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Participatory Páramo Policy

The perspectives of Colombian farmers living in páramo de Pisba on Law 1930

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List of acronyms

Acronym	Spanish	English
CORPOBOYACÁ	Corporación Autónoma Regional de Boyacá	Autonomous Regional Corporation of Boyacá
CORPORINOQUIA	Corporación Autónoma Regional de la Orinoquía	Autonomous Regional Corporation of Orinoquía
ELN	Ejército de Liberación Nacional	National Liberation Army
EPA		Environmental Protection Agency
FARC	Fuerzas Armadas Revolucionarias de Colombia	Revolutionary Armed Forces of Colombia
IAvH		Alexander von Humboldt Biological Resources Research Institute
IPLC		Indigenous Peoples and Local Communities
MADS	Ministerio de Ambiente y Desarrollo Sostenible	Ministry of the Environment and Sustainable Development
PA		Protected Areas
PNN	Parque Natural Nacional	National Natural Park
RRA		Rapid Rural Appraisal
TA		Thematic analysis

Introduction

This research focuses on páramo conservation policies in Colombia and the experiences of the people who inhibit the páramo area. Páramos are mountainous wetlands located in the Andes. These high-altitude ecosystems are seen as important due to their water regulatory role and their significant biodiversity (Hofstede, 1995). Since the pre-Inca era to the present, the páramo has been home to a number of cultures that have utilized the region (Galvis-Hernández & Ungar, 2021). Because of human activities like mining, agriculture, and deforestation, páramos in Colombia are diminishing (Murad et al., 2024). Currently a multitude of communities use the land for agriculture and mining, while governments and organizations are trying to counteract this for conservation purposes.

Delimitation, the outlining of protected areas to safeguard nature, is the objective of recent Colombian policies, though this strategy has strained relations with surrounding páramo communities (Blake et al., 2023). Rural inhabitants express frustration over insufficient community involvement in decision-making processes regarding their territories and feel pressured to leave behind their traditional ways of life and ancestral lands (ibid). Socio-environmental tensions have arisen as a result of the delimitation process, primarily from the perspective of citizen participation in this procedure and in regard to the protection of the fundamental and collective rights of those who inhabit these wetlands (Arias, 2021). This research examines Law 1930's policies for páramo protection and delimitation by placing the conservation and sustainability perspectives of páramo de Pisba farmers at the center of analysis.

Colombia is chosen as the research region because of the complex socio-ecological conditions that occur in the páramo regions. The country has the largest area of páramos in the world (Acosta & Urbina-Cardona, 2023), stretching across various regions, each with unique challenges and dynamics between local communities and their natural environment. The Colombian government has created environmental laws to protect páramo ecosystems. However, putting these laws into practice is difficult because they must balance conservation goals with the rights and livelihoods of communities who have lived in these areas for generations. Within Colombia, páramo de Pisba has been selected as a case study, because it is the only páramo complex still in the middle of the implementation process of páramo protection laws as of 2025. This offers a unique opportunity to study the perspectives of local communities on páramo legislation while the policy is being formulated.

The páramos in Colombia are under increasing pressure from human activities, particularly agriculture and mining, which threaten the ecological integrity of these vital ecosystems. According to Poulenard and Podwojewski (2005), modern farming methods change the characteristics of the soil, changing the process of infiltration and runoff and interfering with the páramos' fundamental hydrological role. Use of this land for cultivation and livestock farming poses potential hazards to water storage and flow. In addition to agriculture, many páramo residents work in coal mines. Colombia has experienced a substantial increase in both legal and illegal resource exploitation, driven by favorable global market conditions for commodities like coal and gold (Suárez, 2011). The presence of large multinational corporations and extensive mining operations has had detrimental effects on the environment, particularly on water resources (Pérez et al., 2018).

The páramos are Colombia's largest freshwater resource. Therefore, it is crucial that they are protected. Since 2011, several laws and policies have gone into effect with the goal of protecting these wetlands (Galvis-Hernández & Ungar, 2021). The most recent is Law 1930 from July 27th; this law

intends to regulate the integral management of páramos in Colombia. Páramos are designated as regions of national priority by this Law, which incorporates social, cultural, and ecological features. In order to protect biodiversity and water resources, the law forbids activities like mining, urbanization, and deforestation (MADS, 2018). Act. 1930 recognizes traditional inhabitants of the páramos as primary stewards and encourages their collaboration in sustainable projects for the conservation and restoration of these ecosystems. According to the 'Congreso de Colombia', it provides financial support, education, and ecotourism as strategies for protection, while protecting the rights of indigenous and Afro-Colombian communities (2018). This law is accompanied by Pisba Avanza, a structured participatory process designed by the Ministry of Environment to delimit the Pisba páramo while balancing conservation with local community needs through consultation and consensus-building.

While Law 1930 is in the implementation process, these ecosystems still face exploitation, through mining operations, large-scale production of potatoes and extensive livestock grazing. Coal extraction operations have been present in the region for approximately thirty years (Buitrago & Rodríguez-Aparicio, 2021), while agricultural practices in and around the páramo ecosystems date back to the area's earliest inhabitants in the pre-Inca era (Galvis-Hernández & Ungar, 2021). Many páramo families have traditionally relied on small-scale agriculture and animal husbandry for their livelihoods. This has in part progressed to a more intensive, industrial-scale farming that poses a threat to these ecosystems (Robineau et al., 2010). The same authors entail that the expansion of agricultural land through páramo plowing, which began around the 1980s, stands in direct conflict with Colombia's environmental policies designed to preserve biodiversity and water resources. Consequently, páramo inhabitants who have depended on intensive agriculture and livestock practices now find themselves under pressure to develop alternative livelihood strategies. This highlights the problem addressed by this study: the tension between the ecological protection of the páramo and the socioeconomic reality of the local population. This situation illustrates the fundamental friction between conservation imperatives and social justice concerns in Colombian páramos. Protecting the páramo ecosystem represents a critical environmental priority, while the rights and welfare of the inhabiting communities also require protection.

Despite the generation-long presence farmers have in páramo ecosystems, there remains a significant research gap regarding their perspectives on conservation policies, particularly Law 1930. The academic literature has overlooked these key stakeholders, focusing instead solely on the transformation of páramos through agriculture, livestock farming, mining and urbanization. This is concerning given the páramo farmers' ancestral knowledge gathered through their intimate relationship with these high-altitude environments. As agricultural communities deeply ingrained in the history and culture of the páramo, these longtime residents provide important insights into the tensions that arise between traditional livelihoods, mining interests, and conservation initiatives. Their insights are crucial for developing effective and equitable solutions that harmonize environmental protection with local socioeconomic needs.

The remote location of páramo de Pisba creates additional barriers to government participation projects. Poor infrastructure, long distances, limited transportation, and daily agricultural obligations make it difficult for farmers to attend meetings in lower-lying villages. By conducting in-situ interviews, this study captures the localized and diverse perspectives that would otherwise remain excluded from formal participatory processes. This research serves as a neutral space for farmers to

share their views without institutional constraints, enabling a deeper understanding of their relationship with the páramo.

This issue of remoteness and the importance of farmers' unique knowledge led me to investigate the following research question: What are the perspectives of farmers living in páramo de Pisba on Law 1930? Considering Act 1930 was adopted in 2018 and its elaboration is still in process, this question concerns their potential role in conservation efforts. This research question has been formulated to delve into the complex relationship between páramo farmers, their environment, related stakeholder groups and the legislative framework that governs their activities. It is explored in more detail through three sub-questions. The first sub-question states: How do farmers of páramo de Pisba perceive their relationship to the ecosystem? Understanding the importance of the páramo to its residents is crucial. Their attitudes toward the region affect how they handle the environment and, consequently, how they see the páramo's future. Secondly: What do farmers living in páramo de Pisba think that needs to be done to protect the páramo, and what role do they see for themselves in its conservation under law 1930? This question aims to learn more about the farmers' perspectives on protecting the environment. The third sub-question explores how farmers of páramo de Pisba experience the participation process by the project Pisba Avanza on Law 1930. By doing so, it seeks to uncover their perspective on Pisba Avanza.

The hypothesis is that farmers of páramo de Pisba may perceive Law 1930's rules and demarcation as a potential threat to their autonomy, livelihood, and working conditions. While they recognize the ecological importance of the páramo and identify themselves as environmental stewards who follow traditional sustainable practices, they perceive the legislation as endangering their way of life. The research proposes that farmers would favor a more nuanced approach to conservation that distinguishes between different ecological zones within the páramo landscape. Additionally, the research hypothesizes that farmers attribute significant environmental damage to large-scale mining operations rather than to their own agricultural activities. This shapes their resistance to accepting accountability for ecosystem degradation, while maintaining concerns regarding the potential disruption of their traditional practices by the impending implementation.

Through this research, I aim to amplify the voices of farmers living in páramo de Pisba that are often neglected in both academic literature and formal program consultation. By engaging directly with these communities, I hope to gain deeper insights into their perceptions, experiences, and concerns regarding páramo delimitation and the associated policies that affect their livelihoods. By doing so, it contributes to the Colombian participatory government project Pisba Avanza by focusing specifically on the target group: farmers of páramo de Pisba and informing the consultation process. This study provides an opportunity to understand both the páramo's biodiversity and the multigenerational farming communities with their place-based knowledge. These insights contribute to broader discussions on sustainability, conservation, and local rights, while advancing understanding of participatory conservation approaches.

Following the introduction, the methodology will outline the research approach in detail. Subsequently, the literature review maps the literature on political ecology, examining how conservation efforts intersect with social and environmental justice issues. It then delves into the dynamics between nature protection and addressing community needs. Then, the theoretical framework of rural participation is established. This theoretical foundation contextualizes the experiences and perspectives of páramo farmers among broader discussions on participatory

development and sustainable resource management. Afterwards, contextual information is provided about the Colombian páramos, with special emphasis on páramo de Pisba. Furthermore, a detailed overview of the history of páramo legislation is given, including the most valuable one for this research: “Ley no. 1930, 27 de julio 2018”. The contextualization is followed by the analysis in which the data of the fieldwork is examined. This will include the discussion. The research is finalized with a conclusion.

Methodology

This section will explain the methodology used to answer the research question. For data collection, a composition of ethnography, Participatory Rural Appraisal and the mobile method 'Interpretive walk' were chosen. Thereafter, positionality is addressed. Finally, the data is analyzed using triangulation and the Thematic Analysis Method.

Data collection

While conducting fieldwork in rural páramo areas, I used an ethnographic method for the collection of data. Hammersley (2006) uses ethnography "to refer to a form of social and educational research that emphasises the importance of studying at first hand what people do and say in particular contexts" (p. 4). The author claims that this often entails extended interaction, participant observation in related contexts, and/or generally unstructured interviews intended to learn about people's viewpoints (2006). Myers (1999) explains that an ethnographer is expected to work in the field for a considerable length of time. According to Monahan and Fisher "ethnography serves as an ideal vehicle for exploring truths about meaning-making practices, social relations, and power" (2010, p.4). The same authors highlight how observations done in staged ethnographic research frequently uncover deep insights into societal and cultural dynamics (2010). Ethnography like any other method has its limitations. According to Hammersley (1990), "the structured character of the data collection process involves the imposition of the researcher's assumptions about the social world and consequently reduces the chances of discovering evidence discrepant with those assumptions" (p.598). The same author explains that generalizing behaviors in "natural" settings based on data gathered in researcher-designed environments (like experiments or formal interviews) involves highly questionable reasoning (1990). In addition relying solely on people's statements about their beliefs and actions without observation risks missing the complex attitude-behavior relationship, while depending only on observation without dialogue can lead to misinterpreting those behaviors (Hammersly, 1990 & Yanow, 2021).

