Navigating nature-based carbon credits in Peru: a critical look into interpretations, operationalizations and implications

Author: Caterina Ossio Tord
Registration number: 1263773
Date: 12-02-2024

MSc Thesis Environmental Policy Group
Supervisor: Prof. Aarti Gupta

This thesis could not have been done without the help of many people. My supervisor, Prof. Aarti Gupta, has consistently supported me since the start of this process with key critical thinking and guidance essential for this work. The interviewees have kindly granted me their time and knowledge with openness, eagerness and clarity that is much appreciated. My academic friends from Wageningen University & Research and Laboratorio EcoSalud (UPCH) have given me countless feedback and comments and, given their diverse backgrounds, they have enriched this thesis in varied ways. My ever-supporting family and friends, that with kindness have encouraged me beyond the thesis. Finally, Peruvian forests have taught me the layers of diversity, resilience, spirituality and political complexity non-human beings carry without much recognition from humans. Hopefully, this thesis serves not only them but every reader, as a way to question the fast-paced races in often undoubted claims of progress. As this thesis concludes, only by upholding the wellbeing of humans and non-humans will we be able to contribute to a sustainable future.

Progreso y retroceso (by Julio Cortázar)

Inventaron un cristal que dejaba pasar las moscas. La mosca venía, empujaba un poco la cabeza y, pop, ya estaba del otro lado. Alegría enormísima de la mosca.

Todo lo arruinó un sabio húngaro al descubrir que la mosca podía entrar pero no salir, o viceversa, a causa de no se sabe qué macana en la flexibilidad de las fibras de este cristal que era muy fibroso. Enseguida inventaron el cazamoscas con un terrón de azúcar adentro, y muchas moscas morían desesperadas. Así acabó toda posible confraternidad con estos animales dignos de mejor suerte.

Abstract

Carbon credits are an increasingly popular strategy to deal with climate and biodiversity crises. However, given the time-sensitive nature of these crises, there is lack of caution over their design, implementation or effects. In Peru, Nature-based Carbon Credits (NBCCs) – carbon credits based on nature preservation or (agro)forestry – are increasingly common, despite having no overarching systems for transparency, reporting and accountability. Hence, investigating how NBCCs unfold provides valuable information to adapt or assess their suitability for a sustainable world. This thesis explores the NBCC's interpretations, operationalizations, and potential implications in Peru via a Political Ecology (PE) lens. Data from 38 documents, 4 events and 13 interviews were used. Diverse interpretations were identified and clustered in four main discourses: 'promoting sustainable development', 'funding biodiversity and climate protection', 'selling green smoke' and 'concerning exploitative practice'. These were linked to the operationalizations, showing power differences in shaping NBCCs. The findings portray Peruvian NBCCs as a market mechanism that reinforces the agency of high-level actors (governmental institutions and (inter)national non-governmental entities) over the land used or inhabited by local nature and communities. Therefore, NBCCs risk perpetuating exploitative practices by restricting lands for the market´s will, rather than purposefully contributing to human and non-human well-beings.

Resumen

Los créditos de carbono son una estrategia cada vez más popular para hacer frente a las crisis climática y de biodiversidad. Sin embargo, dada la urgencia que demandan estas crisis, se pueden pasar por alto cuidados sobre el diseño, la implementación o los efectos sobre las estrategias propuestas. En Perú, los Créditos de Carbono Basados en la Naturaleza (CCBN) – créditos de carbono basados en la conservación de la naturaleza o en la (agro)forestería – son cada vez más comunes, incluso cuando no se han establecido sistemas de transparencia, reporte y rendición de cuentas. Por lo tanto, describir las maneras en las que los créditos de carbono son interpretados y operacionalizados puede proporcionar información valiosa para adaptarlos o evaluar si son adecuados para contribuir a un mundo sostenible. Esta tesis explora las interpretaciones, operacionalizaciones y potenciales implicaciones de los CCBN en el Perú, utilizando un lente de Ecología Política. Para ello, se utilizaron datos de 38 documentos, 4 eventos atendidos y 13 entrevistas semiestructuradas. Las diversas interpretaciones fueron identificadas y agrupadas en cuatro discursos: 'promoviendo el desarrollo sostenible', 'financiando la protección de la biodiversidad y el clima', 'vendiendo humo verde' y 'práctica preocupante de explotación'. Estos se vincularon a las operacionalizaciones, mostrando las diferencias de poder al moldear los CCBN. Los hallazgos evidencian a los CCBN peruanos como otro mecanismo de mercado que refuerza la agencia de actores de alto nivel (entidades gubernamentales de nivel nacional y no-gubernamentales de nivel nacional e internacional) sobre las tierras usadas o habitadas por la naturaleza y comunidades locales. De esta manera, los CCBN corren un grave riesgo de perpetuar prácticas de explotación mediante la restricción de tierras a la voluntad del mercado, en lugar de orientarlas hacia el bienestar humano y no humano.

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Chapter 1 – Introduction

The promise of carbon credits

You can see that the train leaves in five minutes and you are still running to the platform. You drop your hairband but decide to leave it behind, rush through the crowd not seeing who you are pushing in the way, get to the platform barely on time and sit on the last available spot. Only then, there is time to think about how you got there. The sense of urgency drives fast, but often unregulated action. The climate and biodiversity crises push decision-makers to make commitments and strategies to deal with the urgency the context demands. However, the time-sensitive nature of these crises may result in lack of caution over the design, implementation or effects over the proposed strategies. Among the proposed strategies, carbon credits have been increasingly popular: either by a rising positivist market or concern over (lack of) regulations and standards. This thesis explores carbon credits in their diversity of interpretations, operationalizations, and potential implications in Peru. Hopefully, providing a pause for analysis in the rapid quest for climate and biodiversity wellbeing.

