacts of Colonization	Historical Memory	Historical Memory	Resistance
Strengthening Autonomy	Loss and Cultural Recovery	Historical Documentation and Oral Transmission	Struggles for Land Recovery	Syncretism and Cultural Resistance
Creation of institutions such as CRIC and the Indigenous university to defend culture and territorial rights.	The community fights against the loss of traditions caused by colonization, preserving local history.	Importance of historical documents and oral narratives for collective memory	Recovery of expropriated lands during the 1980s	Preservation of spiritual traditions
The Indigenous university is working towards official recognition by the Ministry of Education.	Recovery of oral traditions and the creation of a historical committee to safeguard the past.	Historical documents, such as a 1973 article, testify to the struggles against landowners and the Church's role in the expropriation of Indigenous lands.	In the 1980s, the Misak community took actions to recover part of the expropriated lands, strengthening the people's identity and resilience. These events are central to collective memory	Spirituality serves as a tool for cultural and identity resistance against globalization.
7	7	3	3	1

Botanical Garden	Botanical Garden Project	Botanical Garden Project	Botanical Garden	Botanical Garden	Main Theme
Biodiversity Conservation	Biodiversity Conservation	Community Center	International Botanical Garden Project	Medicinal Plants	Subtheme
Protection of native species and creation of educational spaces to raise awareness in the community and	Importance of native medicinal plants and cultural exchanges	Meeting place and cultural promotion	Creation of a garden for conservation and cultural exchange	Cultural and spiritual importance of medicinal plants	Details
The Botanical Garden hosts endangered species and educates visitors on sustainability.	Projects to protect endemic plants and share knowledge about them.	A space that serves as an educational, cultural, and environmental center for the community and visitors.	The botanical garden not only preserves local biodiversity but also serves as an educational and cultural space where cultivation techniques	Plants such as calendula, lavender, and mint are used for traditional treatments. Each plant has a specific meaning and use for illnesses or	Examples or Notes
					Interpretation
					Connections
4	4	4	2	2	Interview

Table 17: Analysis of interview themes: Spirituality and nature connection (Author's elaboration)

Botanical Garden	Botanical Garden	Botanical Garden	Botanical Garden	Botanical Garden
Environmental Education and Outreach	Medicinal Plant Conservation	Academic Collaborations	Environmental Education	Ethnobotanical Research
Workshops for tourists and youth to raise awareness of biodiversity and the environment	The Botanical Garden protects medicinal species and promotes their dissemination.	Partnerships with national and international universities to combine scientific and	Educational projects for local schools and environmental education programs for tourists	Studies on medicinal plants and traditions related to their use in Misak culture.
Educational workshops at the Botanical Garden for children and adults.	Species such as achiote and calendula are used for medicinal purposes.	Collaborations with local and international universities to strengthen the project.	Environmental lessons integrated with the community's traditional knowledge.	Use of plants for traditional healing and raising awareness of their importance.
Initiatives that promote environmental knowledge and awareness	The Botanical Garden as a model for natural resource conservation.			
Connected to environmental education and sustainability projects	Collaborations between the Botanical Garden and local schools			
5	5	4	4	4

Spirituality	Spirituality	Spirituality	Spirituality	Spirituality	Main Theme
Rites and Symbols	Death and Spirituality	Relationship with Nature	Cosmovisión	Cosmology and Worldview	Subtheme
Symbols like the rainbow and feathered serpent	Fusion of spirit with nature	Nature as a sacred entity	Cyclic time and holistic vision	Cosmology as an integrated system	Details
The rainbow symbolizes the connection between three worlds (celestial, terrestrial, underground); linked to the feathered serpent.	Death is seen as a return to the earth; the spirit merges with nature.	Mountains, rivers, and forests are considered sacred and fundamental for spiritual balance.	Time is conceived as a natural cycle linked to seasons and cosmic movements.	Cosmology is not just religion but a system that integrates spirituality, culture, and ceremonies with daily life.	Examples or Notes
1	1	1	1	1	Interview