To address these challenges, I adopted Robert Chambers' Participatory Rural Appraisal (PRA) method, which combines observation with semi-structured interviews to create a more balanced and inclusive approach. I apply a refined PRA approach to capture the perspectives of farmers in páramo de Pisba, valuing their local expertise as essential for understanding the complex interactions between traditional agricultural practices and conservation mandates. PRA's emphasis on empowering local communities to evaluate their own circumstances and participate in decision-making processes aligns with my research objective to amplify voices often excluded from policy discussions. The adaptability of PRA methods proved valuable in the páramo context, allowing me to communicate effectively with participants who have limited familiarity with academic or policy language. Through participatory techniques adjusted for the páramo setting, farmers could articulate their concerns about Law 1930 in ways that captured nuanced local knowledge. However, I remained aware of PRA's limitations, as highlighted by Cooke and Kothari (2001), who describe that participatory approaches can inadvertently reinforce existing power structures. To address this, I actively sought diverse representation beyond community leaders, ensuring inclusion of marginalized voices such as women farmers and those living in remote areas. My approach acknowledges that páramo communities, like those described by Smith (2008), are not homogeneous groups but comprise individuals with different interests and varied relationships to both the ecosystem and conservation initiatives. I aimed to allow a natural flow as much as possible, for example by walking around the property or having a "tinto"

(Colombian for coffee with panela) together. I combined PRA with the mobile method “interpretive walk”. Mackay et al. (2018) states that this “approach involves the collection of qualitative data as the researcher and research participant walk together through a setting or landscape of interest while discussing topics stimulated by the shared encounter with place” (p.167). It is a relevant way to gain more insight into the realities of páramo farmers. This method encourages conversation in a place and form that is not created by the researcher. Unlike researcher-designed environments, interpretive walks allow researchers to observe and interact with participants in their authentic settings while they navigate through spaces that hold meaning for them (Mackay et al., 2018). This approach bridges the gap between stated behaviors and actual practices by capturing spontaneous reactions and experiences in more natural contexts. This argument from Hammersley about structured data collection imposing researchers' assumptions will be refuted later in the positionality section.

Hennink and Kaiser (2022) conclude “studies using empirical data reached saturation within a narrow range of interviews (9–17)” (p.1). With this in mind the initial research plan included conducting fifteen interviews. However, while being in the area, the sample size was expanded to twenty-six interviews with farmers across five municipalities: Socha, Socota, Tasco, Jericó, and Chita. These municipalities are integral components of the páramo de Pisba. Initially focusing only on the target group, I realised a broader perspective was necessary to fully grasp the situation’s complexity and dynamics. Conversations with farmers revealed that understanding the social system—the interactions and relationships between different groups—is crucial for comprehending the positions, motivations, and behaviours of individual groups. As a result, I did twenty-five interviews with government agencies such as Min Ambiente and Corpo Boyacá, conservationists, mineworkers, PNNP workers, women's movements and social leaders. To eventually narrow down again to my target audience with a better understanding.

Before each interview, I explained that I was a graduate student conducting research for my thesis and obtained verbal consent from participants. Everyone was informed about how their data would be used and assured that their identities would be protected through pseudonyms. While most participants allowed me to record our conversations, some preferred I didn't, in which case I only took handwritten notes. I used a conversational interview approach to allow participants to raise unanticipated topics, with questionnaires (found in the appendix) serving as flexible guides rather than strict protocols. For non-farmer participants, I created specialized question sets based on their expertise. Given the challenging high-altitude terrain of páramo de Pisba, I accessed interview locations using a combination of car travel and horseback riding, with assistance from Pisba park guides.

Positionality

As the researcher of this ethnographic study about páramo farmers and páramo laws, I acknowledge that my positionality shapes this study. I am a twenty-five-year-old white female master student of Latin America Studies with a specialization in public policy. I was born and raised in the Netherlands to a middle-to-upper-class family. Since childhood, I have been interested in agriculture, helping at a local farm and later volunteering on farms across Latin America from age nineteen. This has given me six years of exposure to rural communities and farming practices. While I speak fluent Spanish, I recognize that not being a Colombian native speaker impacts my communication during research interactions. My interest in this topic stems from two months of volunteering on a farm in Toquilla, Boyacá, in 2024, where I participated in daily agricultural activities and built relationships with

farming families. This firsthand engagement provided preliminary insights into their agricultural practices and ecosystem relationships while familiarizing me with the physical environment. This experience helped me understand how páramo residents interact with outsiders interested in their lives. However, I acknowledge that my brief immersion offered limited perspectives through specific family interactions. I remain conscious that my temporary volunteer experience differs significantly from multi-generational farmers whose social, cultural, and economic identities are deeply rooted in the páramo landscape and who depend on this ecosystem for their livelihoods.

Being a foreign researcher in páramo de Pisba, I acknowledge my position of privilege in terms of academic resources, freedom of movement, and institutional support from Leiden University and my family. My tall, blonde appearance made me visibly foreign in a region with few tourists or outsiders. This outsider status created both opportunities and limitations - sparking curiosity that encouraged open conversations while occasionally causing misidentification as a government representative, potentially limiting access to certain spaces and conversations. During fieldwork, I stayed at the Parque Nacionales Naturales (PNN) de Pisba office in Socha. The staff assisted by connecting me with participants and providing transportation. While this established trust through association, it also led some individuals to assume I represented the park, reducing confidence in certain interactions.

As a non-Colombian researcher, I continuously question how my Western academic training influences my perceptions of environmental management and local knowledge systems. I recognize that my conceptual understanding is culturally situated and may differ from local frameworks. Through reflective journaling and regular discussions with local people, I work to identify misalignments between my cultural assumptions and local realities. I approach these ethical and cultural dimensions as dynamic aspects of the research process rather than obstacles to overcome. To ensure accurate comprehension of social and contextual concepts, I engaged in open conversations with local people, challenging Hammersley's (1990) assertion that structured data collection merely imposes researcher assumptions.

Data analysis

I employed methodological triangulation to strengthen the reliability of the contextualization. "Triangulation refers to the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena" (Patton, 1999 in Carter et al., 2014). I Cross-verified information from scientific articles on Colombian páramos, Pisba Natural National Park and páramo legislation with the experiential knowledge of government officials, park staff and conservationists. These conversations provided essential metadata about the implementation context of Law 1930 and allowed me to compare academic theories with professional experiences from those directly involved in conservation practice and policy implementation.

For the data analysis, I use Thematic Analysis (TA). Braun & Clarke describe thematic analysis as "a method for systematically identifying, organizing, and offering insight into patterns of meaning (themes) across a data set. Through focusing on meaning across a data set, TA allows the researcher to see and make sense of collective or shared meanings and experiences" (2012, p. 57). In contrast to other qualitative analytical techniques, TA provides a method, a tool or technique that is not constrained by theoretical commitments, instead of a methodology (Clarke & Braun, 2015). The authors elaborate that the goal of TA is not to find distinctive interpretations and experiences that are only present in one data item, but rather to use this method to determine the similarities in the way a topic is discussed or written about and interpret those similarities (Braun & Clarke, 2012).

Nevertheless, what is common is not always significant or meaningful in and of itself. “The patterns of meaning that TA allows the researcher to identify need to be important in relation to the particular topic and research question being explored” (Braun & Clarke, 2012, p. 57). TA can be seen as a family of methods (Fugard & Potts 2020 in, Braun & Clarke, 2020). Three categories have been established for TA methods by Braun & Clarke; Coding reliability approaches, Reflexive approaches and Codebook approaches (2020). Coker (2021) addresses in his work the limitations of TA. One is the lack of a distinct research paradigm or design in many theme analysis studies, which makes it challenging to assess the methodology's integrity and reliability (2021). He elaborates that researchers sometimes fail to provide sufficient explanations of their sample techniques, coding procedures, and analytical strategies. Furthermore, sample sizes and sampling techniques are frequently not justified; according to Coker (2021).

In this thesis, the method of reflexive TA is used. This approach entails “later theme development, with themes developed from codes, and conceptualised as patterns of shared meaning underpinned by a central organising concept” (Braun et al., 2014 in Braun & Clarke 2020, p.3). The researcher must do a great deal of analytical and interpretive work in order to build a theme according to the authors. The themes are created by the researcher via data engagement mediated by everything they bring to this process; they cannot exist independently of the researcher (Braun & Clarke 2020). The procedure of coding is spontaneous and unstructured, and codes may change over time as the researcher gains a deeper comprehension of the material. Braun & Clarke acknowledge that coding is a subjective process that entails a reflective researcher who tries to think through their presumptions and how they could influence and define their coding (2020). It's likely that different researchers analyzing the same data will develop distinct themes, making it unreasonable to expect that one researcher's codes or themes would be replicated by another (Byrne, 2021). Braun & Clarke state that their “reflexive approach involves six—recursive—phases of: familiarization; coding; generating initial themes; reviewing and developing themes; refining, defining and naming themes; and writing up” (2020, p.3). This study applied these six phases to analyze audio recordings and field notes from semi-structured interviews, coding responses to identify patterns and themes across the dataset.

Literature review

The study continues with a literature review examining several key frameworks relevant to this research. These include political ecology's focus on power in environmental conflicts and the tensions between conservation and social justice. The review also addresses limitations of participatory approaches where exclusion persists, as well as rural participation methodologies like Chambers' Participatory Rural Appraisal that engage marginalized communities in environmental decision-making.

Political ecology

“Ecology began as a form of geography with somewhat general and naive discussions of the role of climate, temperature, or altitude on biological systems. German writers, such as Humboldt and Haeckel, were the first to develop these ideas” (Greenberg & Park, 1994, p.2). Since its creation in the 1970s, political ecology has seen three major phases of development. As described by Escobar (2010), the first generation addressed power relations and the conception of nature by fusing ecological frameworks with political economy. The second generation experimented with constructivism and anti-essentialism, motivated by post-structural theories according to the author. Thirdly, the most current generation addresses enduring environmental concerns and emerging social movement’s tendencies by concentrating on ontological questions. According to Watts political ecology “seeks to understand the complex relations between nature and society through a careful analysis of what one might call the forms of access and control over resources and their implications for environmental health and sustainable livelihoods” (2000, p.257). Joan Martínez Alier (2002) goes a step further and describes the concept as the study of ecological distribution conflicts, in which he refers to disputes over control and access to natural resources, especially as a means of subsistence, as well as the expenses associated with environmental degradation (Escobar, 2006). In addition to the natural context, “ecological distribution conflicts” also occur in the context of economics, cultures, and knowledge systems according to the author. He describes that local groups fight to protect their territory against translocal forces. Escobar states the following in his work about political ecology:

“That people mobilize against the destructive aspects of globalization from the perspective of what they have historically been and what they are at present: historical subjects of particular cultures, economies, and ecologies; particular knowledge producers; individuals and collectivities engaged in the play of living with landscapes, living and nonliving beings, and each other in particular ways” (2006, p.31/32).

In Escobar’s 2006 work, he presents “historical subjects” as active community members who draw strength from their specific cultural backgrounds, local knowledge systems, and territorial connections when confronting global forces. He emphasizes that their resistance emerges organically from everyday relationships with landscapes and other beings, rather than from abstract political ideologies. These place-based perspectives offer crucial alternatives as modern capitalist practices are causing unprecedented environmental destruction (Cohn, 2021). Some thinkers argue that this ecological crisis stems from flawed modern thought systems, highlighting the need to consider alternative, place-based ecological practices (Escobar, 2006). Researchers are using political ecology, which studies the intricate relationships between human societies, their surroundings, and the power dynamics that shape them (Adams & Hutton, 2007), to confront this ecological problem. This approach recognizes the value of local ecological knowledge and traditional practices in conservation efforts, while also critically examining the broader political and economic dynamics.

Social conflict in conservation efforts

This thesis explores the friction between the inhabitants of the Colombian páramo and the laws and regulations of the conservation of this environment. This section offers a broader account of knowledge about the complex relationship between conservation efforts, social justice, and ecological justice. This will include several examples of conservation projects in different countries and the social problems associated with them. Subsequently, more participatory forms of conservation will be explored.

In many areas of public policy, such as environmental management and conservation, social equity is a societal goal. However, conservation has come under fire for using exclusion practices, disconnecting humans from the natural world, therefore giving preference to particular beliefs and ideas (Friedman et al., 2018). "The implementation of forceful 'conservation practices' have violated basic human rights, alienated Indigenous Peoples and Local Communities (IPLC), devalued local knowledge, and broken trust with local communities" (Butt et al., 2019; Lopez-Cubillos et al., 2022 in Montgomery et al., p.2 2024). Montgomery et al., state that in many cases, these problems have had a short- or long-term negative effect for biodiversity protection (2024). Conservation biology faces important challenges in balancing ecological and social values. Redford and Sanderson (2000) in Montgomery et al., (2024) note that ecological concerns often come first. Human society depends on a stable environment, but due to human population increase and development, natural circumstances have been disturbed, which has resulted in a loss of biodiversity (Montgomery et al., 2024). The authors describe how some contend that protecting the environment is essential to human survival, while others are concerned that doing so could disregard human rights and societal ideals. In these situations, social justice needs to be seen as essential to the successful implementation of conservation practices rather than as a component added.