Carbon credits are tradeable products that represent CO_2 emissions that were *avoided*, by changing to a less polluting practice, or *removed* from the atmosphere, by techno- or nature-based solutions (UNDP, 2022). In turn, the buyer pays for a carbon credit to achieve their carbon reduction goals, and the seller receives funding to implement or maintain the carbon reduction or removal activity. Particularly, transitioning to a less polluting practice or removing atmospheric CO_2 can be done with Nature-based Solutions (NbS), for example, reforesting and preserving a plot of rainforest in the Amazon that acts as a carbon sequestering infrastructure. In this sense, carbon credits may not only function as a market-based strategy to deal with climate change but also contribute to nature conservation. Therefore, this thesis will focus on this potential high-impact tool, referred here as nature-based carbon credits (NBCCs).

Currently, there are two main channels to internationally trade NBCCs: Article 6 of the Paris Agreement and the Voluntary Carbon Market (VCM). In summary, the Article 6 of the Paris Agreement states that the signatory parties (i.e., nation-states) can cooperate in their mitigation and adaptation efforts to reach their Nationally Determined Contributions (NDCs) (United Nations, 2015, p. 7). “Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement” (United Nations, 2015, p. 7).

In this sense, the mitigation outcomes of one party, such as carbon sequestration from a NBCC project, can be transferable to another party to contribute to their NDCs’ targets. Parallelly, the VCM is an arena for trade among voluntary parties such as private companies, governmental authorities, banks, NGOs and others in a free national and international market. Considering the current diversity in mechanisms for transfer, localities for project implementation and actors that participate in the NBCC markets, regulatory measures and accountability and transparency systems have become difficult to define and integrate in

them. This not only concerns the (lack of) quality of NBCCs, but also the wellbeing of the parties and localities involved in it.

Increasing evidence is pointing to historical power disparities among actors around carbon credits and raised concerns over their transparency and accountability. As Calel (2013) points out, carbon markets were born out of the desire to increase environmental commitments without sacrificing the growth of industries (especially fossil fuel companies) or developed nations (especially the US) around the 1980s. This is because carbon credits gave place for a new form of environmental compensation, as a (supposedly) transitionary gateway for a sustainability transition. However, as this unfolded, the expansion of carbon markets showed underlying dynamics of power on how the products were created, traded and institutionalized (Calel, 2013). In detail, high-income countries and large emitter businesses viewed carbon credits as a flexible restriction on emissions, and steered institutions to embrace this approach with the use of lobbyists (Calel, 2013). This sets the origins of carbon markets in a context where predominant actors exert their influence over the way they are operationalized (i.e., created, traded and institutionalized). The peak of the institutionalization of carbon markets came in 1997, with the Kyoto Protocol under the UNFCCC stating that parties (i.e., signatory nation-states) commit to limit and reduce emissions while promoting sustainable development via national measures and market-based mechanisms, which include carbon credits (UNFCCC, n.d.). Although the UNFCCC states that the protocol established "a rigorous monitoring, review and verification system" (UNFCCC, n.d.), the protocol per se describes this system as a combination of self-reporting and certification by private or public entities (UN, 1998). Over time, this reporting system has shown technical and epistemic faults. A few years ago, West et al. (2020) highlighted the technical negligence from certifiers in accreditation of carbon offsets. In detail, the authors concluded that the certifiers' claim of deforestation reduction as a consequence of the carbon credit project did not truly reflect the effect of those projects. This study was later shared in an article in the Guardian (Patrick Greenfield, 2023b), opening a discussion among academia, carbon credit certifiers, corporate buyers and general public on the validity and legitimacy of carbon credits. At nation-state level, Gupta et al. (2016) pointed out that discrepancies found in the reporting from donors (developed countries) and recipients (developing countries) can imply issues beyond the practical aspects of information management, but on the core perceptions of what each party considers relevant information and whether an agreement is to be reached over it. In turn, interpretations of carbon credits vary among actors, therefore, each may see a different operationalization of them. Then, a need arises to determine *whose* perspective prevails in the governance over carbon credits.

In summary, the perspectives and uses of NBCCs are diverse and often contested, and their regulation and transparency and accountability are still to be defined and established. Therefore, describing current ways these credits are being interpreted and operationalized may provide valuable information to adapt this arena for a more equitable and just environmental finance, or to assess if NBCCs are an adequate strategy to contribute to that vision. Given the historical power disparities among actors in the governance of carbon markets, this thesis investigates the interpretations, operationalizations and potential implications of NBCCs with a Political Ecology lens.

Peru as a case study

Peru presents a useful area to ground this analytical challenge. Given its high tree coverage and rising deforestation trends, it is considered of a high potential for developing NBCCs (Ministerio del Ambiente, 2016). Peru has approximately 71 million ha of forest coverage (including dry and Amazonian forests), an area that is increasingly exposed to land loss because of deforestation, as seen in Figure 1 (Ministerio del Ambiente, 2021a).

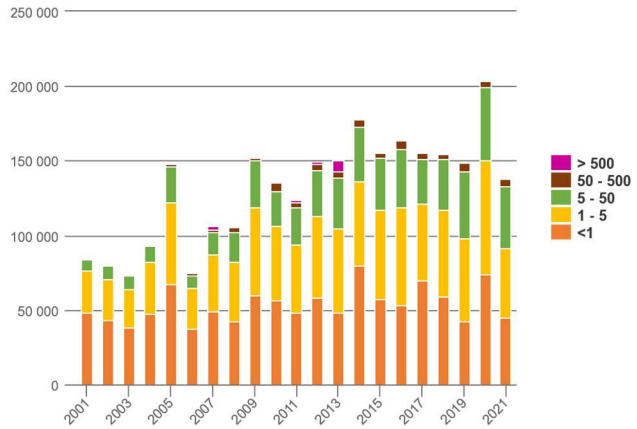

Figure 1. Hectares of forest loss in Peru from 2001 to 2021, the colored ranges represent the size of each deforested area in hectares (Ministerio del Ambiente, 2021a).