Symbolism	Human-Nature Relationship	Human-Nature Relationship	Architecture and Symbolism	Architecture and Symbolism	Spirituality
Misak Flag	Sustainable Land Management	Concept of Sacred Land	Impact of Modernity	Traditional Architecture and Sacred Spiral	Comparison with Western Views
Colors: black (earth), white (spirituality), red (life), green (nature)	Adaptation to limited and not always arable territory	Spiritual and practical connection with the territory	Influence of modern houses on cultural identity	Symbolic meaning of round constructions and spirals	Contrast between Indigenous spirituality and Christianity
The flag colors represent natural elements and spiritual values.	Limited access to arable land due to protected areas has led the Misak to develop vertical farming and intensify the use of adaptive plants.	The land is perceived as a mother that provides nourishment and protection, requiring respect and reciprocity in its use. Specific ceremonies mark its importance.	Concrete houses introduced by the government have altered traditional aesthetics and reduced symbolism related to Indigenous constructions, creating cultural disconnections.	Round structures represent the natural cycle of life and cosmic balance. They are used for ceremonies and as community spaces to strengthen cultural bonds.	Indigenous spirituality focuses on harmony with nature, while Christianity presents a distant paradise.
2	2	2	2	2	1

Spirituality	Spirituality	Spirituality	Spirituality	Spirituality	Symbolism
Sacred Use of Plants	Spirituality in Places	Symbolism in the Flag and Sacred Animals	Death and Rebirth	Human-Nature Connection	Sacred Spiral
Tobacco and coca as sacred plants vs. Western distortion	Sacred places like mountains and rivers	Black for the earth, animals like the tapir and condor	Death as transformation and connection to the earth	Holistic vision and cyclic time	Symbol of life cyclicity and interconnection
Tobacco is used in rituals for purification and protection, while coca is an offering to the earth. Their commercial transformation into products like cigarettes and cocaine is seen as an abuse of their sacredness.	Examples of sacred places include rivers, mountains, and protected forests for their spiritual significance.	The tapir symbolizes strength and connection to the earth, while the condor represents the connection to the sky. Both animals are revered in Misak culture.	Death is not an end but a continuation of the natural cycle of life.	Nature and humans are seen as interconnected and in constant balance.	Circular constructions and the spiral are fundamental in their traditional architecture.
2	2	2	2	2	2

Sacred Places Connection	Sacred Places Connection	Sacred Places Connection	Spirituality and Rituals	Spirituality and Rituals	Spirituality and Rituals
Spiritual Protection in Páramos	Access to Sacred Sites	Shura Manela Mountain	Spiritual Plants	Connection with the Four Elements	Purification Rituals
Páramos and other sacred sites are protected by spiritual entities, with specific access rules.	Preparation rituals to access sacred sites without energy imbalances.	The mountain symbolizes cultural and spiritual resistance, dedicated to leader Shura Manela.	Plants like orejuela, alegría, maize capio, and ruda for energy balance	Symbolic importance of earth, water, fire, and air in rituals	Use of medicinal and spiritual plants in rituals like hermanita
Rules restricting access to women during the menstrual cycle.	Examples of rituals preparing participants spiritually.	Stories about the protection of cultural symbols by Shura Manela.	Orejuela is considered a sacred and spiritual plant, used to strengthen the connection with the territory. Ruda is often associated with purification rituals to remove negative energies.	Four symbolic steps with the right foot represent the connection with the four fundamental elements: earth, water, fire, and air. Each element is invoked during the ritual as part of the Indigenous cosmovisión.	The hermanita ritual involves plants such as orejuela and ruda for purifying and balancing the participants' energies. This ritual is a core tradition in Misak spirituality.
4	4	4	3	3	3