Kopnina (2016) elaborates on the conflict between anthropocentric and ecocentric approaches to conservation. According to her, anthropocentric viewpoints put human needs first and frequently blame conservation initiatives for uprooting indigenous communities or limiting traditions. According to these critics, conservation may help to maintain economic differences and colonial legacies. Ecocentric viewpoints, in contrast, promote the preservation of non-human species and the natural world, highlighting their inherent worth above and beyond human utility. In earlier work, Kopnina (2012) critiques the utilitarian approach to conservation, which frames biodiversity primarily as ecosystem services and natural resources for human benefit. Washington et al., (2024) express disapproval of the growing anthropocentric emphasis in conservation, contending that it damages the moral foundation of ecocentric conservation and upholds ideals that are driving ecological issues worldwide. The authors address that while some conservation projects have disregarded indigenous rights, there are also many cases of successful collaboration between conservationists and local communities (2024). Washington et al., (2024), argue that the main drivers of biodiversity loss and social injustice are not conservationists or indigenous peoples, but rather the global economic system based on endless growth and extreme inequalities.

According to Kopnina (2016), who references Holmes' (2013) research, this conflict is exemplified in Amboseli, Kenya, where residents targeted animals like lions, deliberately defying conservation laws. By endangering flagship species, this action effectively opposed conservation goals and illustrated the tension between local community interests and wildlife protection initiatives, according to the author. A more comprehensive understanding of justice is required, one that takes into account both human and non-human concerns (Kopnina, 2016). This method asks for a more balanced view of

conservation that tackles social justice issues while simultaneously preserving biodiversity and ecosystems.

It can be argued that conflicts between conservation and the local population can be multifaceted and situation-specific. In some areas, such as the Albertine Rift in Africa, concerns focus primarily on material issues such as loss of land and resources due to strict protected areas (Martin, (2017). While in the Pemon in Venezuela, the focus is on cognitive injustice, portraying traditional practices as harmful according to the author. These differences show that universal theories of environmental justice are deficient. Zeng et al., (2024), explore the connection between conservation efforts and social conflict in protected areas (PAs). They emphasize how collaboration between locals and PA management is essential to the successful protection of ecosystems. Conflicts between these groups do, however, frequently occur, especially when locals believe that the advantages of tourist or conservation initiatives are not being fairly distributed (Zeng et al., 2024). The authors state that conservation aims may suffer as a result of these disagreements, which may become visible in policy noncompliance.

This demonstrates the urgent need for conservation tactics that prioritize social justice and actively engage local populations in order to avoid disputes that could obstruct the successful protection of ecosystems. Social and ecological values are crucial for successful conservation, particularly when it comes to overseeing protected areas, they contend that rather than being viewed as mutually exclusive, these principles can be combined (Montgomery et al., 2024). Following Martin (2017), conservation must take into account both local perspectives and broader ecological concerns, which calls for a nuanced approach.

Participatory conservation

Matarrita-Cascante et al., state “prior to the emergence of participatory approaches, the practice of conservation management has traditionally taken a top-down approach characterized by an imposition of natural resource management rules by formal institutions (e.g., government)” (2019, p.486). Top-down techniques and associated management initiatives may lack vitally important local realities, viewpoints, and involvement, because they tend to remove locals from management conversations and decision-making that will affect their local environment (Smith, 2008). Alternatives such as community involvement have become a powerful influence in broader political theory and policy making (Goodwin, 1998). “Collaborative management approaches that promote joint conservation and development strategies between land management authorities and local peoples have increased substantially in agricultural, forestry, and rangeland systems since the 1980s” (Bixler et al., 2015, p. 165). Incorporating inclusive strategies that include communities in certain ways managing their natural resources is what defines these more recent participatory approaches (Matarrita-Cascante et al., 2019). Decaro and Stokes (2008) elaborate that this is done through democratic processes that give local stakeholders more authority, such as legitimate access to natural resources and inclusion in management decisions. They explain that conservation literature shows numerous instances of positive results using participatory approaches to effective preservation of natural resources in developing countries (2008). But as Ostrom (2007) in Matarrita-Cascante et al. (2019) warns, using a one-size-fits-all participatory approach could leave out important factors that are required to meet conservation objectives. Both having well-defined geographical boundaries for resource management and having an advanced understanding of the ecology and peculiarities of the resource in issue are essential components of successful participatory conservation (Matarrita-Cascante et al., 2019). Additionally, the link between the resource and the community is crucial; communities that rely

heavily on a resource are more likely to participate in conservation activities successfully (Ostrom, 2009 in Matarrita-Cascante et al., 2019).

Social exclusion in participation

Within the framework of participation, it is crucial to examine critically how inclusive and participatory these approaches are and whether social exclusion is still possible. Fischer (2008) argues for distinguishing social exclusion from poverty to avoid redundancy, advocating instead for integrating social exclusion's procedural focus into existing frameworks for emerging countries rather than reintroducing the concept entirely. The social exclusion framework could imply harmful presumptions, such as viewing society as a moral community that excluded individuals need to be reintegrated into, instead of looking at how exclusionary inclusion itself may be (Fischer, 2008). This critical perspective on social exclusion and participation is in line with other academics' views about how participatory approaches tend to idealize communities while frequently ignoring internal power dynamics and conflicting interests. Smith (2008) critiques the tendency in bottom-up approach literature that "communities are problematically simplified as idyllic, cohesive, organic, harmonious and homogeneous entities united in their interests, aims and goals, rather than as complex organisations of people with differential interests and power relations" (p.360). She entails that communities comprise diverse individuals differentiated by age, religion, gender, ethnicity, values, economic status, social standing and political influence (2008). The varied makeup of communities connects to what Agrawal (2005) termed 'environmentality'—his framework showing how both governance structures and individual agency combine to form people's environmental awareness. Agrawal highlights that this identity-forming process involves personal choice and political factors, with individuals actively constructing their ecological values rather than simply absorbing external messages.

"Bottom-up approaches to development need to start from the recognition that exploitation and marginalization also take place inside the slums and poor villages" (Gómez et al., 2010, p.3). In order to include structurally disadvantaged groups, such as women, members of ethnic or religious minorities, disabled individuals, landless workers, or the really poor, governments and non-governmental organizations must actively seek them out rather than focusing on a select few influential individuals and community leaders (Gómez et al., 2010). This complexity emphasizes the necessity of critically evaluating participation techniques since they frequently overlook the complicated reality of communities, which can result in social exclusion even when inclusivity is the goal. White (1996) distinguishes various types of participation, contending that some may not be transformational and inclusive but rather purely instrumental. According to her, tokenistic participation is a type of insufficient or symbolic attempts to engage underrepresented groups without actually resolving power disparities or providing them with significant influence. "Instead, communities may become mere information providers and at best involved in consultation, not in more important and effectual positions with decision-making power" (Heyd and Neef 2004 in Smith, p.359, 2008). In this form of participation people are involved simply to legitimize a process or project, yet their actual contributions to decision-making and results are minor at best (White, 1996). Participatory frameworks often idealize communities while overlooking internal power dynamics and differing interests, leading to tokenistic involvement. Critical assessment is needed to ensure these initiatives genuinely empower excluded groups rather than providing only surface-level inclusion.

Rural participation

Current approaches to involving rural communities in livelihood-affecting decisions face significant challenges. Understanding these limitations is crucial when seeking to meaningfully engage farmers in environmental policy implementation. The expanded discussion of the Participatory Rural Appraisal framework in the methodology section offers potential approaches for more effectively involving marginalized groups.

This method and approach was formulated by Robert Chambers, who describes PRA "as a growing family of approaches and methods to enable local (rural or urban) people to express, enhance, share and analyze their knowledge of life and conditions, to plan and to act" (1994b, p.1253). Hudson and Cheatle define PRA as "holistic, and encourages socio-economic consideration in respect to both production and conservation. By encouraging the articulation of real feelings PRA aids understanding of the socio-economic rationale for what people do" (1993, p.86). When professionals gain a deeper understanding of farmers' situations, they can more effectively correspond to solutions to address specific agricultural challenges. This enhanced understanding facilitates a collaborative process where all stakeholders can reach a consensus on implementing practical and meaningful improvements. The shared insight allows for the development of strategies that are both relevant and acceptable to the farming community (Hudson & Cheatle, 1993).

According to Chambers the word *participation* can be understood in three different ways: firstly, as a cosmetic label in which consultants and managers state that they use participation to governments and donor agencies, whereas the actuality has often been top-down in a traditional approach (1994a). Secondly, as a co-optation strategy that lowers expenses by mobilizing local workers. With some outside aid, communities donate their time and energy to self-help initiatives. This often indicates that "they"—the local population—take part in "our" initiative. The last meaning and application for this word embodies an empowering process that gives locals the ability to analyze things on their own, take charge, become more self-assured, and make decisions for themselves. This implies, theoretically, that "we" are involved in "their" project rather than "they" in "ours" (Chambers, 1994a). Arnstein (1969) emphasizes that genuine participation entails the redistribution of power to allow the underprivileged or in her words the "have-nots" to be purposefully included in shaping outcomes. She defines participation in terms of power distribution. Pretty (1995) offers a typology of participation that distinguishes seven categories, from self-mobilization to manipulative participation. This typology draws attention to the different levels of local control and involvement in development processes, highlighting the fact that not all types of participation are equally transformational or powerful.

In Chambers' 1994 work, he distinguishes between extractive RRA and participatory PRA approaches. In RRA, outsiders control the agenda, collect information, and produce results. Conversely, PRA empowers locals to take charge, set agendas, evaluate information, and make plans. Outsiders serve as facilitators, building rapport and acting as catalysts while locals create maps, conduct investigations, and maintain ownership of information and decision-making (Chambers, 1994b). In his work from 2002, Chambers acknowledges that these approaches can overlap. While many distinguish RRA (data collection by outsiders) from PRA (empowerment of locals in evaluation and decision-making), he notes that "There are methods which are typically RRA methods... and others which are typically PRA/PLA methods" (p.3). Importantly, RRA techniques can be applied in a PRA mode and vice versa, creating some ambiguity between approaches that have incorporated

elements from various methodologies including Agroecosystem Analysis, Participatory Action Research, and Farming Systems Research (De Zeeuw & Wilbers, 2004).

Contextualisation

This section provides context for this study. It discusses Colombian páramos, their characteristics and the institutes that are involved in páramo research and policy. It explains in more detail the ecological, cultural and historical elements of Páramo de Pisba, including the national park that lies within the area. The work elaborates on the history and current challenges that the region is facing. Following with a display of the national laws and regulations concerning the páramos. The segment will conclude focusing on the participatory government project Pisba Avanza.

Colombian páramos

As indicated earlier, the precise meaning of the páramo differs depending on the source. According to Buytaert et al., “the páramo, both referred to in singular and in plural páramos, is a collection of neotropical alpine ecosystems within the grassland biome or Orobiome” (2006, p.54). The altitude at which the páramo exactly begins is unclear. Some sources indicate that páramos are situated over 3000 meters (Cresso et al., 2020), while Poulenard and Podwojewski (2005) state that the sub-paramo begins at 3200 meters and Varela (2008) claims they can be found at an altitude of 3,600 meters above sea level. These ecosystems are located in the northern Andes and can be found in Colombia, Ecuador, Peru and Venezuela (Galvis Hernández et al., 2021). Colombia has intotal 37 complexes of páramos (MADS, 2024). Their special soil and vegetation traits, cool temperatures, and copious amounts of rainfall make them ideal for controlling and storing surface and groundwater (Cresso et al., 2020). According to the Ministry of Environment and Sustainable Development, in Spanish; Ministerio de Ambiente y Desarrollo Sostenible (MADS), páramos are crucial ecosystems, primarily due to their role in regulating the water cycle, which ensures a stable water supply for over 70% of Colombia's population. These areas are also known for their high levels of biological and sociocultural diversity, which has led to a particular interest in their preservation and sustainable management in a variety of fields according to Miambiente. Since pre-Inca times to the present, a number of cultures have appropriated and altered the area using different conceptual frameworks according to Varela (2008). Colombia has 400 municipalities with páramo territories, with complex governance challenges due to overlapping jurisdictions that include 31 indigenous reservations across 16 ethnic groups and black communities in six territories (Pinzón et al., 2017, MADS, nd).