The National Strategy for Forests and Climate Change (ENBCC, from its initials in Spanish) provides list of direct and indirect causes of deforestation in Peru. The direct threats identified were agricultural expansion, livestock, *coca* crops, illegal timber extraction, illegal mining, and infrastructure for roads, hydroelectric plants and hydrocarbon extraction (Ministerio del Ambiente, 2016). Furthermore, these were related to background demographic, economic, technological, institutional and cultural factors portraying deforestation in Peru as a 'multicausal process' (Ministerio del Ambiente, 2016, p. 63). As a consequence, the main challenges to tackle in order to decrease deforestation in Peru are the lack of coordinated and interculturally inclusive governance and institutions, land planning with clear monitoring, supervision and clear land rights definition (Ministerio del Ambiente, 2016). As a recent analysis from the National Centre of Strategic Planning shows, the intensity of deforestation varies according to the land tenure the area is subject to (CEPLAN, 2023). Most of the deforested forest land is undesignated (45.3%), however it still occurs in designated forest land to native communities (16.5%), permanent production forests (12.3%), timber concessions (8.6%), Nature Protected Areas (NPAs) (3.5%), among others (CEPLAN, 2023). This way, deforestation concerns over land management range from planning over undesignated territories to effective governance on designated lands. In summary, land governance can be seen as an essential part of tackling deforestation in Peru.

The history of land tenure in Peru is "the root of innumerable socioenvironmental conflicts around control, access, use and harnessing of land and natural resources" (Baldovino, 2016, p. 14). The governance over rural areas in Peru has transitioned from elite owners of *haciendas* with hierarchical and colonial systems until the 60s, *campesino* cooperatives set by a redistributive agrarian reform in the 70s, to a progressive

privatization of land for agricultural exports and neoliberalist economic growth since the 80s (Baldovino, 2016). Institutionally, this transition was not successfully coupled with an orderly assignation of land rights, with a particularly aggravated situation for campesino and native communities (Baldovino, 2016). This is related to several factors: land rights follow a Western conceptualization of property that often clashes with ancestral understandings of their territory, forests are considered state property that can only be temporarily granted to communities, bureaucracy for land registration is overwhelming, and there are several cases of overlapping areas with different land uses or leases (Baldovino, 2016). Furthermore, the designation of land rights is justified by the "sustainable use of natural resources for the common good" according to Peruvian law (Baldovino, 2016). Consequently, land governance in Peru sets a preference for individual landowners and expansive agricultural use of rural land for economic growth, while sidelining community-based land tenure and non-agricultural land use. With this in mind, NBCCs could provide an opportunity to acknowledge and value local land governance and finance its sustainability, what some authors could argue as synergies between global climate change mitigation and local sustainable development (Osborne, 2015). However, it could also fragment and further individualize land tenure within communities to fit the carbon markets requirements, as reported by Osborne (2015) in a carbon forestry project in Chiapas, Mexico.

NBCCs are increasingly popular in Latin America and Caribbean, including Peru (Banco CAF, 2023; Climate Bonds Initiative, n.d.; Ineke Keers et al., 2023; Ministerio del Ambiente & CIFOR, 2012; Piu & Menton, n.d.). As a reflection of the global phenomenon, NBCCs are being created under diverse jurisdictions and mechanisms. Under the Clean Development Mechanism from the Kyoto Protocol, Peru has mostly engaged in the carbon market with hydroelectric energy projects (could be nested under the Article 6 of the Paris Agreement), which is a technology-based emissions reduction strategy (Benites-Lazaro & Mello-Théry, 2019). Since that type of project does not fall under NBCCs, they will not be included in this thesis. In parallel, several Peruvian projects in the VCM align with REDD+ ('Reducing emissions from deforestation and forest degradation in developing countries') standards for reducing deforestation and promoting co-benefits from nature or agroforestry initiatives coupled with carbon credits (Acorn Rabobank, n.d.; Ministerio del Ambiente & CIFOR, 2012), which are considered as NBCCs and will be included this thesis.

Since Peruvian NBCCs are predominantly under a free market system (VCM), governmental regulations are not expected to be dominant in this arena. Nevertheless, the National Registry of Mitigation Actions ('Registro Nacional de Medidas de Mitigación', RENAMI) is going to build a database of NBCCs, and other carbon credit schemes implemented nationwide (Ministerio del Ambiente, 2022). "The provisions here are applicable to all state and non-state actors that participate in the request, inscription, and modification of mitigation actions that apply to carbon markets within or outside the scope of the Article 6 of the Paris Agreement, as well as the transfer of ERU [(Emissions Reduction Unit)] pertinent to these" (translated from Spanish) (Ministerio del Ambiente, 2022, p. 1).

Furthermore, non-governmental accountability and transparency systems have been set in the VCM, mainly by the inclusion of certifiers (i.e., standard developers and initial project validators) and auditors (i.e., continuous project validators) in the creation and implementation of NBCCs (Profonanpe, 2023b). For example, the REDD+ Project in Cordillera Azul led by CIMA follows Verra's Verified Carbon Standard (VCS) and the Climate, Community and Biodiversity Alliance (CCBA)'s Climate, Community and Biodiversity Standard (CCB) (CIMA, 2023b). Carbon standards are provisions that contain the methodologies, rules, and requirements that NBCC developers and implementors need to follow in order to get certified (Dyck

et al., 2023). This way, NBCCs are, in theory, scrutinized by an independent entity (in this case, Verra) that do not directly benefit from the transfer and add legitimacy to the carbon offset product.