Tulampiya	Rituals and Spirituality	Rituals and Spirituality	Rituals and Spirituality	Rituals and Spirituality	Rituals and Spirituality
Origins and Symbolism	Offerings to Nature	Spiritual Protection	Energy Purification	Use of Coca	Offering to Mother Earth
Built in 2016 as a meeting house based on traditions.	Practices of gratitude for water, earth, and other elements, guided by a traditional doctor.	Sacred sites are protected by spiritual entities such as Pisimisá and Kajim.	Purification rituals to harmonize personal energies with those of the territory.	Coca is used in rituals to facilitate communication and soften speech.	Altars with flowers, food, and symbols to express gratitude to Mother Earth.
The Tulampiya is conceived as a return to the maternal womb, a symbol of unity.	Altars placed near water sources to honor the natural cycle.	Ceremonies led by elders to connect with guardian spirits.	Use of plants like tobacco and ruda for energy purification rituals.	Considered sacred, coca represents communication and reconciliation.	Ceremonies held in the fields to honor crops and natural elements.
4	4	4	4	4	4

Table 18: Analysis of interview themes: Sustainability and biodiversity (Author's elaboration)

Nature Connection	Nature Connection	Spirituality	Spirituality	Spirituality
Spiritual and Physical Well-being	Symbolic Role of Birds	Circular Time	Ceremonies of Gratitude	Symbolism of Plants in Sacred Rituals
Direct connection with nature is central to community well-being.	Migratory birds are considered indicators of the local ecosystem's health.	Life is seen as a continuous cycle of learning and transmission. The double spiral represents birth, growth, and knowledge	Every sowing or construction begins with rituals to thank the earth and natural elements.	Plants are seen as sacred tools for spiritual connection.
Activities such as plant care and wildlife observation strengthen the spiritual bond.	Their migrations inspire spiritual and agricultural practices.	Symbolized by the agricultural spiral and connection ceremonies.	Offerings such as coca leaves and chirrincho are significant symbolic elements.	Coca and other plants used in spiritual rituals.
10	10	10	10	5

Biodiversity	Sustainability	Sustainability	Biodiversity and Environment	Biodiversity and Environment	Main Theme
Importance of Agricultural Biodiversity	Agricultural Practices and Livestock	Biodiversity and Conservation	Climate Change	Natural Conservation	Subtheme
Agricultural biodiversity is essential to ensure territorial resilience.	Ecological techniques and reduction of environmental impact	Native species and conscious management of natural resources	Seasonal irregularities and impacts on agriculture	Protection of forests and water streams	Details
Protection of maize, quinoa, and amaranth as traditional crops.	Traditional practices integrated with modern methods to improve agricultural	Conservation of endemic flora and fauna to preserve local biodiversity.	Extreme weather events influencing agricultural production.	Natural reserves created to protect vital ecosystems and promote ecological	Examples or Notes
Biodiversity as a tool to tackle future environmental challenges.					Interpretation
Connected to rituals for the spiritual protection of the territory.					Connections
5	2	2	1	1	Interview

Table 19: Analysis of interview themes: Agriculture (Author's elaboration)

Sustainability	Sustainability	Sustainability	Sustainability	Biodiversity
Conflicts with Chemical Agriculture	Resource Management	Resources	Green Roof	Conservation of Native Species
Some neighbors practice intensive agriculture and monocultures, causing environmental damage.	The garden promotes sustainable practices such as composting and recycling to reduce waste.	Local resources used sustainably to reduce dependence on external inputs, such as chemical fertilizers or fossil fuels.	Green roofs are vegetative coverings designed to reduce heat dispersion, improve insulation, and create habitats for	Projects to protect and restore native species of the region.
The community avoids direct conflicts and promotes sustainable agriculture through	Agricultural waste transformed into natural fertilizers.	Rainwater harvesting and use of renewable energy.	Examples of green roofs on community buildings and in the Botanical Garden.	Creation of ecological corridors to protect native flora and fauna.
		The enhancement of local resources reduces environmental impact and strengthens community autonomy.	Green roofs represent a balance between innovation and environmental respect.	Conservation is necessary to protect territorial identity.
		Connected with resource management in circular economy projects.	Linked to the sustainable design of buildings in the community context.	Direct link with the initiatives of the Botanical Garden.
10	10	5	5	5

Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Main Theme
Impact of Monocultures	Recovery of Family Gardens (*Yatul*)	Agricultural Sustainability	Return to Traditional Practices	Recovery of Agricultural Biodiversity	Subtheme
Strawberry monocultures have depleted the soil and reduced biodiversity, pushing towards a sustainable recovery.	Restoration of family gardens as a source of food self-sufficiency and medicinal herbs.	Promotion of agricultural practices that minimize the use of agrochemicals and preserve soil fertility.	Incorporation of traditional techniques such as crop rotation and the use of natural fertilizers.	Reintroduction of native plants and sustainable practices through ancestral agricultural methods.	Details
Strawberries have impoverished the soil; now diversified crops are promoted.	*Yatul* provides food and medicinal plants for families.	Reduction of pesticide use to maintain soil health.	Traditional agricultural practices that respect local biodiversity.	Species like quinoa and amaranth have been reintroduced to improve sustainability.	Examples or Notes
					Interpretation
					Connections
4	4	4	4	4	Interview

Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture
Self-Sufficiency Practices	Compost	Spiral Cultivations	Composting Processes	Crop Diversification	Traditional Cultivation Techniques
Each family cultivates a *yatul* for personal consumption. Organic farming is promoted to reduce environmental impact.	Compost is produced using local organic waste, including food and plant scraps. It promotes soil regeneration and waste	Spiral cultivations are a traditional method to optimize available space and encourage crop diversification.	Production of compost from organic waste to improve soil fertility.	Cultivation of peas, onions, beans, and passionflower to diversify crops.	Crop rotation and sustainable practices passed down by elders.
E.g., potatoes, vegetables, and recovery of the traditional tuber mauja.	Compost used for maize, bean, and quinoa crops.	The spiral's base hosts humid-loving plants, the top drought-resistant ones, optimizing resources	Composting widely practiced in community households.	Diversified cultivation to reduce the risk of monocultures.	Use of natural fertilizers and plant association.
	Composting supports agricultural sustainability and food self-sufficiency.	Spiral cultivation embodies the Misak community's holistic approach, blending productivity with	Composting practices that protect the soil and promote self-sufficiency.	Diversification is essential for community food security.	Practices that ensure food and cultural sustainability.
	Connected to sustainable agricultural techniques promoted by the Botanical	Connected to biodiversity practices and innovative approaches of the	Connected to school projects related to environmental sustainability.	Connected to the Botanical Garden as a biodiversity center.	Connected to spirituality and rituals related to the land.
10	5	5	5	5	5

Table 20: Analysis of interview themes: Culture, language and traditions

Language and Culture	Language and Culture	Language and Culture	Main Theme
Cultural Comparison	Cultural Traditions	Oral Transmission	Subtheme
Similarities with Nordic myths and other Indigenous cultures	Use of songs and craftsmanship to preserve values	Stories and legends passed down orally	Details
Parallels with the Norse Bifröst concept, highlighting a symbolic convergence.	Production of textiles with symbolic meanings; narration of local legends.	Stories orally transmitted to preserve knowledge and values.	Examples or Notes
			Interpretation
			Connections
1	1	1	Interview

Agriculture
Criticism of Monocultures
Monocultures, such as strawberries grown with pesticides, damage biodiversity and soil health.
Contrast with the organic methods, the community hopes to influence neighbors by example
10

Food	Food	Food	Culture	Culture	Culture
Cultural Significance of Food	Comparison between Local and European	Traditional Foods and Recovery	Oral Traditions and Legends	Relationship with Modernity	Plants and Food in Culture
Representation of cultural identity through food	Differences in flavors between local fruits and European products	Use of uyucos, quinoa, and blackberry juice as examples of local foods	Legend of the matriarch during the Spanish conquest	Adaptation to modern challenges and cultural collaborations	Food as a cultural symbol and use of medicinal plants
Food is more than sustenance; it symbolizes the bond between land, traditions, and identity.	Local bananas and melons taste distinct, unlike European varieties, showcasing biodiversity.	Uyucos, a pre-Spanish tuber, surpass potatoes in nutrition and yield, symbolizing ancestral food.	An elder led the community during the Spanish conquest, symbolizing resistance.	Collaborations with the government to adapt Indigenous traditions to modernity.	Plants like maize and potatoes hold symbolic and spiritual significance in Misak culture.
3	3	3	2	2	2