"The settlement and use of the páramos has responded to political and economic phenomena, such as the armed conflict (...), and to the world market, which determines the exploitation of gold and coal throughout the region" (Galvis Hernández et al., 2021, p.10) (translation by author). These crucial ecosystems, providing essential services like water supply and carbon storage that are vital for its inhabitants (Terán-Valdez et al., 2019). Páramos have historically been utilized for agricultural practices, building materials and firewood extraction. In the latter part of the 1900s, “the expansion of the agricultural frontier was accentuated through practices such as the clearing of pastureland, the installation of intensive livestock farming systems and the introduction of exotic species - pines and eucalyptus” (Galvis Hernández et al., 2021, p.10) (translation by author). In addition the area has been heavily affected by mining and hydrocarbon exploitation in the last 30 years (Buitrago & Rodríguez-Aparicio, 2021). Due to these actions, numerous páramos have gradually deteriorated (Terán-Valdez et al., 2019). These practices have intensified the alteration of the páramo ecosystem, often resulting in negative consequences for local populations' welfare (Galvis Hernández et al., 2021). Terán-Valdez et al. (2019) elaborate that the most degraded páramos are found in Colombia's center. Despite their ecological importance, these areas face threats from agriculture, livestock and

mining. In response to this deterioration and increasing demands for water and land, authorities have developed management strategies to restore and protect páramos through regional planning and collaborative governance models (Terán-Valdez et al., 2019).

The Alexander von Humboldt Biological Resources Research Institute (IAvH) is a Colombian institute that specializes in research on the páramos. The institute is responsible for conducting both fundamental and practical research "into the country's biotic, hydrobiological and genetic resources of flora and fauna and with compiling and creating a scientific inventory of the biodiversity" according to their website. Since its founding, the IAvH has helped to advance knowledge about páramos by forming a number of partnerships and publishing studies on subjects such as governance, socio-environmental conflicts, local knowledge, and the baseline biodiversity of these ecosystems (Galvis Hernández et al., 2021). Generating input for the formulation of laws and regulations regarding the páramos is the institute's responsibility.

Páramo de Pisba

Among Colombia's numerous páramo ecosystems, páramo de Pisba serves an important role due to its ecological, cultural and historical value. Located in the Eastern Cordillera between 3,100 and 4,100 metres above sea level (MADS, 2018), this páramo serves as a crucial water source for major river basins including the Magdalena, Cauca, and Orinoco (Paéz, 2014). With an area of approximately 106,243 hectares (MADS, 2018), the páramo spans primarily across the Boyacá department (94%) with a small portion in Casanare (6%). The complex falls under the jurisdiction of Corpoboyacá and Corporinoquia environmental authorities and encompasses several municipalities including Chita, Gámeza, Jericó, Mongua, Pisba, Socha, Socotá and Tasco in Boyacá (MADS, 2018). According to 2017 population projections, páramo de Pisba is home to 43,494 people (Andean Geological Services & Corpoboyacá, 2017).

Pisba National Natural Park

The Natural National Park (PNN) de Pisba is located within the Páramo de Pisba complex across several municipalities in northeastern Boyacá and municipality Tamará in Casanare (Guio et al., 2020). This location was strategically chosen, because the park serves as an ecological link between Cocuy National Park and Alto Cusiana (Osorio Fernández, 2015). PNN de Pisba is located between 1.861 and 3.965 above sea level and is notable for its abundance of lake systems (Guio et al., 2020). In 1977, the Colombian government formally established PNN de Pisba through a series of administrative actions (Guio et al., 2020). The park was created with the primary objective of conserving its rich biodiversity, including flora and fauna, as well as its natural scenic beauty, geological formations, and cultural heritage as described in the PNN report from 2020. These conservation efforts aim to support scientific research, education, recreation, and aesthetic appreciation according to PNN de Pisba (2020). The park faced challenges in defining its precise boundaries due to difficult access in certain areas and unclear altitudinal limits. While the original resolution designated seven municipalities within the park's jurisdiction, recent cartographic analysis has revealed that the park actually encompasses only 6 municipalities (Guio et al., 2020). This highlights the ongoing complexities in accurately delineating and managing the páramo ecosystems.

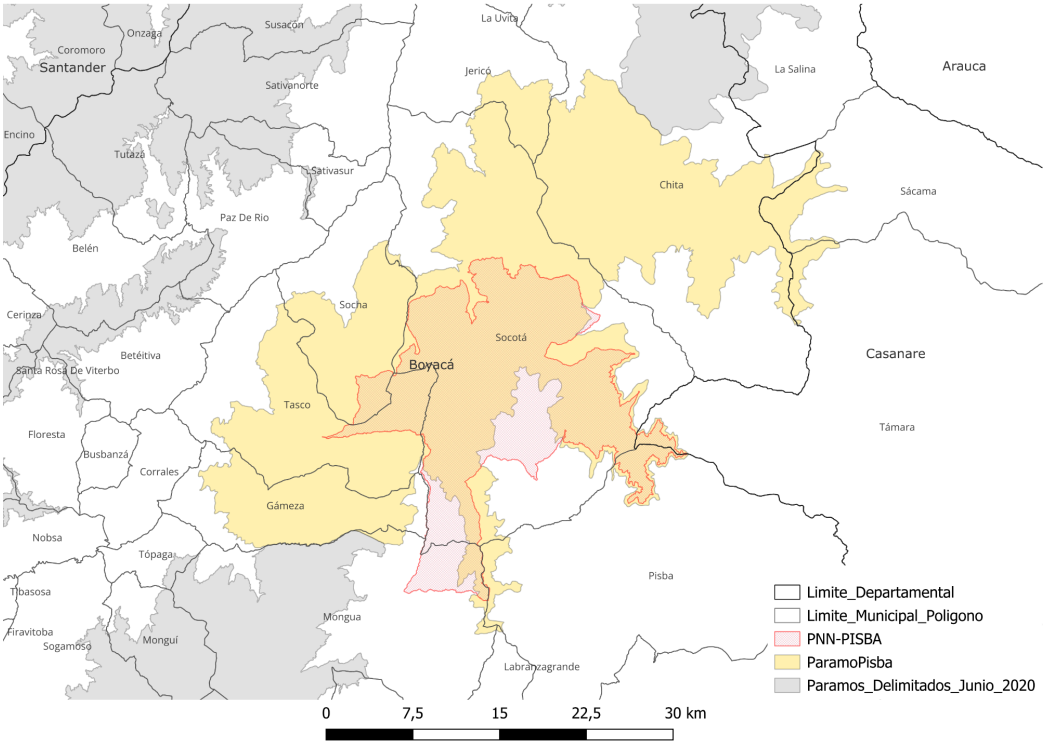

Figure 1. Páramo de Pisba complex
Source: Pedro Estiven Estepa Garcia, PNN Pisba (2025)

Cultural and Historical Legacy of páramo de Pisba

Other than its ecological value, the region has a rich history and cultural heritage starting from pre-Columbian times. This area has been shaped by indigenous cultures, colonial influences, and pivotal events in Colombia's struggle for independence. The Muisca or Chibcha people were the first people to live on the Altiplano in Boyacá (Guio et al., 2020). They established one of the most developed cultures in northern South America (López García, 2020). In addition to creating complex legal systems, they were masters of agriculture, metallurgy, ceramics, and textile manufacturing according to López García. The Muisca traditionally relied on farming cotton, corn, and potatoes, though their practices have evolved into a mixed system of extensive livestock raising and subsistence farming (Guio et al., 2020). Many of the habits, traditions, beliefs, and popular values of the Muisca ethnic group are practiced in the area today, despite the fact that European contact has changed a large portion of their culture (López García, 2020). Guio et al., comment that among the surviving indigenous peoples, the Tunebos people are another group that remained rather isolated from European acculturation and still live in Boyacá. However, they were influenced by religious missions (Guio et al., 2020).

Furthermore, Páramo de Pisba is of historical significance because it is part of the ‘Ruta Libertadora’. In 1819, Simón Bolívar crossed this páramo to continue to Colombia's center to fight the liberating battles of Puente de Boyacá and Pantano de Vargas (Guio et al., 2020). The high, rugged landscape with its lakes and humidity formed an indispensable part of this journey. Settlement patterns in the region were influenced by land distribution in the early 20th century, rewarding generals from civil wars (Guio et al., 2020). This led to the establishment of communities like Benítez, which till this day occupied the western part of PNN de Pisba. These settlers created the “savannah rights”, a special

land use system that permits transit and community grazing throughout the páramo and sub páramo regions (Guio et al., 2020).

The current socio-cultural panorama of the region is the result of the fusion of Muisca and European cultures. This has given rise to a mixed agricultural system, which combines traditional Muisca crops with introduced European practices (Guio et al., 2020). The area is characterised by small farms with private property tenure, together with communal elements such as the “savannah rights”. Since the 1980s, this socio-economic landscape has been further complicated by the presence of guerrilla movements in the páramo region, specifically by groups Fuerzas Armadas Revolucionarias de Colombia (FARC) and Ejército de Liberación Nacional (ELN) (Andean Geological Services & Corpoboyacá, 2017). The same authors explain how these groups show relative presence and dominance in the Páramo de Pisba complex. Their actions concentrate more on neighboring departments. While other sources such as Salamanca Pedraza (2022), indicate that these groups have committed and continue to commit severe violence and crimes in the region. These groups use violence, extortion, and kidnapping while attempting to win popular support and participate in politics. They strategically use páramo de Pisba and El Cocuy as corridors to connect different departments and the Venezuelan border, expanding their influence across a wide area (Salamanca Pedraza, 2022). The páramo’s rich history spans centuries, with guerrilla activity representing just its most recent historical chapter. Páramo de Pisba embodies a part of Colombia's rich history by reflecting among others indigenous Muisca traditions, the impact of European colonization, and its significance in the independence struggle.

Contemporary Socio-Ecological Challenges in páramo de Pisba

Today, páramo de Pisba faces several socio-ecological challenges. Due to migration to large cities, the area's population density declines. The local economy is based on small-scale agriculture, livestock farming, mining and the extraction of forest products (Buitrago & Rodríguez-Aparicio, 2021). Many residents work in agriculture, with Osorio Fernández noting that "51% of the entire Páramo territory has been transformed by anthropic activities, the most representative of which in the area are pastures and crops" (2015, p.8). Some of the páramo inhabitants use the food produced on their farm for their own consumption, however most sell their lactose products, eggs, meat, fish or vegetables in the local area or at larger markets (Bello Bernal, 2020). According to Bello Bernal, "the predominant crops are potatoes, peas, beans, corn, barley, wheat, onions and other vegetables" (2020, p. 10). Beyond small-scale farming, industrial monoculture agriculture increasingly dominates páramo regions. Extensive livestock and intensive crop cultivation with heavy machinery and agrochemicals are degrading these ecosystems (Pinzón et al., 2017 and Bello Bernal, 2020). These practices not only alter soil characteristics and accelerate erosion but also negatively impact water quality, biodiversity, and overall ecosystem health (Pinzón et al., 2017). As a result, the páramos' ability to provide essential services, particularly water regulation and purification, is increasingly compromised, posing a serious risk to Colombia's water security and environmental stability (Bello Bernal, 2020).

Meanwhile, earnings in agriculture are often low, making it economically attractive for the inhabitants of the area to work in the mines. Boyacá, where the largest part of páramo de Pisba is located, ranks second nationally in terms of mining rates, with over 69% of mining being illegal (Pinzón et al., 2017). According to Pinzón et al., governments appear to prioritize the removal of small-scale, unauthorized mining operations in favor of facilitating multinational mining projects (2017). Though harmful to ecosystems, coal mines remain the primary income source in this area. This frequently leads to disputes over water resources between mining operations and communities relying on the

páramo ecosystems (Bello Bernal, 2020). Human activities have greatly changed these ecosystems, leading to significant losses in páramo biodiversity and hydrological benefits (Pinzón et al., 2017). Both large-scale agriculture and coal mining create drastic environmental and social impacts in páramo de Pisba.

Páramo law and policy

Conservation and sustainable management of the páramos ecosystems have been of constitutional importance for decades. Law 2811 of 1974, referred to as the Colombian Environmental Code, serves as the foundational legal framework for the management and protection of renewable natural resources in Colombia (Autoridad Nacional de Licencias Ambientales, nd). It established comprehensive regulations for air, water, soil, forests, and biodiversity, promoting sustainable use while balancing economic development. This law remains active today and was continued by Law 99 of 1993, which includes the conservation of páramos as one of its guiding principles (MADS, 2024). This Law "reorganises the public sector responsible for management and conservation and also determines that páramos and sub-páramo areas, water sources and aquifer recharge zones will be given special protection" (art. 1 no. 4; Zapata, 2020 in Suárez Sandoval, 2022, p.17) (translation by author). The concept of protecting páramos by prohibiting productive activities, such as agriculture and mining within them was first officially introduced in Law 1382 of 2010 (Suárez Sandoval, 2022). This law, which revised parts of the Mining Code (Law 685 of 2001), also recognized the need to define specific geographical boundaries for these ecosystems to effectively implement this protection according to the official government website. Despite being considered unenforceable, Law 1382 was active during 2010-2011 (Osorio Fernández, 2015). However, in 2011, the Ministry of Mining faced a major institutional crisis due to the excessive issuance of mining permits. Osorio Fernández (2015) explains how this unrestrained granting of titles resulted in significant damage to these critical ecosystems, especially in the páramos Santurban and Pisba. The MADS was given the responsibility of defining páramo boundaries by Laws 1450 (2011) and 1753 (2015), which contain the National Development plans of 2010-2014 and 2014-2018 (Minambiente Pisba, nd). The Constitutional Court ruled in 2016 that the Ministry must use scientific criteria from the IAvH when making these decisions, and any deviation from IAvH recommendations must be scientifically justified to ensure greater protection of these ecosystems (MADS, 2018). Simultaneously the Court "declared the páramos to be objects of special constitutional protection due to the strategic value derived from the ecosystem services they provide and their vulnerability in the absence of effective protection" (Suárez Sandoval, 2022, p.17).