Although the potential of these projects are viewed enthusiastically by development banks and financial institutions (Banco CAF, 2023; Ineke Keers et al., 2023; Profonanpe, 2023c), other involved actors seem to view NBCCs with a more cautious approach in the Peruvian context. Particularly, researchers highlight the need to consider reported environmental and financial performance from carbon projects assessed by academia (Balmford et al., 2023; Giudice & Börner, 2021) and, together with NGOs, the need for integrating indigenous peoples in the governance and rights over the credits (Piu & Menton, n.d.; Tim Clairs, 2021). Furthermore, Piu & Menton (2014) raised concerns over the effects of corruption (a constant issue in Peruvian governmental institutions) in carbon projects that could allow for illicit movements of funds, lack of transparency when appointing new staff, influence on determining who can carry out REDD+ activities, negligent management of tenure rights, among others.

Having set out the diversity in perceptions of NBCCs and the lack of regulation and monitoring structure over these carbon products in Peru, this thesis does not propose the need to create a domestic, overarching standard and mechanism, rather, it highlights the need to acknowledge and map their existence and critically assess their (lack of) contribution to human and non-human wellbeing.

Consequently, this thesis investigates the interpretations, operationalizations, and potential implications of NBCCs in the Peruvian context, via a Political Ecology lens. First, a map of the different interpretations of what NBCCs will be developed. This will comprise obtaining the perceptions and opinions of key actors from interviews and documents, while also looking into the discourses expressed by their language, texts, and speech. Then, the operationalizations of NBCCs will be mapped to determine their design, implementation, use and impact. As an overarching analysis, this thesis links the interpretations identified with the operationalizations to determine if some interpretations influence the operationalizations of NBCCs more than others and define the associated potential implications.

Piu and Menton (2014) situated the emergence of REDD+ initiatives (including carbon markets) in the historical context where the Peruvian government focused (and still does) on natural resource extraction for economic growth and development. Later, Andreucci and Kallis (2017) highlighted the way extraction of natural resources was presented as imperative for economic growth, development and general well-being in Peru, and how this exacerbated social disparities and environmental damages. This way, what seemed as a straightforward, technical harnessing of natural assets in Peru ended up alienating and massacring more than 100 indigenous people that were advocating against it (Andreucci & Kallis, 2017). Baldovino (2016) highlighted the government's preference of land rights allocation for economic growth under the argument for the population's wellbeing, even though this may repercuss the sovereignty of campesino and native communities. As carbon credits present themselves as a strategy to reconcile with natural resources in a less extractive manner, the question arises on whether the negative effects observed by Andreucci and Kallis in pro-market, extractivist approaches are also reproduced in a pro-market, less-extractive strategy for the wellbeing of the Peruvian population. This way, the findings hope to illustrate whether these market mechanisms for nature and climate improvements respect and value the diversity of framings and rights over the carbon credits or reinforces the unequal distribution of benefits and repercussions often seen in multi-level, multi-stakeholder financial settings.

Research questions

General research question: how are nature-based carbon credits interpreted and operationalized, and with which potential implications in Peru?

Specific research questions:

1) Which are the current **interpretations** of NBCC by involved actors in Peru?
2) Which are the current **operationalizations** for NBCC in Peru?
3) To what extent do the identified (dominant) interpretations **influence** the operationalizations?
4) Which are the **potential implications** from NBCC in Peru for the distribution of benefits and repercussions among actors?

Conceptual approach and methods

Political Ecology (PE) explicitly addresses the normative and political socio-ecological aspects of a certain context (Robbins, 2004). Mainly recognizing that human and non-human elements are interlinked, which in traditional terms can be described as: the environment shapes human lives, and humans shape the environment they live in. In this perspective, PE also highlights that in this network of mutual dependencies, power over changes in the environment are distributed unequally between actors (Robbins, 2004). For example, this can be applied to climate change when interpreted as a consequence of some historically powerful actors (e.g., high-income nation-states, highly polluting industries) driving change in the global atmosphere, which shapes the state of humans and non-humans around the globe disproportionately. This thesis has the objective to map the current state of NBCCs in Peru, considering the potential power inequalities that they may imply as highlighted by PE.

As pointed out in the description of the Peruvian context, there is a precedent of power disparities among actors over decision-making processes on nature governance. Furthermore, Andreucci and Kallis (2017) ground this power heterogeneity in the use of discourse, in other words, in the hegemony of the dominant actors' interpretations of nature over other less-dominant ones. Therefore, this thesis uses discourse analysis and a PE lens to critically reflect on the political implications of NBCCs, focusing on the "social structures and discursive strategies that play a role in the (re)production of power" (Salkind, 2010).

For further clarification, let's think of the NBCC as a paper boat (Figure 2). The mapped interpretations around this paper boat will allow us to understand how the people familiar with the boat see it (e.g., is it pleasing? is it feeble? is it fast?), how the choices over its travel are being made and carried out (e.g., is it risky to let it keep navigating alone? should we blow it to the left? should we fold it more?), and if someone has the implicit or explicit authority to fold it at the start and/or change its trajectory along the way. Finally, we could forecast where and how the paper boat is going to end up, and how it may have changed (or not) the environment or lives of the people involved (e.g., did it end up littering a shore? did it reach the desired destination?).

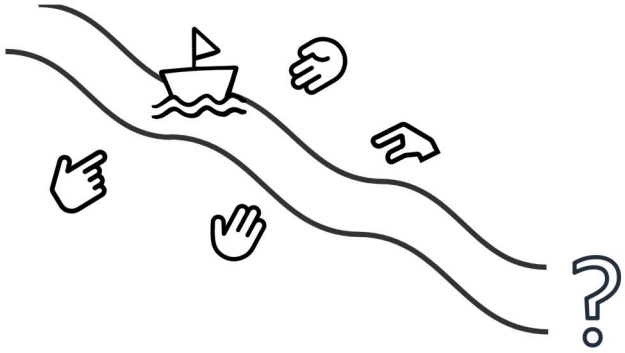

Figure 2. A travelling paper boat, as an analogy for an NBCC.