Culture	Culture	Music, Dance, Traditions	Music, Dance, Traditions	Music, Dance, Traditions	Music, Dance, Traditions
Valuing Local History	Integration of Scientific and	Placenta Tradition	Chucha Dance	Importance of Music	Musical Instruments
Educational projects to preserve oral history and cultural heritage.	Traditional knowledge integrated with modern approaches to enhance local culture.	The placenta is buried with rituals to guarantee a connection to the land and ancestors.	Dance to celebrate prosperity or the greeting of a deceased newborn.	Music used in rituals and celebrations as a connection to nature.	Palot and transverse flute as musical instruments inspired by nature's sounds.
Initiatives to recover Indigenous names and the traditional language.	Traditional narratives integrated into school programs.	Example of a placenta buried in Tulampiya for a spiritual connection with the land.	The dance invokes prosperity for the family and community.	Every celebration includes traditional music for spiritual connection.	The Palot drum echoes natural sounds, such as rivers.
Education and culture as tools of cultural resistance.	Integrating traditions and science strengthens cultural resilience.				
Connected to projects for linguistic conservation.	Connected with community education initiatives.				
5	5	4	4	4	4

Tradition and Culture	Traditions	Traditions	Socialization and Traditions	Socialization and Traditions	Socialization and Traditions
Introduction and Context	Change of Authority	Offerings (Ofrendas)	Soccer Finals and Gatherings	Graduation and Celebrations	Dances and Festivals
Misak traditional clothing represents cultural identity, but wearing it is not mandatory.	Annual ceremony on January 1 for the change of community leadership.	Annual ceremony from October 31 to November 4 to honor ancestors.	Soccer finals among communities as an occasion for unity and celebration lasting until late at night.	A young person's graduation becomes a community event, involving the entire family in celebrations.	Traditional dances where men invite women; socialization is important during celebrations.
Elders tend to preserve the daily use of traditional clothing.	Representatives from each zone participate, accompanied by music and celebrations.	Each family sets up a table with food for the deceased, accompanied by their names.	Sporting events like soccer unite different sections of the community.	The celebration includes songs, dances, and a strong sense of community.	During festivals, women rarely refuse invitations unless the person is intoxicated.
11	9	9	7	7	7

Tradition and Culture	Tradition and Culture	Tradition and Culture	Tradition and Culture	Tradition and Culture	Tradition and Culture
Men's Clothing	Women's Clothing	Color Applications	Meaning of Colors	Flexibility in Use	Main Characteristics
Men's garments include a special item worn over other clothes, often decorated with	Women's garments include blue skirts decorated with colored borders and accessories such as	The colors of the Misak flag are incorporated into clothing: blue, red, white, and black.	Blue symbolizes water and spirituality, red for blood, black for territory, and white for unity and joy.	Elders wear it regularly; younger people prefer modern clothing while recognizing its	Blue is the predominant color; it represents water and the sky, essential elements in Misak
Men wear blue garments with decorations for formal events and rituals.	Women add symbolic accessories such as white necklaces for celebrations.	Decorations and personalized borders are added to represent individual preferences.	Each color has a symbolic value: white is used for weddings and festivities.	Clothing choices vary; many young people wear it during official ceremonies or festivities.	Blue is associated with water bodies like lakes and rivers; colors reflect the Misak flag.
11	11	11	11	11	11

Table 21: Analysis of interview themes: Governance and territorial organization (Author's elaboration)

Relationship with the Territory	Relationship with the Territory	Relationship with the State	Relationship with the State	Relationship with the State	Main Theme
Land Reclamation	Territorial Management	Territorial Conflicts	Intergovernmental Relations	Self-Determination	Subtheme
Partial restitution and migrations towards Cali and Popayán	Territorial limitations and the sacred conception of land	Actions to defend sacred and traditional territories	Different approaches to infrastructure development	Land recovery and cultural identity	Details
Lands returned by the state in the 1980s represent only a small part of the ancestral territory.	The land is seen as sacred, requiring a collective and spiritual management approach.	Protests to claim rights over ancestral lands.	Government-imposed infrastructure often does not consider local cultural needs.	Collective actions to maintain control over lands and reaffirm their identity.	Examples or Notes
2	2	1	1	1	Interview