In 2015, activists from the social movement focused on protecting water resources and the Santurbán páramo filed a legal action, arguing that the territorial demarcation process had been implemented without adequate participation from the affected communities (Lizcano, 2025). Following a series of legal proceedings through different instances, Ruling T-0361 of 2017 emerged, highlighting the public's right to participate in the process of páramo delimitation. The ruling stresses the importance of democratic participation in environmental decision-making processes. The Court specifies the circumstances in which collective rights and environmental difficulties may give rise to a tutela action, a mechanism for the protection of basic rights (Corte Constitucional de Colombia, 2017). Ruling T-0361 prohibits mining and hydrocarbon activities in páramos, recognizing the challenges in defining these complex ecosystems and the need for sustainable management (Corte Constitucional de Colombia, 2017). The subsequent Resolution 0886 of 2018 includes the "guidelines for zoning and the regime of uses in the areas of defined páramos are adopted and the directives for designing,

training and implementing programmes for the substitution and reconversion of agricultural activities are established" (Minambiente Pisba, nd).

While legislation provides definitions for páramo ecosystems and determines permitted activities, the practical application of these laws remains ambiguous. This top-down approach led to social and environmental conflicts because local communities were excluded from the decision-making process. The resulting map, which restricted activities within the demarcated páramo zones, led to resistance from farmers and small-scale miners whose livelihoods were threatened (Parra-Romero & Estupiñán, 2023). Mining operations continue in these areas, highlighting the gap between legal intent and reality. This conflict reveals tensions between scientific demarcation and inhabitants' lived experiences, contributing to the need to formulate more applicable and inclusive laws, for that matter Laws 1450 (2011) and 1753 (2015) were reinforced by Act 1930 of 27 July 2018. This law is the most recent legislative framework governing páramo ecosystems, which serves as the focal point of this study. The MADS describe this law in the following manner:

"The purpose of this law is to declare the páramo complexes as special management areas, to guarantee their integrity with the other high mountain ecosystems and to identify and prioritise actions for the preservation, conservation and restoration of the moorland ecosystems in Colombia" (2018).

The delimitation of páramos is based on IAvH's reference area at a 1:25,000 scale (MADS, 2018). This law regulates integral management of páramos while recognizing traditional inhabitants as primary stewards and encouraging their collaboration in sustainable conservation projects. According to the "Congreso de Colombia" it provides financial support, education, and ecotourism as strategies for protection, while protecting the rights of indigenous and Afro-Colombian communities (2018). At the same time, it makes strict demands against the misuse of this territory and prohibits activities that could harm the páramo and its biodiversity (MADS, 2018). Law 1930 implies that these wetlands must be viewed as areas of particular concern that incorporate social and cultural elements along with biological, geographic, geological, and hydrographic elements (MADS, 2018). In line with the applicable international legislation that the Republic of Colombia has signed onto, the páramos are regarded as a national priority and strategically significant for the preservation of the nation's biodiversity since they are essential for the supply of water resources (MADS, 2018). This law "prohibits most mining in the paramos, expansion of (sub)urban areas, building of new roads, heavy agricultural machinery, deforestation, use of fires, chemical fumigation and the general degradation of natural vegetation" (Blake et al., 2023, p.4).

Participatory Government project Pisba Avanza

Páramo de Pisba's participatory delimitation procedure is being developed by the Ministry of the Environment, as stipulated by Law 1930 of 2018 and Ruling T-361 of 2017. The Sentence T-361 established that the participatory delimitation process must include a Consultation phase according to Rivera Brusatin (2024). This phase aims to achieve consensus between páramo inhabitants and government authorities through deliberative dialogue, with agreements incorporated into the delimitation proposal that outlines protection and restoration measures (Rivera Brusatin, 2024). Pisba Avanza uses a structured framework balancing environmental preservation with socioeconomic needs through 7 phases: introduction, information sharing, consultation, concertation, administrative opinion issuance, resolution, and implementation (MADS, n.d.). Since Law 1930's introduction, Pisba Avanza has invited municipalities in and around páramo de Pisba for discussion in 2019, 2021, 2022 and

2023. The first phase involved a preliminary diagnosis of actors, communication channels, and community perception. The information phase included socialization and explanation of IAvH ecosystem mapping, while the consultation stage gathered opinions and delimitation options (MADS, n.d.). Meetings were open to all interested parties in their local or nearby municipalities, guided by freedom and transparency values. In 2025, Pisba Avanza will proceed with phase 4: consensus-building among all stakeholders.

Analysis

Having established the context of this study in the previous chapter, this analysis now turns to the ethnographic data collected during the fieldwork in páramo de Pisba. In January 2025, I conducted 26 in-depth interviews with páramo farmers and participated in agricultural activities, documenting their perspectives through field notes and audio recordings. This immersive approach provided diverse insights into how farmers understand and respond to Law 1930. This analysis will answer the sub-questions step by step and finally answer the main question. This chapter contains a thematically organized analisis per sub-question, allowing for a deeper understanding of patterns and varying views among páramo farmers. Throughout the analysis, I focus on sharing the participants' words, using many interview quotes to show their real perspectives. All conversations are held in Spanish and quotes from participants are translated to English. For privacy reasons the names of the participants are anonymized.

While the participants constitute a heterogeneous sample with varied biographical trajectories, they share fundamental similarities in their daily lives and identities. All engage in agricultural activities and importantly, they collectively perceive the páramo as their home. Participants demonstrate diverse livelihood strategies - four women operate small home stores alongside farming, while three men combine agriculture with past or current coal mining work. Nearly all participants keep chickens and larger livestock (cows, sheep, pigs), and maintain vegetable gardens that vary significantly in size—from small plots of just a few square meters to substantial agricultural parcels. Educational backgrounds vary among participants. They were not explicitly asked about education levels during interviews. This information naturally emerged in some conversations, revealing differences between those who pursued formal studies and those who have remained primarily on the farm throughout their lives. Several farmers mentioned their involvement with agricultural associations and farmer organizations, and a minority of respondents hold or previously held community leadership positions, such as social leader or president of the community action board. Of the 26 people interviewed, 12 are women and 14 are men.

Water, home, and stewardship: farmers' multifaceted relationship with the páramo

This section examines how páramo de Pisba farmers conceptualize their relationship with this high-altitude ecosystem. Interviews revealed three interconnected themes: the páramo as an ecological lifeline providing essential water, as a fundamental aspect of identity and home, and as an environment requiring active stewardship. These perspectives reveal a complex relationship that integrates ecological awareness with cultural identity and intergenerational responsibility.

Water as Ecological Lifeline

Of the 26 interviews conducted, 18 specifically emphasized the hydrological function of the páramo, establishing water as an ecological lifeline as the most prevalent theme. Participants consistently framed the páramo as both a vital hydrological resource and ecological cornerstone, mixing contradictory anthropocentric utilitarian and ecological perspectives. The farmers highlighted the páramos' role as the source of water essential for sustaining their livelihoods and activities. Some call it "invaluable" and "the greatest wealth", emphasizing how locals value the páramo primarily for its practical resources and contributions to their livelihoods. This is highlighted by the affectionate words of Pedro about the páramo;

“That's where the waters are born, the waters that feed mankind, animals and everything. (...) They are crystalline waters that are born in the springs. This whole region is sustained by the waters of the páramo”.

This deep association between páramo and water pervades farmers’ understanding of the ecosystem. Daniel directly states that “the páramo is a source of life”, while Andrés emphasizes the existential dependency, noting that “without water, we cannot survive”. For many respondents, the páramo represents not just a geographic feature but the fundamental basis for their existence in the region. Aside from its hydrological importance, farmers recognize the páramo’s broader ecological significance. Phrases like “There is life, water, everything. All species” by Felipe acknowledges the páramo’s value beyond its anthropocentricity. Pedro describes it as “the lung of the world, the lung of human beings,” highlighting its role in oxygen production and climate regulation. Juan reinforces this view by identifying water, plants, and oxygen as the elements that keep him connected to the area. Seven participants demonstrated awareness of the páramo's global significance. Mateo expresses this understanding with pride “it means that it is an invaluable resource worldwide, because we are fortunate to have the páramo here, because that is unique in the world. Colombia has 50% of the world's páramos, so it is a fortune, isn't it?”. This recognition of the páramo as both locally essential and globally significant reveals an ecological understanding among many farmers.

The páramo as identity and home

Farmers expressed a deep-rooted bond with the páramo, framing their relationship as one of cultural identity and interdependence rather than purely economic reliance. Almost all participants view the páramo as integral to their identity and sense of home. This theme emerged through expressions of deep emotional attachment and belonging. Carolina’s simple yet powerful statement about the land, “it gives us everything”, encapsulates through a reciprocal lens a holistic relationship with the land. Twenty-three out of the twenty-six have lived their entire lives in the páramo, only three participants having resided elsewhere temporarily. With most residents born and raised in the páramo and maintaining deep generational ties to the land, they view the ecosystem as both an irreplaceable habitat and a profound emotional anchor. Sandra emphatically declares, “I don't see myself anywhere else”, describing the environment as “a paradise”. I asked Fernando, a retired man who still does some work on his family’s farm, what the páramo means to him. He explained with a smile and a sense of proud “the páramo, well, in reality [...], we were born there, we grew up there and there we still have our, our páramo”. Many farmers articulate strong ancestral ties to the area, as exemplified by Valentina who states, “So my grandparents lived here, my great-grandparents also lived here, in this region,” and by Roberto who affirms, “Where many, many of us were raised”. These statements reflect a fundamental aspect of self-identity shaped by generational connection to place. Oscar’s characterization of the páramo as “otra familia” (another family) reveals that he sees the ecosystem as another person rather than just a place. The participants consistently position themselves not as visitors or users of the páramo but as integral components of the ecosystem itself. Their narratives reveal a relationship characterized by mutual dependency, cultural significance, and emotional attachment that fundamentally shapes their way of living. Being a paramuno[1] is a big part of their identities.

Stewardship and protection

Throughout the interviews, farmers consistently articulate a deep sense of responsibility towards the

[1] The term “paramuno” refers to a resident of the “páramo,” or high moorlands (Amador-Jimenez & Millner, 2023, p. 733)

páramo, emphasizing their role as environmental stewards. This theme appears through statements showing both long-held caretaking traditions and growing environmental understanding. Angela captures this sentiment about the páramo ground: “Apart from the fact that she gives to me too, I must take care of her”. Carolina explains, “The land must be cared for, because yes, she gives us everything, one could say. If we take care of her, she surely gives us everything one wants”. Both women, whom I interviewed consecutively, proudly showed me their land and vegetable gardens, referring to the páramo as ‘la tierra’—the Spanish feminine word for land or ground. Carolina’s parting gift of home-grown carrots, offered with the words “Look at all the beautiful things the páramo has to offer,” perfectly encapsulates the farmers’ reciprocal relationship with nature that transcends purely utilitarian approaches.

Their perspective reveals a sophisticated understanding of how their wellbeing is intrinsically linked to ecological vitality. This connection shows in how they care for the land, which in turn provides for their community with benefits like the food they kindly shared with me. For some farmers, stewardship is presented as inherent to their identity as paramunos. Jaime, a farmer who has been living just outside the PNN de Pisba high up in the páramo, defines the páramo itself through a caretaker lens: “The páramo is about taking care of it so that the water of the fauna is not destroyed,” suggesting that the ecosystem cannot be separated from the act of its protection. His emphasis on water and fauna protection indicates specific priorities within this caretaking framework. Elena’s reflection reveals an evolving environmental consciousness influenced by external education from international non-profit organization Swissaid: “through talks, through workshops, we have been becoming much more aware of the care and protection of the fauna and flora and water resources”. This suggests that traditional stewardship values are being reinforced or even reshaped through conservation dialogues. Luisa extends this stewardship ethic temporally, connecting páramo protection to intergenerational responsibility: “I'm happy they take care of them because that is one's life. Of the future, of our children, grandchildren” This perspective frames conservation not merely as present-day resource management but as preservation of life possibilities for future generations.