This way, interpretations are understood as the perception of the NBCC from each actor (how the boat is seen), operationalizations are the ways in which NBCCs are designed, developed, managed and traded (how the boat is folded and steered), and the potential implications are the potential effects of the NBCCs on the distribution of benefits and repercussions among the actors (where the boat travels and ends up). As a previous step of identifying the latter, a potential link between dominant interpretations and operationalizations is explored (who has power over the boat's shape and travel).

In summary, the perspective of PE via the use of discourse analysis will provide a key critical lens on this thesis, as it is expected to show which interpretations (if any) dominate certain aspects of the operationalizations of NBCCs (who has power, when and where) and the distribution of potential implications (who is affected, when and how).

Roadmap of the thesis

The following chapters go into the theorical, conceptual and methodological framings of this thesis (Chapters 2 and 3), present the empirical and analytical findings of the interpretations, operationalizations and potential implications of NBCCs (Chapters 4 and 5), describe the potential futures of NBCCs and final remarks (Chapter 6). Chapter 2 dives into PE with a particular focus on Latin American authors such as Alimonda, Escobar and García-Jimenez, to get a critical and contextualized perspective on the history of nature extractivism in the region and conceptualize NBCCs as the result of different interpretations and practices from diverse actors. Chapter 3 lays out the methodology used to gather and analyze the information, explaining the choice and use of literature reviews, semi-structured interviews, attendance at events and discourse analysis. Chapter 4 presents the current interpretations and operationalizations of NBCCs in Peru, while framing it under the influence that each discourse and actor has on how these carbon markets are being shaped (referred to later as *the shaping* and *the shapers*). Meaning, Chapter 4 answers the sub-research questions 1, 2 and 3. Chapter 5 critically assesses the mapped influences with a focus on potential power disparities, in turn, determining the potential implications of NBCCs on benefits and repercussions (sub-research question 4). Chapter 6 reflects on the academic contribution of this thesis in addressing the research questions and explores the future directions that NBCCs could take in the near

future, with especial consideration of their rising market and upcoming national regulation. Finally, the thesis as a whole is expected to enrich the body of evidence on Peruvian NBCCs.

Chapter 2 – Theoretical Framework and conceptual lens

Political Ecology: the embeddedness of nature and politics

Political Ecology (PE) acknowledges that human and non-human elements are inextricably related and – by extension– that the environment is not a pristine and apolitical object, rather, it is the result of human assumptions and decisions over non-human elements. For example, the Amazonian rainforest had been long considered pristine nature from a Western perspective, however, the vegetation that characterizes this area has been linked to the work of local indigenous peoples in plant domestication (Levis et al., 2017). Explicitly put, the archaeologist and archaeobotanist José Iriarte mentioned that "perhaps [...] the very biodiversity we want to preserve is not only due to thousands of years of natural evolution but also the result of the human footprint on them" (Ben Panko, 2017). This change of mindset resonates with the way Robbins (2004, p. 108) perceived nature: "[a] forest, put simply, is not a *natural* phenomenon, object, or idea, it is a *social* one, forged by convention and context, and enforced by its very taken-for-grantedness". These nuanced perceptions over what nature is highlight the need to not frame everything under predetermined rational parameters (as the original idea of pristine Amazonian forests) but acknowledge and value the diversity of understandings over it. Escobar (2006) further emphasizes on the integration of the diversity of cultures, ecologies and economies that are often denied under (neo)liberal doctrine to heal the systems that drive conflict over natural resources. In this spirit, this thesis uses PE to proactively look into the diversity of actors' interpretations of NBCCs in Peru.

Moreover, Latin American academics frame PE beyond a theoretical framework for analysis, but as an arena for engaging in reflections and experiences (Alimonda, 2014, p. 11). This can offer a broader and embedded perspective on "knowing and acknowledging diverse ways to understand reality and inhabit the world […]" (García Jiménez, 2022, p. 21). Academics from the region ground PE in the Latin American history of Western-led extractivism: Susana García reflects on Enrique Leff's texts (both Latin American PE academics) highlighting that PE exposes the practices of actors that drive socio-environmental conflicts via discourses of technical rationality, sustainable development and economic growth (García Jiménez, 2022), while Alimonda emphasized the region's focus of PE on the power behind the restricted use of nature and its interpretation as a commodity (Alimonda, 2014, p. 14). Under this context, "the categories developed by PE allow to visualize a series of ecologic-distributive, economic, political and social issues" (García Jiménez, 2022, p. 14).

This critical lens that settled in the history of a region pushed for extractivist can be exemplified by Andreucci and Kallis' (2017) study in Peru. In this study, the authors used a PE approach to analyze the use of power and discourse during Alan García's presidency and its 'extractivist development' rhetoric. They described how Alan García and international development organizations (mainly the World Bank) framed the extraction of natural resources (hydrocarbons) from the Peruvian rainforest as a necessity for the development of the national population and used this discourse to alienate and repress the local indigenous populations that resisted this belief (Andreucci & Kallis, 2017). It is important to highlight that the act of resistance in this case was not merely cultural and political but materialized in 191 deaths in protests under the administration of Alan García (El Mundo, 2011). Currently, political resistance in Peru is still vulnerable to state violence. Under Dina Boluarte's administration, 49 people have died in protests

as a result of the “illegitimate use of lethal force by security forces”, as reported by Amnesty International (2023). To date, there has been no acknowledgment nor investigations from the government over the deaths. In addition, protests and repression continue to increase: jail time for protestors that block roads has increased (Diario El Peruano, 2023) and nationwide protests persist against the government (Cayetano, 2023). Therefore, the history of commodification of nature and excessive use of power among actors in Peru set the need for critically analyzing new ways of using nature as a source of monetary revenue in this highly vulnerable country.