Participation in COP	Participation in COP	Decree 1270	Decree 1270	Community Roles	Community Roles
Criticism and Reflections	Experiences at COP	Access to Funds	Environmental Autonomy	Collaboration and Sharing	Social Organization
Marginalization in the blue zone and focus on major economic players.	Participation creates connections and increases international visibility.	Access to funds for environmental and cultural projects.	New status as an environmental entity to manage resources independently.	Collaboration in wood gathering and organization of shared spaces	Individual roles contributing to collective balance
Negative experience: exclusion from key decision-making processes.	Participation in COP seen as an opportunity for international exchange.	Use of funds to expand educational facilities in the Botanical Garden.	Legal recognition of Indigenous practices in the environmental context.	Common activities such as carrying wood and preparing meals reflect a strong spirit of collaboration and sharing among community members.	Each community member has a specific role that contributes to maintaining collective balance. This organizational system fosters cohesion and social sustainability.
4	4	4	4	3	3

Governance	Territorial Organization and	Territorial Organization and	Community Work	Community Work	Participation in COP
Structure - *Cabildo*s	Territorial Recovery	Indigenous *Cabildo*s	Daily Collaboration	*Minga*s (Community Work)	Future Post-COP Perspectives
The Misak community is organized into *cabildo*s, each autonomous but connected under the Nunacha system.	Through the motto 'Recovering the land to recover everything,' the community has reclaimed and protected its territories.	San Fernando and Guambía are distinct *cabildo*s with separate territorial autonomies and governorships.	Socialization often happens during communal work, emphasizing the link between productivity and community.	Collective activities such as construction and agriculture strengthen social bonds and community sustainability.	Reflections on how to gain a stronger voice in global events.
The *cabildo*s represent local territories and manage projects related to health, education, and natural resources.	Examples of recovery include land purchases and the creation of CRIC to protect rights.	Governors and vice-governors are key figures in economic and social management.	Collaboration in community gardens and orchards; socialization is based on shared productivity.	*Minga*s include agricultural projects and constructions; a symbol of social cohesion.	Future plans to strengthen Indigenous presence in global dialogues.
9	7	7	7	7	4

Table 22: Analysis of interview themes: Health, nature and traditional medicine (Author's elaboration)

Main Theme	Governance	Governance	Governance	Governance
Subtheme	Management and Funding	Botanical Garden Structure	Democratic Elections	Nunacha
Details	NGO and government funding support the garden, enabling guadua bridges and forest restoration projects.	The Botanical Garden unites 32 families and 59 associates, sharing roles, spaces, and conservation efforts.	Participatory electoral process to select governors, vice-governors, and other key figures.	Central system uniting all *cabildo*s, symbolically represented as the 'great fire'.
Examples or Notes	Funding from NGOs such as Cultural Survival.	Includes malocas, organic gardens, nurseries, and educational spaces for cultural and environmental activities.	Voting begins at age 8. Candidates must have experience in community roles.	Coordinates the *cabildo*s for political and cultural initiatives on a larger scale.
Connection				
Interview	10	10	9	9

Traditional Medicine	Connection with Nature	Nature	Nature	Disease and Health	Disease and Health
Role of Midwives	Respect for Environmental Balance	Symbolism of Natural Elements	Spirituality Linked to Territory	Health as Global Balance	Disease Perception
Midwives are traditional leaders in the community and preserve orally transmitted medical	Daily practices respecting the natural balance and local resources.	Role of earth, water, fire, and air as vital elements	Balancing body energies with territorial energies	Integrated health approach	Disease as imbalance
Examples of midwives using plants for analgesics and natural treatments.	Sustainable use of water and agricultural lands.	Natural elements like earth, water, fire, and air are considered essential for life and are celebrated in all major rituals.	Misak spirituality emphasizes balancing the human body with territorial energies through rituals and symbolic practices.	Healing is seen as restoring balance between body, mind, and spirit.	Disease is interpreted as a disruption of the balance between nature, spirit, and community.
	Connected to community sustainable management practices.				
6	5	3	3	1	1