Balancing livelihood and conservation: farmers’ visions for protecting the páramo while maintaining agricultural traditions

This section addresses what páramo de Pisba farmers believe should be done for conservation and their role under Law 1930. Interviews reveal three key priorities: reforestation with native species and water protection, sustainable agricultural transitions, and environmental awareness. While perspectives vary, most farmers envision conservation not as eliminating traditional practices but evolving them into approaches that balance ecological preservation with cultural and economic sustainability.

Reforestation and Water Protection

Nearly all farmers identify reforestation and water protection as critical conservation actions. Twelve interviewees explicitly emphasize the importance of planting trees for páramo preservation. From the hammock she is sitting in, Luisa points to higher up the mountain and simply affirms: “I agree with planting trees”. This sentiment echoes a conservation priority emphasized by nearly half of all participants. A smaller part of the participants demonstrate more nuanced ecological knowledge by specifically emphasizing native vegetation rather than general reforestation. Patricia briefly articulates the core approach: “take care of it and plant native trees”. Elena actively demonstrates this principle through her conservation practices, detailing plans to plant linden trees alongside other native species

to reforest her agricultural land. Similarly, Fernando elaborates on specific native species: “plant natural trees...plant frailejones, all the little trees that exist in the páramo”. This emphasis on native species aligns with ecological research from Buytaert et al., (2006) illustrating how native plant species have developed specialized adaptations to survive in the harsh environmental conditions of high-altitude ecosystems.

Such focus on appropriate vegetation is linked to water conservation, since native plants recognized by farmers play a crucial role in regulating hydrological cycles within the ecosystem. Fifteen of the participants mention water protection when asked about their view on páramo conservation. Farmer Elena highlights this with the statement “Because if we don't take care of our water sources, which is our páramo in terms of restoration, then where are we?”. This quote reinforces the prominent theme of water protection that emerges across multiple interviews. The rhetorical question “then where are we?” powerfully conveys the existential importance of water resources to the páramo communities. What’s particularly notable is that Elenas’ words frame the páramo itself as equivalent to “water sources,” demonstrating the intrinsic connection farmers perceive between the páramo ecosystem and its hydrological function. This conceptualization aligns with Nicolá’s more specific reference to “water recharge zones,” when talking about the páramo. Luisa’s perspective adds nuance by differentiating between zones within the ecosystem where conservation needs vary. She explicitly connects livestock grazing with water contamination, demonstrating awareness of how specific human activities can damage water sources when she states “the water springs get damaged”. Subsequently, Mateo identifies “conservation of water sources” as essential for the páramo ecosystem and Pilar emphasises the need to “not contaminate the environment, protect the waters”. Collectively, these statements reveal an ecological understanding of the páramo as fundamentally defined by its water-producing capabilities, positioning water conservation as the cornerstone of páramo protection efforts.

Environmental Stewardship Through Sustainable Farming Approaches

This research reveals a consistent pattern among interviewed farmers regarding their agricultural activities in the páramo ecosystem. All participants expressed a desire to continue farming activities, though with variability in their understanding of ecological boundaries and agricultural approaches. Farmers are actively negotiating their relationship with resources and territory, reflecting what Watts (2000) conceptualizes in political ecology - they assert continued rights to their traditional practices while showing willingness to adapt these practices for ecological purposes.

A few interviewees indicated that their current agricultural activities occur in transitional zones rather than the core páramo ecosystem, which they identify as being situated higher. Patricia explains: “If the government helped us, then the animals we have loose in the park would be gathered inside [our own land])”. Meaning that this farmer keeps her cattle in PNN de Pisba . She indicated that with the right financial help she can keep her cattle in her own farm, thereby mitigating the destruction of the higher, more vulnerable páramo area. Acknowledging the boundary of the park as the boundary of the páramo ecosystem.

This perspective reveals a local understanding of ecological zonation that may not align precisely with páramo legislation. Many farmers strongly believe in continuing to grow food where they live in the páramo itself, often highlighting potato farming as especially important to both their cultural heritage and economic survival. When speaking with several female farmers in Chita, I found consensus around improving páramo protection. Pilar and Natalia shared their concerns about conservation,

emphasizing that while large companies should be prevented from exploiting and harming the ecosystem, local residents should maintain their right to cultivate food in the area. Pilar explained to me with a sense of worry in her voice "it is very important to be able to plant potatoes". The consensus among nearly all participants supports the continuation of cultivation practices within the broader páramo region, though with varying perspectives on appropriate locations and methods.

A distinct group of seven farmers articulated more forward-thinking views regarding the transition toward sustainable and organic agricultural approaches. Their differentiation between zones suitable for different activities demonstrates a nuanced understanding of resource distribution that directly challenges the uniform conservation measures imposed by Law 1930. Daniel advocates for "ecological agriculture, without so many chemicals, without expanding the agricultural zone." This shift toward sustainability is further emphasized by Nicolás who, with noticeable enthusiasm and optimism, notes that "there are also pastures where we can raise animals and plants, just in a cleaner, more organic way". Angela specifically calls to "transform the chemical to the agroecological, taking care of our páramo, transforming, changing the customary to organic," connecting these approaches to pre-industrial farming traditions. Several farmers propose modified livestock practices and differentiate between zones within the páramo where conservation needs vary, suggesting that in areas with fewer water springs, certain agricultural activities might remain appropriate. Some suggest transitioning to different livestock. Angela describes: "sheep have less impact on the soil than cattle. Cattle contaminate the water more and sheep less". Interestingly, Andrés considers livestock part of conservation: "having cattle is something good for conservation", showing how farmers integrate traditional practices with their understanding of stewardship. These perspectives reveal how inhabitants of páramo de Pisba envision conservation not as the elimination of farming but as the implementation of it in different sorts of environmentally compatible approaches.

Environmental awareness

Farmers see themselves playing an educational role within their communities, transferring intergenerational knowledge and spreading environmental awareness. When asked about her role in páramo conservation, Carolina, an elderly woman who was born in the páramo, explains: "My role would be to help and inform the children, the grandchildren and the neighbors." Similarly, Sergio emphasizes the value of local ecological knowledge: "Those of us who have lived here our entire lives, we already know what plants are here, what animals are here, and we try to ensure they are not lost, that this nature continues to exist." When talking about conservation, he suggests that government funding should be directed to community members themselves for conservation efforts, advocating for training programs that involve local people. Sergios' statement highlights both the importance of integrating local knowledge into conservation strategies and the need for financial support to sustain community-based environmental stewardship. Likewise, Angela shares this educational perspective, viewing herself "like a caretaker, someone who likes to teach children that things must be transformed, (..) that what exists must be cared for." The significance of environmental education emerges as a recurring theme, with nine farmers specifically indicating the need for "capacitaciones" (training courses) focused on environmental awareness.

Dissatisfaction regarding government participatory project Pisba Avanza

This section of the analysis examines how farmers of páramo de Pisba experience the participation process implemented by the Pisba Avanza project regarding Law 1930. During fieldwork, I discovered that terminology familiar to officials was not always recognized by local farmers. The

formal name “Pisba Avanza” meant little to many participants, requiring me to find language that resonated with their experience. Through our conversations, I found that farmers recognized and related to “mesas de concertación” (round-table meetings) much more than the official project names used by authorities. When I described the project using this familiar terminology—such as government-facilitated round-table meetings to involve residents in páramo legislation—participants could better comprehend the question. This language adjustment highlighted how the participatory mechanism itself (the round-table format) was more salient to locals than the program’s intended outcomes that officials emphasized in their naming convention.

Despite engagement efforts, a significant number of farmers were unfamiliar with Pisba Avanza. Among the 26 interviews conducted, 13 participants (50%) expressed no recognition of the project, while 11 demonstrated varying levels of knowledge. Within this informed group, a notable contrast emerged: some participants had attended all meetings and possessed a detailed, comprehensive knowledge of the initiative, while others had participated in only a few sessions and consequently maintained a more general idea of the project's objectives. Two interviews yielded no response on this topic. This widespread lack of awareness was captured in straightforward statements such as Carolina’s admission that “We still have to do the task of investigating”. This analysis relies on data from eleven interviews with knowledgeable participants, representing a methodological limitation that excludes uninformed stakeholders' perspectives. Despite this constraint, thematic analysis revealed valuable insights into the operational dynamics of the project.

Underprepared personnel

The interviewees who participated in Pisba Avanza meetings expressed various criticisms of the participatory government project. Farmers highlighted limitations in staff capacity, observing that the project team, despite their efforts, lacked adequately prepared personnel. Daniel shows his dissatisfaction by stating: “They don't have clarity about the work they're doing” and “Officials have little knowledge of what the páramo is, and they allow themselves to be manipulated”. Gloria confirms this view, clearly frustrated she says: “I went to the sessions but the information is incorrect. It doesn't seem that the officials know what they are doing”. Several participants indicated that staff not only lacked substantive knowledge of páramo regulations but also changed frequently, causing the project to stagnate. Nicolás explains: “these people don't collect the information and then one government ends and the next one comes in and they start again from scratch,” while Daniel notes how each new team “starts all over again” after contract rotations. This limited understanding of páramo ecosystems and personnel turnover exemplifies Smith’s (2008) concern that top-down initiatives frequently lack vital local perspectives, creating a disconnect between management authorities and the complex lived experiences of páramo inhabitants.

Linguistic Barriers and Tokenistic Participation

The interviews reveal profound shortcomings in the governments’ ‘mesas de concertación’, characterized by both ineffective communication strategies and superficial engagement with farming communities. Sandra articulates a fundamental communication barrier: the technical and legalistic language used in environmental legislation that fails to resonate with rural populations. She emphasizes that most farmers: “We have our daily tasks on our minds, so we don't really delve deep into downloading a law and reading it article by article”. Particularly when documentation is written with “technical words... very different from the words or the vocabulary used by the farmer”. This linguistic gap results in poor understanding of information, creating a significant obstacle to meaningful participation. With visible frustration, Isabella leans forward, brow furrowed, as she criticizes the ambiguity of key regulatory concepts: “What is low impact? Is it planting less, or is it

using other methods?" She advocates for officials to "socialize this law, explaining it in great detail, article by article". The absence of such clarification generates confusion and mistrust among farmers attempting to understand how the legislation will affect their livelihoods. The communication barriers described align with Fischer's (2008) critique of social exclusion in participatory frameworks. The technical language used by officials creates what can be understood as "cognitive injustice" (Martin, 2017), where traditional knowledge and perspectives are marginalized by scientific and legal discourse. Sandra's observation about the inaccessibility of legal text exemplifies the "exclusionary inclusion" Fischer warns about - farmers are nominally included in the process, but effectively excluded by communication barriers.

The repeated meetings without substantive progress in the Pisba Avanza project seem to exemplify what White (1996) terms "tokenistic participation," with farmers limited to listening rather than having any meaningful say in decisions that affect their lands and livelihoods. Juliana indicated that in the beginning she and other community members did try to express their opinion, but that this input produced minimal meaningful outcomes or changes. According to her, this is the reason why most people don't go to the meetings anymore. Since the initial 2019 gathering, participants report remaining in the preliminary information phase through 2025. This stagnation has led to dramatic attendance declines, with Isabella describing recent meetings where only 10 of an expected 300 participants attended. This disengagement reflects the anxiety that Rafael describes, stemming from uncertainties about their agricultural futures. Felipe captures the fundamental tension when stating that conservation discussions fail to address that "we live off of agriculture, off of cattle raising," questioning directly, "and we, what would we live from?". Juliana seems to agree when talking about the participatory project: "we cannot work together with their ideals". The process itself demonstrates what Chambers (1994a) would classify as participation serving as a "cosmetic label" rather than an "empowering process". Through Arnstein's (1969) participation framework, the project operates at a consultative level without genuine power redistribution, failing to acknowledge the páramo community's complex social dynamics as Smith (2008) articulates. Despite recognizing their limited influence, a few farmers maintain engagement, with Daniel insisting: "We cannot withdraw from the process. We have to stay until the end," understanding the critical importance of securing representation in decisions affecting their territories and livelihoods.