One could argue that PE would not legitimize a market-based approach to nature, such as NBCCs. This would be under the assumption that it would entail a process of commodification and alienation of nature, perpetuating the historical neoliberalist approaches in the region. However, it could also be argued that NBCCs could be a way for the reappropriation of nature and land for historically marginalized actors. For example, let’s picture a hypothetical scenario where an area in the Amazon rainforest is threatened by illegal logging and, to deter said threat, several stakeholders collaborate to restrict the area for an NBCC project. Furthermore, let’s imagine that the stakeholders involved are a local indigenous community which will manage the land and its resources, a regional organization that can assist in the NBCC strategy, regional government representatives that assist with the necessary institutional procedures, and the standing forest that will persist in the delimited area. In this hypothetical scenario, the indigenous rights over land institutionalized by the government and the promotion of the co-living system with the standing forest, both historically ignored or displaced for extractivist imperatives, could regain power that has been (and is still being) lost under the global neoliberal conditions. Osborne studied a carbon forestry project in Mexico through a PE lens, where they mentioned that “carbon forestry has in some ways served to protect smallholders against the fallout of neoliberal agrarian policies by providing an economic alternative to maintain their land, but land certification and privatization programs have tended to enmesh communities more deeply in the capitalization of the countryside” (2015, p. 71). In this case, an NBCC is presented as the result of trade-offs between market efficiency and local sustainable development – a compromise that is still questionable under PE but is worth investigating. Therefore, revisiting NBCCs through a PE lens could contribute to pinpointing where they lay between a neoliberal strategy of nature commodification and exploitation, or a process that enables an equitable reappropriation of nature.

Therefore, this thesis critically focuses on determining if key actors shape the operationalizations of NBCCs by the dominant influence of their interpretations around what an NBCC entails. Furthermore, this hopes to shine light on what the potential implications are for the distribution of benefits and repercussions among the actors.

Paper boat

Paper boats are shaped by decisions: which paper material to use, where to make the folds. In this sense, the *shaping* of the paper boat depends on the *shaper* that has an idea on what must be the outcome. NBCCs do not fall under a universal standard for their calculation and implementation, since there is still no consensus reached on the methodologies over pricing nor generalized institutionalization in the countries already integrated in the market (Balmford et al., 2023, 2023; Patrick Greenfield, 2023b). The existence of a regulation-free arena makes the operationalization of NBCCs varied and open to change. In detail, the creation, design and implementation of NBCCs are highly dependent on the actors with the most agency over them: the shapers.

Sharp and Richardson (2001) emphasized how the influence of (hegemonic) discourses shape societal and institutional systems and, by extension, understanding that environmental planning and policy are not the result of rational and objective processes but of a field of contested knowledges and interests. Figure 3 brings a visual representation of how influence via discourse could shape the reality and practices around NBCCs. In this sense, the interpretations held by one or various key actors may disproportionately affect the (stages within) operationalizations of NBCCs.

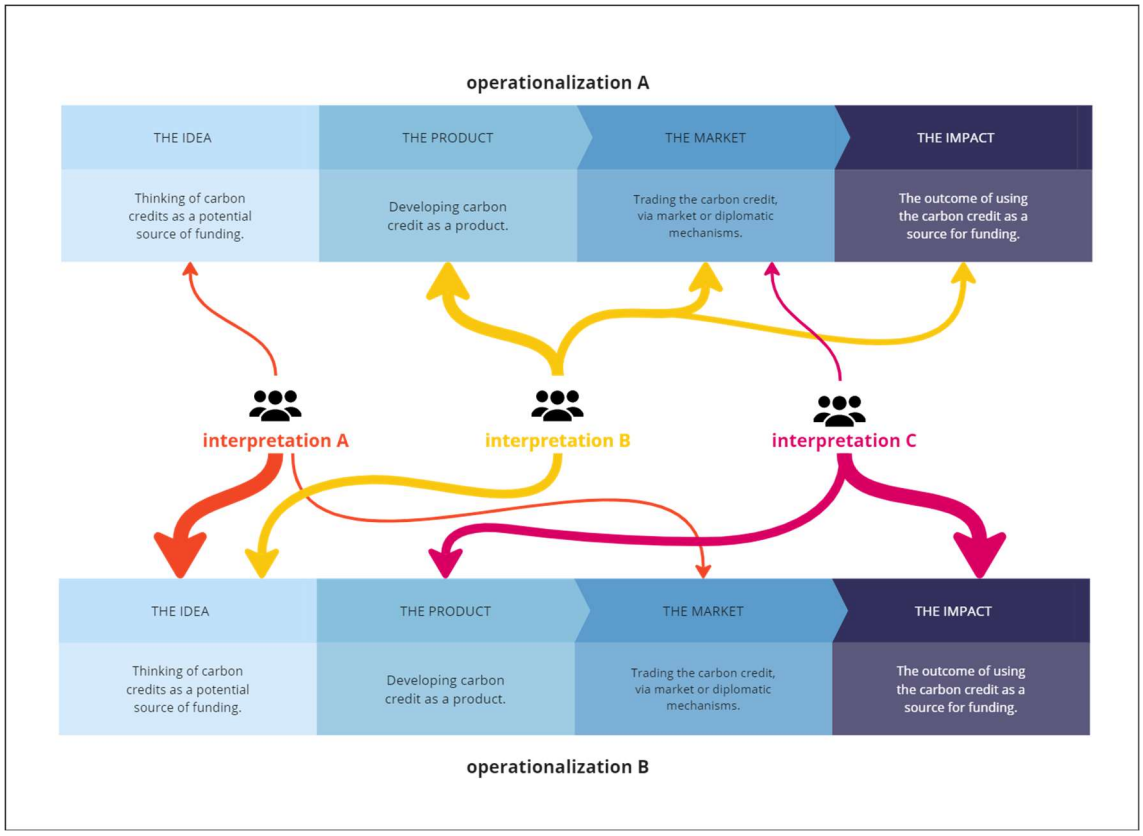

Figure 3. Visualization of how discourses, represented by connecting arrows, from different interpretations influence the operationalizations of NBCCs at different stages.