Traditional Medicine	Traditional Medicine	Plant Cataloging	Plant Cataloging	Traditional Medicine	Traditional Medicine
Use During the Pandemic	Role of Medicinal Plants	Uses and Applications of Plants	Inventory of Medicinal Plants	Documentation of Practices	Challenges with Western Medicine
During the Covid-19 pandemic, the community used medicinal plants to reduce the need for	Plants like the San Pedro cactus are used to connect spiritually with the territory and promote awareness.	Traditional applications of plants documented for medical use and cultural conservation.	Creation of an inventory of medicinal plants based on traditional knowledge and oral histories.	Documenting and sharing midwives' knowledge to strengthen their role and preserve traditions.	Western medicine has introduced protocols that often conflict with traditional midwifery practices.
Tradition strengthened healthcare self-sufficiency.	San Pedro reinforces respect for nature; other plants help combat common diseases.	Practical inventories can serve both the local community and academic research.	Cataloging includes plants such as ruda and tobacco, with explanations of their applications.	Documentation projects include stories shared by midwives and community members.	Hygiene protocols have led to the marginalization of some traditional practices.
10	10	6	6	6	6

Table 23: Analysis of interview themes: Economy (Author's elaboration)

Circular Economy	Circular Economy	Economy	Economy	Economy	Main Theme
Reuse and Recycling	Production and Sale of Handcrafted Products	Environmental Sustainability	Local Economic Models	Autonomy and Economic Openness	Subtheme
Materials like glass, plastic, and wood are repurposed to create crafts and useful community structures.	Artisanal and agricultural production focused on circular economic models.	Ecological approach in economic activities	Trout farming, livestock, and medicinal gardens	Balancing self-sufficiency and external markets	Details
Handicrafts and furniture made from recycled materials.	Jams, ointments, and oils produced with local resources.	They cultivate using traditional techniques such as crop rotation, combined with modern approaches, to preserve the soil and ensure sustainable	Each family raises a few trout or livestock such as cows for cheese and milk production. These products are used for self-sufficiency and	The Misak produce vegetables like scallions, potatoes, and medicinal plants, participating in local markets with an exchange system that	Examples or Notes
Reusing helps reduce waste and promotes a circular economy	Economic models that strengthen sustainability and				Interpretation
Connected to educational workshops on environmental awareness	Connected to tourism workshops and local productions.				Connections
5	5	2	2	2	Interview

Table 24: Analysis of interview themes: Challenges, tourism, and future prospectives (Author's elaboration)

Natural Resources	Natural Resources	Economy	Economy	Circular Economy
Seasonal Issues	Water - Community Management	Local Markets	Family Management	Composting
During rains, pipes get clogged with mud, causing temporary difficulties.	Water primarily comes from natural springs and is collectively managed.	Markets are held once a week for exchanges and sales.	Each family manages its own land and resources autonomously.	Composting practices widespread among families and in educational projects to raise awareness on
Reserve systems are used during scarcity periods.	It is often boiled for safety, but some sources are considered pure.	Trades can occur through bartering or monetary exchange.	They produce potatoes, maize, onions, and other cold-climate crops.	Compost distributed among families for use in home gardens.
				Composting serves as a practical example of sustainability
				Connected to environmental education initiatives at the Botanical Garden
9	9	9	9	5

Contemporary Challenges	Contemporary Challenges	Cultural Exchange and Openness	Cultural Exchange and Openness	Cultural Exchange and Openness	Main Theme
Armed Conflicts and Drug Trafficking	Armed Conflicts and Drug Trafficking	Interaction with Universities and	Intercultural Dialogue	Academic Collaborations	Subtheme
Impact of drug cartels near Misak territory	Presence of drug trafficking and cartels near Misak territories	Collaboration with students and academics for cultural dialogue	Promotion of culture and respectful exchanges	Academic projects for dialogue between tradition and research	Details
Drug cartels threaten stability, but the Misak maintain control through agreements and vigilance.	Influence of drug trafficking on areas surrounding Misak territories, creating security challenges.	Cultural archives and agricultural workshops with university students promote Misak heritage and foster intercultural	Partnerships that respect traditions and foster mutual understanding.	Workshops with local and international universities for cultural and technical knowledge exchange.	Examples or Notes
					Interpretation
					Connections
2	2	2	2	2	Interview