Perceived bias toward mining interests

Farmers express deep skepticism about government neutrality, believing officials favor mining interests over agricultural communities. Nicolás, a local water association president, questions why officials sympathize with mining companies and see them as "victims", "when they're the ones damaging the environment". After attending all Pisba Avanza meetings, he claims the project has been "coopted" by mining interests. Daniel similarly criticizes institutional susceptibility to mining influence. Sandra and two other farmers withdrew from consultations after concluding authorities prioritized illegal mining over community concerns, creating a significant rupture in state-community relations. These experiences contradict Matarrita-Cascante et al.'s (2019) finding that successful participatory conservation requires recognizing communities with strong resource connections – in Pisba, agricultural communities' profound ties to their land are overshadowed by economic interests, undermining effective collaborative governance.

Páramo farmers' perspectives on Law 1930

After examining farmers' views on the participatory government project, the analysis shifts to perspectives on Law 1930. Despite its potential profound impact on their lives, knowledge of this legislation varies significantly - 10 participants are unfamiliar with it, 7 have some knowledge, and 9 are well-informed. Notably, among those familiar with the legislation, no participant fully agrees with its objectives and provisions.

Disagreement on Appropriate Delimitation Boundaries

During the conversations with farmers, several points surface regarding disagreements concerning the law. Prevalent is the disagreement on the delimitation boundaries. This theme emerged as multiple farmers expressed disagreement with the proposed boundaries for páramo delimitation, arguing that they include areas that shouldn't be classified as páramo and would unnecessarily restrict traditional activities. Rafael argues that the true páramo is located at higher elevations: "The páramo is situated above us, naturally, in an area where almost no people live anymore, a place that should be protected. Yet we're told that the boundary line, as viewed from down here, still appears much lower than it actually is." Roberto also supports maintaining existing boundaries. With the sturdy posture of a lifelong farmer, he states: "The boundary of the páramo was established long ago, and it's older than the current administration. And yes, I agree that they should maintain this boundary as it is". Both men are referring to the delimitation of the páramo concerning PNN de Pisba which was done in 1977. They are not the only ones, many participants conceptualize the páramo as an elevated ecological zone, demarcated by the occurrence of frailejones and lakes. This understanding contrasts with the arbitrary administrative boundary established by the IAvH in Act. 1930. However not everyone agrees, other farmers explain that it is of high importance to keep this lower placed delimitation in order to better protect the páramo ecosystem and its hydrological functions. Daniel argues that protecting the páramo requires some restrictions but explicitly states that communities should remain in the area. His perspective suggests that human presence, when properly regulated, can actually serve as a protective mechanism, positioning local inhabitants as potential stewards rather than threats. Similarly, Mateo emphasizes the need for balance: "We need other forms of employment, and not to dispossess landowners of their land for nothing, that is, without compensation, forcing them out as displaced people, that's not right either"

In stark contrast, Felipe and several others express profound anxiety about displacement. Their language is emotionally charged and reveals deep concerns about forced relocation because of the law. Likewise, Gloria is determined: "We are not going to move; we will stay here no matter what". This uncertainty about potential land displacement under the law persists throughout various páramo de Pisba communities. As a result, some residents declined to speak with me, mistakenly believing I represented the Pisba PNN or MADS, thus viewing me as the opposition seeking to remove them from their homes. When discussing this with other farmers, they revealed that mining companies deliberately circulate such misinformation. Nicolás explained that these companies strategically align themselves with farmers to strengthen opposition against government policies that might restrict coal mining operations. According to him and two other farmers, this deliberate misinformation campaign explains why displacement fears remain so prevalent. While this perspective offers one possible explanation, it may not fully account for the complex factors influencing concerns across the broader farming community.

Worries About Livelihoods and Traditional Practices

Farmers express significant concerns about how páramo delimitation will affect their traditional

livelihoods and cultural practices. Teresa explains specific concerns: “if you have five cows you can no longer take care of all of them” explaining her worries about the law's restriction on agriculture. She also mentions that the communities in páramo de Pisba cook a lot with firewood and that, according to Act 1930 they would not be allowed to cut wood. She states: “Then, how can the countryside live? If the countryside lives off all that”. Carolina also reveals ambivalence towards páramo demarcation policies. While acknowledging the environmental benefits, she expresses significant concern about prohibitions on traditional subsistence practices that threaten local livelihoods. Small-scale farmers who depend entirely on having a few cows or planting potatoes face disproportionate economic vulnerability from conservation restrictions she explains. Sandra also highlights the small-scale nature of páramo agriculture, noting most farmers own just 1-5 hectares and plant only “20 bags of potato seed per year” compared to “2,000 bags” in larger highland operations. She argues that “the use of agrochemicals is minimal” in the páramo, yet the law fails to distinguish between subsistence farming and industrial agriculture, thus “violating our rights”. Natalia also expresses concerns about this aspect of the law, stating: “Because here it is necessary to plant potatoes and have milk for our own use”. Jaime expresses concerns about legislation, noting that páramo farmers have developed agricultural practices over decades with strong economic dependence on their land. This reveals tensions between traditional rural livelihoods and conservation policies that threaten established farming patterns. Sandra articulates significant infrastructure concerns embedded in the legislation, noting:

“It says that heavy machinery will be prohibited, that infrastructure will be prohibited... So I wonder if it is prohibited and in all our villages we have schools, in all our villages we have aqueducts, in all our villages we have tertiary roads and therefore we have bridges. If infrastructure is prohibited, how do we maintain what already exists?”

Her question highlights the fundamental contradiction between Law 1930’s prohibition of infrastructure and the ongoing development needs of páramo communities with existing infrastructure and buildings that require maintenance and improvement. Rafael expresses deep concern that while officials claim no one will be displaced by páramo delimitation, the same authorities contradict themselves by prohibiting construction and machinery use that communities depend on. Others indicate that few young people remain in the páramo, too little labor force remains to work in the fields without machines. Rafael articulates concerns regarding the Laws prohibition of agrochemicals in the páramo region. He contends that contemporary agricultural productivity in the area has become dependent on chemical inputs, arguing that cultivation without these substances would result in crop failure. The páramo farmers confront a challenging agricultural reality where years of conventional farming methods have transformed their soil composition and created a dependency on chemical inputs that is difficult to reverse without substantial support. This situation makes it nearly impossible for farmers to suddenly switch to chemical-free farming without losing their livelihoods, unless they receive proper support and training in alternative farming methods that actually work for their specific conditions.

Against Mining and Multinationals

The interviews reveal a significant consensus among páramo farmers regarding mining activities within the context of Law 1930, with only one exception—a farmer whose family is employed by a multinational mining company. All other participants consistently express strong opposition to large-scale mining operations conducted by multinational corporations in the páramo ecosystem, viewing these activities as environmentally destructive. Notably, even farmers who engage in

part-time work in artisanal mines maintain this opposition, drawing a distinction between artisanal mines, which they consider smaller, less environmentally harmful and the more damaging operations of large corporations. Despite these nuances in perspective, the vast majority of participants stand firmly against all types of mining in the páramo region. Andrés articulates a common sentiment that multinationals "come and destroy and leave," while local communities are left to suffer the consequences. This perspective is reinforced by observations from Luisa, who describes visible environmental degradation including landslides and fallen trees resulting from coal extraction.

A critical dimension emerging from these narratives is the perception that mining interests actively obstruct the implementation of Law 1930 through legal mechanisms. Daniel explicitly identifies mining as "the only obstacle" to the páramo delimitation process, describing how mining companies have filed legal actions (tutelas y acciones populares) to delay implementation. Pedro shares a compelling personal testimony of conflict with mining interests. When a multinational company began operations just 70 meters from his home in 2008, he filed complaints with various authorities as president of the community board. His activism against the environmental threats to water sources resulted in threats that forced him and his children to flee, remaining displaced for eight years. Though an international environmental organization eventually helped win the legal battle to close the mine in 2016, Pedro reports that corrupt administrative practices have allowed operations to resume under the guise of "maintenance". He laments how mining has displaced traditional agricultural activities that once sustained the community without requiring people to leave their land for employment. Jaime similarly expresses frustration with the contradictory application of environmental protections, noting that while regulations restrict local farmers, multinational mining companies operate with impunity: "Here what they say is that the environment needs protection, but then multinational companies come to exploit. And then there's no opposition that stands." Farmers like Angela highlight perceived contradictions in government policy, questioning why mining licenses are granted in areas allegedly protected by páramo delimitation efforts.

These testimonies reveal how páramo farmers' opposition to mining integrates ecological protection with livelihood preservation, demonstrating that conservation and community survival are interdependent rather than competing priorities. Their experiences with displacement and environmental destruction illustrate the inseparability of ecosystem conservation from socioeconomic wellbeing. Their perspective acknowledges that effective páramo conservation requires transitioning from destructive extractive industries toward sustainable alternatives that benefit both communities and ecosystems. Almost all of the farmers reveal that they view the mining industry as environmentally destructive and systematically hindering implementation. Despite concerns about the law's restrictions, they hope the legislation will protect their region from coal mining operations.

Proposals for Alternative and Sustainable Approaches

Despite their concerns, farmers offer constructive suggestions for how páramo conservation could be achieved while supporting local livelihoods. Valentina expresses a nuanced position that recognizes both ecological imperatives and socioeconomic realities. Saying: "We get it—this place is important. But don't forget that real people live here who need to feed their families". Her statement highlights the need for alternative economic models and substantive transitional support. Mateo agrees and contends that environmental governance frameworks must meaningfully incorporate the communities whose subsistence depends on páramo ecosystems. According to him the government cannot simply impose regulations—they must facilitate viable livelihood alternatives. In the previously mentioned "Environmental Stewardship Through Sustainable Farming Approaches" section, farmers indicate

several methods they would like to employ to operate more sustainably. Daniel suggests agroecological adaptations: “We have to change the way we have developed agriculture, so that it is ecological agriculture, without so many chemicals, without the agricultural area growing. The same goes for livestock”. He advocates for practical conservation measures that include decreasing livestock density while actively protecting hydrological resources such as wetlands, springs, and streams throughout the páramo landscape.

Other participants agree with the transition to ecological farming and some are already using these methods, like Sandra. She explains that ecological food production is important not only for the soil and habitat but also for people themselves. Participants advocate native tree planting and silvopasture systems for ecological restoration through native species regeneration. Isabella hopes the National Government, through the Ministry of Environment, will engage with local farmers who have their cattle up in the PNN de Pisba to offer productive projects in lower areas, allowing the highest part of the páramo to eventually become free of animals and better function as a water retention zone. Valentina identifies ecotourism as an economically viable alternative for the páramo region. She considers tourism development a viable option for generating sustainable income while maintaining ecological integrity. She elaborates: “What we are looking for is for the Socha Lagoon to be a tourist center, for there to be controlled tourism and for the beneficiaries of that tourism to be the inhabitants of this area”. Pedro: “the government, including all three heads —national, departmental, and municipal—should come to an agreement for the conservation of the páramo”. These diverse proposals show that páramo farmers actively contribute thoughtful solutions balancing environmental protection with community needs rather than passively accepting conservation mandates. Their engagement underscores the value of collaborative approaches in these Andean ecosystems, where communities offer their own solutions to protect the environment while supporting their livelihoods.

Discussion

This study examines páramo farmers' perspectives on Law 1930 and their experiences with participatory conservation processes, revealing complex tensions between ecological protection and rural livelihoods. Analysis of interviews with 26 farmers demonstrates their sophisticated understanding of páramo ecology alongside profound concerns about conservation policies that restrict traditional practices without offering viable alternatives. One key finding is that farmers demonstrate a nuanced awareness of the páramo's ecological importance and view it as integral to their identity.

The implementation of Pisba Avanza reveals significant limitations in participatory conservation approaches that reflect broader concerns about meaningful community engagement. In accordance with White's theory (1996), the project demonstrates how local farmers participate primarily to legitimize the governmental processes while exercising limited actual influence over decisions impacting their communities. The communication barriers highlight what Fischer (2008) characterizes as a form of inclusive exclusion, where rural residents formally participate in meetings yet struggle to engage meaningfully due to complex technical language. The dramatic attendance decline from 300 to just 10 participants since 2019 exemplifies Chambers' (1994a) concept of participation as a "cosmetic label". This disengagement reflects participants' response to processes that claim inclusivity while failing to provide genuine empowerment, resulting in withdrawal from the process. Through Arnstein's (1969) framework, Pisba Avanza's attempt to inclusivity is limited by the communities' lack of actual decision-making power in relation to their own lands and livelihoods, therefore only reaching a consultative level of inclusivity. Yet the findings also reveal complexities around conflicting stakeholder interests, mining industry impacts and varying perspectives on what constitutes a páramo ecosystem. These multiple layers of complexity must be addressed in any participatory framework that aims to be truly inclusive and effective.