In detail, Figure 3 aims to clarify that the analytical dimension of this thesis involves identifying potential links between the mapped interpretations and operationalizations of NBCCs in order to (i) determine whether there are dominant discourses that influence the operationalizations (the shaping) and which actors are associated with the dominant interpretations (the shapers) via discourse, and (ii) assessing the potential implications are the potential effects of the NBCCs on the distribution of benefits and repercussions among the actors.

It is obvious to state that NBCCs are not as simple as paper boats, that these credits are intangible products of highly contested equations and valuation of socio-ecological parameters and activities on the ground. This metaphorical exercise has the objective to highlight the diverse interpretations of NBCCs and the potentially heterogeneous power that they may exert over the operationalization of NBCCs via discourse. Here, discourse refers to the conceptualization of certain realities (in this case, NBCCs) via speech or text by individuals or groups (see Sharp and Richardson (2001) for this and other definitions of *discourse*). Therefore, this thesis dives into how key actors express their interpretations of NBCC by analyzing documents, attending events and carrying out interviews and following a Foucauldian discourse analysis. This analysis enables an explicit view of "how structural changes in society can be conceptualized as shifts in the relative influence of different discourses" (Sharp & Richardson, 2001). The following chapter will describe the sources for mapping the interpretations and operationalizations of NBCCs, and the use of Foucauldian discourse analysis.

Chapter 3 – Methods

This chapter describes the methodological approach to answer how NBCCs are interpreted and operationalized, and with which potential implications in Peru. First, a description of the actor mapping exercise is shown, highlighting the importance of this procedure as a primary step. Then, the data collection and data analysis processes are detailed, diving into the use of information from literature reviews, interviews and events for coding and Foucauldian discourse analysis. Then, a section on positionality touches upon the ways the author relates to and affects the thesis. Lastly, some of the limitations for the research in this thesis are laid out, with the hopes that future academic queries may overcome them and provide greater insights on Peruvian NBCCs.

Actor mapping

This thesis has as initial steps identifying the interpretations of NBCCs by key actors, therefore, it becomes a necessary previous step to determine *who* takes part in NBCCs in Peru. Mapping these actors was a continuous process that started before the thesis process began and finished when data collection ceased. In detail, a preliminary map was developed with information from news media, LinkedIn posts, informal conversations with experts, and personal experience. This provided a first look at a diverse set of actors including academia, NGOs, governmental institutions, civil society organizations, among others. Over time, this map was enriched with intel gained throughout the data collection process, until the map shown in Figure 6 in Chapter 4 was obtained. This map shows that, as far as this thesis has managed to identify, there is a wide range of actors that are key to the development of NBCCs in Peru.

The data collection processes described below are an attempt to depict the diversity of interpretations and their knowledge over NBCC operationalizations obtained from these actors by looking into several sources of data.

Data collection

The information used to identify the interpretations and operationalizations of NBCCs was obtained by several sources of primary and secondary data: a literature review, attendance to NBCC-related events, and semi-structured interviews with key actors. In turn, this thesis aims to gather and show the diversity of interpretations and operationalization by looking at several sources of information.

Literature review

The literature review adhered to Rowe's recommendations that literature reviews should go beyond summaries of the current state of academic knowledge, but engage in a critical and analytical

consolidation of information (Rowe, 2014). In this sense, it comprised of a rapid review in academic databases and a grey literature search in institutional databases and news media to obtain the input for the data analysis. This way, it was expected to reach beyond the perspective of academics and obtain input from other key actors. Both literature searches were subject to the same exclusion criteria to filter out irrelevant documents. The exclusion criteria were that each document that (i) does not apply to the Peruvian context, (ii) does not apply to nature-based carbon credits, or (iii) is not written in English nor Spanish should be removed. The latter exclusion criterion relates to language limitations from the author of this thesis.

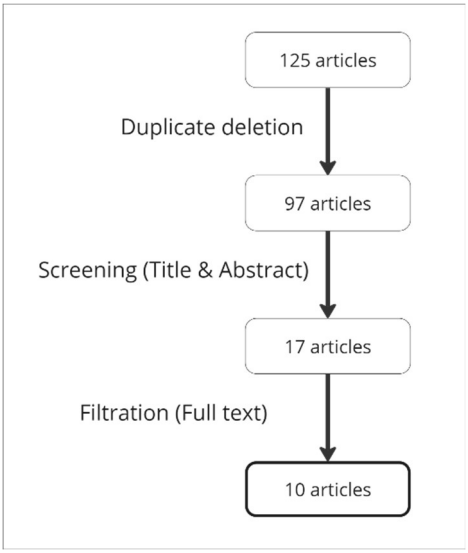

Figure 4. Summary of process and results of the literature search in academic databases.