Sustainable Tourism	Sustainable Tourism	Openness and Sharing	Openness and Sharing	Contemporary Challenges	Contemporary Challenges
Initial Challenges	Tourism Development	Hospitality Models	Intercultural Dialogue	Land Restitution and Government Policies	Globalization Pressures
Initial fears of cultural appropriation and alteration of internal dynamics.	Tourism has become a key resource for strengthening cultural traditions.	Balanced hospitality between tradition and openness to the outside world	Cultural exchange through rituals and shared meals	Challenges in managing lands returned in the 1980s	Challenges of globalization and strategies to preserve traditions
Example: Initial suspicion of cultural loss overcome through community control.	Tourism is used as a tool to recover forgotten traditions.	Visitor reception is managed to respect local traditions, fostering authentic and balanced cultural exchange.	Shared rituals and meals serve as opportunities for cultural exchange, strengthening ties between the Misak	Restored lands are a fraction of the original territories, requiring balanced cultivation, conservation, and community use.	Initiatives to maintain cultural identity in the face of increasing globalization.
4	4	3	3	2	2

Conservation Projects	Tourism and Sustainability	Tourism and Sustainability	Sustainable Tourism	Challenges and Future	Sustainable Tourism
Wildlife Monitoring	Cultural and Environmental	Community Tourism Experiences	Role of Tourism	Impact of Climate Change	Future Prospects
Use of camera traps to monitor animals such as pumas, bears, and tapirs in remote	Initiatives to promote respect for traditions and preserve local ecosystems.	Involvement of communities in sustainable tourism, emphasizing cultural	Community tourism enhances local traditions and biodiversity.	Climate changes affecting agricultural practices and land recovery.	Plans to expand sustainable tourism activities and strengthen cultural
Camera traps capture images of elusive species, contributing to conservation.	Local guides integrate cultural narratives to educate visitors about the environment.	Workshops on traditional crafts and biodiversity as part of sustainable tourism.	Local guides trained to share traditions and biodiversity.	Adoption of climate-resilient agricultural practices.	New initiatives to expand tourism with a sustainability focus.
			Tourism as a tool for cultural and social	Adaptation strategies to respond to an	
			Linked to sustainable tourism and the Botanical Garden.	Connected to traditional and future agricultural practices.	
6	6	6	5	5	4

Future Visions	Challenges	Challenges	Relationship with Modernity	Relationship with Modernity	Conservation Projects
Direct Democracy	Job Opportunities	Project Continuity	Challenges of Capitalism	Technology	Frailejones Growth Study
Discussion on using technology for a more inclusive governance model.	An oversupply of young graduates creates difficulties in finding work within	Frequent leadership changes create discontinuity in ongoing programs.	External economic pressure is seen as a constant threat; efforts are made to maintain	Technology is considered useful if used with respect for territory and	Measurement of frailejones growth to study high-altitude ecosystem recovery.
Example: In Iceland, citizens take turns administering state social media.	Some programs are interrupted with leadership changes.	Example: A community nursery was abandoned due to lack of funding.	Agricultural projects based on sustainable practices counteract capitalist pressure.	Introduction of new technologies is assessed for their impact on territory and traditions.	Frailejones planted 4 years ago; monitoring is essential to analyze their growth.
9	9	9	7	7	6

Technology	Future Visions
Promotion and Communication	Idea Integration
Social media like Instagram and Facebook are used to raise awareness and	Proposals to improve project continuity and include qualified youth.
Example: 'Senderos Ancestrales' on Instagram.	A balance between tradition and innovation is sought.
10	9

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