The reactions of páramo farmers to Law 1930 reveal significant tensions in conservation policy implementation that can be examined through established theoretical frameworks in political ecology. The mixed feelings expressed toward páramo delimitation policies reflect what Escobar (2006) identifies as resistance stemming from historically embedded cultural and ecological positioning. When paramunos discuss their relationship with the land, they assert their identities as "historical subjects of particular cultures, economies, and ecologies" (Escobar, 2006, p.31-32) by drawing on their generational ties and ancestral ecological knowledge of the páramo ecosystem. This resistance exemplifies what Martínez Alier (2002) terms an "ecological distribution conflict," where marginalized communities fight to maintain access to natural resources vital for their subsistence against conservation initiatives that threaten their livelihoods. Act 1930's comprehensive prohibitions on traditional agricultural practices, machinery use, and infrastructure development create what the farmers see as major economic vulnerabilities that fail to acknowledge the nature of their small-scale farms.

Furthermore, páramo farmers' perspectives on Law 1930 highlight a fundamental theoretical conflict in conservation ethics. Their resistance to páramo delimitation regulations illustrates the broader anthropocentric-ecocentric divide that Kopnina (2016) explores in her research. Law 1930, primarily focused on protecting the páramo ecosystem's integrity, represents an ecocentric position that values the ecosystem for its intrinsic worth. However, this approach conflicts with the lived experiences of local communities who view the land through a more anthropocentric lens—as a source of livelihood,

cultural identity, and sustenance. According to farmers, the legislation fails to recognize the complex cultural and social dimensions of human-environment relationships. In the páramo context, Law 1930's restrictions on traditional practices like cattle grazing, agriculture, and firewood collection demonstrate how conservation policies can prioritize ecosystem preservation over immediate human needs. Washington et al. (2024) would likely argue that this conflict stems not from an inherent incompatibility between conservation and rural livelihoods but rather from broader structural issues in how conservation is implemented. They suggest that the global economy's emphasis on continuous growth creates a false dichotomy: either sacrifice nature for human progress or ignore people's needs to protect the environment. This perspective incorrectly assumes these goals must compete rather than complement each other. Building on the work of Kopnina and Washington, effective páramo management requires blending ecological protection with social justice. True conservation recognizes the páramo's inherent value and the needs of communities that have inhabited these landscapes for generations. As Martínez Alier (2002) would argue, environmental justice offers a path forward, honoring both the ecological importance of these ecosystems and the legitimate livelihood needs of those who have traditionally cared for them.

Despite these insights into the complex tensions between conservation policies and rural livelihoods, it is essential to acknowledge the limitations that shaped this investigation. The methodological and positional constraints of this study provide important context for interpreting these findings. One methodological consideration is that this research was conducted with farmers in municipalities where substantial territorial portions fall within the Act 1930 delimitation boundary. This geographical sampling strategy may introduce an interpretive limitation, as farmers in municipalities with minimal páramo inclusion might potentially share different perspectives regarding both the Pisba Avanza participatory framework and Law 1930. The study's dependence on semi-structured interviews, while revealing rich individual stories, could have been strengthened by including participatory mapping or focus groups to better capture shared community perspectives. Unfortunately, the limited time and resources available for fieldwork made implementing these additional research methods unachievable. Lastly, my position as an outsider likely influenced what farmers shared with me, even though I tried to build trust. As a European researcher in rural Colombian communities, the differences in our backgrounds shaped our conversations in both limiting and enabling ways. While some participants might have held back certain politically sensitive views, others may have felt more comfortable sharing local concerns with someone they saw as independent from regional politics.

Conclusion

Farmers' perspectives in páramo de Pisba on Law 1930 reveal a complex landscape of concern, resistance, and constructive engagement with conservation policy. While 38% of interviewed farmers remain unaware of the law's existence, those familiar with it consistently express disagreement with its current form, highlighting fundamental challenges in policy communication and implementation. Farmers' primary concerns center on displacement fears, exacerbated by disputes over delimitation boundaries. While some advocate for maintaining the 1977 Pisba Park boundaries at higher elevations, others support expanded protection zones. This disagreement is complicated by alleged misinformation campaigns from mining companies seeking to strengthen opposition to the law, ultimately eroding trust between farming communities and conservation authorities. The law's restrictions on traditional practices create difficulties for small-scale farmers who depend on activities like livestock grazing and firewood collection for survival. Farmers emphasize the unfair treatment of their subsistence agriculture compared to industrial operations. The prohibition of machinery and infrastructure development threatens not only individual livelihoods but community viability, as they are essential services seemingly forbidden by the legislation. Paradoxically, while farmers resist agricultural restrictions, they support the law's potential to combat destructive mining operations. Their experiences with environmental degradation and corporate manipulation reveal why they view mining as a greater threat than their own traditional practices, creating an alliance between conservation goals and community interests. Despite their concerns, farmers demonstrate sophisticated environmental consciousness through practical conservation proposals. They advocate for agroecological transitions and native reforestation that balance ecological protection with economic survival. These perspectives ultimately reveal that páramo farmers are not opposed to conservation itself, but to policies that fail to recognize their legitimate needs, traditional knowledge, and potential role as environmental stewards. Effective páramo protection requires moving beyond exclusionary approaches toward collaborative frameworks that honor both ecological imperatives and the rights of communities who have sustainably inhabited these landscapes for generations.

Future páramo policy implementations would benefit from several key improvements to participatory processes. First, authorities should employ locally accessible language and communication strategies. Second, government agencies need to maintain consistent personnel throughout the implementation process to build institutional knowledge and community trust. Third, decision-making power should be meaningfully shared with local communities, moving beyond mere consultation toward genuine co-management approaches where participants are given more responsibilities and represented in a more complete sense. Fourth, participatory processes must explicitly recognize the value of traditional knowledge, integrating local place-based understanding with scientific perspectives to create more contextually appropriate outcomes. Finally, the entire process must remain transparent and free from economic interests that might compromise the policies objectives. These insights apply beyond páramo policies to broader environmental policy frameworks, emphasizing the need for fair processes and knowledge equity must be central, especially where local communities' livelihoods intersect with conservation goals.

This research advances multiple theoretical debates in political ecology and conservation governance. The findings extend Escobar's (2006) concept of "historical subjects" while also building on Agrawal's (2005) work on "environmentality", which demonstrates how "environmental subjects" who actively manage their local environments become more effective ecosystem protectors than those governed through distant, top-down approaches. The study extends this work by showing how Law

1930 attempts to transform páramo farmers into environmental stewards, yet possibly because of the lack of “real” participation farmers selectively adopt this identity based on their livelihood needs. In addition, this research supports Peluso and Lund’s (2011) ideas about “new frontiers of land control” by showing how conservation areas become spaces where government, mining companies, and local communities all fight to control and use the land. In the páramo, this struggle plays out through conflicting claims about conservation boundaries, with each group trying to establish their version of legitimate land use and ownership. Li (2014) demonstrates that land does not inherently function as a commodity for investment; instead, it must be deliberately transformed through various regulatory, bureaucratic, and technological mechanisms that strip away its embedded social relationships and environmental complexities. This connects to the current work on Law 1930 by revealing how conservation legislation functions as a mechanism for "assembling" páramo lands for particular uses while excluding others. This pattern emerged repeatedly in interviews with páramo farmers, who experience how the law transforms complex ecosystems with multiple stakeholders into simplified areas. The result is an environment more easily governed and controlled, but at the expense of traditional agricultural practices and local knowledge systems. Finally, the study advances theoretical understanding of how rural communities navigate between resistance and accommodation, contributing to emerging scholarship on “conservation from below”.

Based on my research examining tensions between páramo conservation policies and farmer realities, multiple directions for future work emerge. Future research could follow these communities over a longer time period to see how their relationships with government agencies change as conservation policies unfold, and investigate whether their patterns of resistance and accommodation lead to actual policy changes. Implementing research which allows farmers to create their own maps would show where their understanding of páramo boundaries differs from official lines drawn by the state. Group discussions would help capture the collective stories and shared strategies that communities develop together when dealing with conservation rules. These approaches could provide a fuller picture of how farmers work together to navigate, challenge, and possibly reshape the policies that affect their daily lives. Future research could work with communities to design their own conservation proposals and document their traditional management practices, creating opportunities for meaningful dialogue with policymakers to develop more fair and practical páramo protection approaches. In addition, comparative studies examining how different legal contexts create varying opportunities for community participation would strengthen the theoretical framework of “conservation from below”. These research approaches would help better understand how communities take action in conservation decisions while also creating more balanced and practical ways to manage the páramo.

This research demonstrates that páramo farmers possess a profound attachment to the Pisba páramo ecosystem, which they identify as their homeland. This connection manifests through diverse individual interpretations of Law 1930, revealing heterogeneous perspectives within farming communities. The páramo farmers call for genuine participation in developing and executing conservation policies that affect their lands and ways of life. This study indicates that farmers broadly advocate for enhanced environmental protection that would eliminate industrial-scale extractive activities while preserving small-scale agricultural practices through the adoption of sustainable methodologies. These findings offer valuable insights beyond Pisba for regional conservation policy by illustrating how local ecological knowledge and place-based identities can inform more equitable and effective environmental governance approaches.

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Appendix

Questionnaire farmers:

1. How long have you lived in the páramo?
2. What kind of work do you do?
3. Did your family used to do this work or has that changed over time?
4. How would you describe your relationship with the páramo area?
5. What do you know about the ecological value of the páramo?
6. What do you know about the 1930 law?
7. What is your opinion about it?
8. How do you experience the participatory project Pisba Avanza about the implementation of Law 1930?
9. What do you appreciate about it?
10. What could be better?
11. What role do you see for yourselves in the conservation of the páramo?
12. Do you have ideas for a sustainable future in the páramo?
13. What help, if any, do you need from the government or NGOs to realize these ideas?

Questionnaire Conservationist:

1. What does law 1930 entail according to you?
2. What does Pisba Avanza entail according to you?
3. What can you explain the differences between nacional, departamental and municipal governments on conservation?
4. What do you think must be done to sufficiently protect the páramo?
5. Where do you think the biggest challenges in páramo protection lie?
6. Can you elaborate on the current situation in páramo de Pisba?
7. What do you think will happen with the Pisba páramo and the implementation of the 1930 law?
8. Is there something else that you want to elaborate on that might be valuable for my thesis?

Questionnaire CuerpoBoyacá:

1. What does Corpoboyacá do?
2. How is this organisation constructed and how does it relate to MADS?
3. What does Law 1930 entail?
4. What does Corpoboyacá do for páramo conservation?
5. What is understood by community participation in Pisba Avanza?
6. Can you elaborate on the current situation in páramo de Pisba?
7. Is there something else that you want to elaborate on that might be valuable for my thesis?

Questionnaire MADS:

1. Can you explain your role in Pisba Avanza?
2. What strategies have been implemented to ensure effective communication and participation of the communities?
3. Are there differences in attendance between different meetings, and do you know why?
4. Do you believe the meetings are easily accessible for everyone who wants to attend?
5. Can you elaborate more on the meetings - are they primarily focused on providing explanations or is there more space for questions and conversations?

6. Were there any problems during the meetings?
7. Why do you think Pisba Avanza is lagging behind compared to other páramos that have already been delimited?
8. Can you elaborate on the conflict between mining and agriculture?
9. What is your opinion on the future of the implementation process and how much longer will it take?
10. Is there something else that you want to elaborate on that might be valuable for my thesis?

Questionnaire Councilman:

1. Can you explain his job, and his function?
2. What does the 1930 law imply and what is the intention of the law?
3. Can you explain more about previous laws and policies that have to do with moorlands?
4. Can you elaborate more on the Pisba páramo and its history?
5. Can you elaborate on the situation of the peasants in this region?
6. Can you elaborate more on the conflict between mining and environmentalists?
7. Can you elaborate more on the influence of municipal politics and the implementation of law 1930?
8. Can you elaborate on the situation in Pisba and its complexities?
9. What do you think is going to happen with the Pisba páramo and the implementation of law 1930?

Questionnaire PNN de Pisba:

1. What is a páramo according to you?
2. What is the difference between páramo and park?
3. What do the park officials do?
4. Can you elaborate more about the Páramo de Pisba and its history?
5. What does law 1930 imply and what is the intention of the law?
6. Can you elaborate on the situation in Pisba and its complexities?
7. Can you elaborate further on the influence of municipal politics and the implementation of the 1930 law?
8. Can you elaborate on the differences between artisanal, illegal and multinational mining?
9. What do you think will happen with the Pisba páramo and the implementation of the 1930 law?