As seen in Figure 4, the academic literature review followed (i) a search in academic databases (i.e., Scopus, World of Science), (ii) deletion of duplicates, (iii) screening by assessing titles and abstracts, (iv) a filtration by full-text assessment, and (v) the analysis of the selected articles. Regarding the first stage, the search was carried out on October 27th of this year with query strings in Spanish and English that contained keywords related to the area and topic of interest, meaning Peru and carbon credits, respectively (see Annex 1 for the Table with query strings and detailed results). The next two phases –Duplicate deletion and Screening– were carried out with the Rayyan software (Ouzzani et al., 2016). Rayyan is a software for assisting (systematic) literature reviews that facilitates, inter alia, deletion of duplicates, rapid article selection by the researcher(s) judgement, and the categorization of deleted articles by exclusion criteria. In the Screening process, most of the articles removed were excluded because they applied to a Brazilian, instead of Peruvian, context. Finally, the Filtration of the articles by their full text assessment consisted of exclusions mostly because of lack of access to the articles, their focus on hydroelectric projects (not directly related to nature-based carbon credits), their focus on specific ways to model and manage hunting in REDD+ projects (not related directly to carbon markets) or their location outside the area of interest. As shown in Table 1, this search resulted in the selection of 10 articles that touch upon NBCCs in Peru, although none has addressed them as done in this thesis.

	Author	Title	Year	Journal
1	Corradi et al.	Local cost-benefit analysis for assessing the economic potential of afforestation/reforestation CDM on coca fields in the Peruvian Amazon	2013	Carbon Management
2	Ebeling, J.; Yasué, M.	Generating carbon finance through avoided deforestation and its potential to create climatic, conservation and human development benefits	2008	Philosophical transactions of the Royal Society of Biological Sciences
3	Gibbon et al.	Ecosystem Carbon Storage Across the Grassland-Forest Transition in the High Andes of Manu National Park, Peru	2010	Ecosystems
4	Joseph et al.	REDD plus readiness: early insights on monitoring, reporting and verification systems of project developers	2013	Environmental Research Letters
5	Peña et al.	How to green the Andean Community Law?: Proposals to insert carbon pricing policies in a context of green recovery in the Andean Community	2021	Derecho PUCP
6	Pettenella, D.; Brotto, L.	Governance features for successful REDD plus projects organization	2012	Forest Policy and Economics
7	Ravikumar et al.	Can conservation funding be left to carbon finance? Evidence from participatory future land use scenarios in Peru, Indonesia, Tanzania, and Mexico	2017	Environmental Research Letters
8	Sabelli, A.	A new solution to a persistent problem: Addressing tropical deforestation with carbon forestry offset projects	2011	Journal of Latin American Geography
9	Sears et al.	Strengthening Local Governance of Secondary Forest in Peru	2021	LAND
10	Sunderlin et al.	REDD plus at a critical juncture: assessing the limits of polycentric governance for achieving climate change mitigation	2015	International Forestry Review

Table 1. List of documents obtained from the academic literature search.

Parallelly, a grey literature search was carried out in institutional databases (i.e., SINIA, MINAM, MEF, GEF, CIFOR) and news media (e.g., Diario El Peruano, Ojo Público, Periódico La República) to seek relevant policies, reports, or information within the scope defined by the same exclusion criteria as in the academic search. Unlike the academic search, this grey literature search entailed a more iterative approach that mostly consisted of looking into the quoted documents in the ones already gathered or reviewing documents suggested by the interviewees. For example, an Infobrief from CIFOR-ICGRAF about Results based Payments under REDD+ in Peru mentioned several documents around domestic legislation and cases of concern raised in a legal defense journal, which drove the search to further collection of institutional documents. The search concluded with the inclusion of 28 reports, news articles, academic documents, blog posts and institutional documents listed in Table 2.

	Author	Title	Year	Institution	Publication type
1	Profonanpe	Conceptos basicos de un proyecto de carbono	2023	Profonanpe	Institutional document
2	Profonanpe	Fondo revolvente de capital semilla para proyectos de carbono	2023	Profonanpe	Institutional document
3	Profonanpe	Créditos de carbono: Una oportunidad para mitigar los efectos del cambio climático	2023	Profonanpe	Blog post
4	USAID	Parque Nacional Cordillera Azul recibe préstamo asegurado por más de 8 millones de créditos de carbono	2014	USAID	Document
5	USAID	Hagamos mercado... de carbono	2022	USAID	Document
6	Solidaridad; USAID	Todo lo que debes saber sobre los bonos de carbono y convertirte en todo un héroe climático	2022	USAID	Document
7	AIDESEP	La lucha por el derecho a la vida sin genocidio de los pueblos indígenas en aislamiento y contacto inicial no se negocia ni con petróleo, gas, madera, oro ilegal y menos por carbono	2023	AIDESEP	Blog post
8	AIDESEP	AIDESEP y Forest Peoples Programme presentan análisis de los derechos indígenas frente a los fondos climáticos internacionales y mercados de carbono en la Amazonía peruana	2023	AIDESEP	Blog post
9	Wiesse, P.; Saravia, G.	Piratas del carbono	2012	Revista Ideele	Academic paper
10	Pacifico Seguros	Huella de Carbono	2021	Pacifico Seguros	Report
11	MINAM	Disposiciones para el funcionamiento del Registro Nacional de Medidas de Mitigación (RENAMI)	2022	MINAM	Institutional document
12	MINAM	Estrategia Nacional sobre Bosques y Cambio Climático	2016	MINAM	Institutional document
13	MINAM	Estrategia Nacional ante el Cambio Climatico 2015	2015	MINAM	Institutional document
14	MINAM	Lineamiento para la identificación y clasificación de las acciones REDD+	2021	MINAM	Institutional document
15	SERNANP	Plan Financiero del SINANPE 2016-2025		SERNANP	Institutional document
16	SERFOR	Politica Nacional Forestal y de Fauna Silvestre	2013	SERFOR	Institutional document
17	Congreso de la República del Perú	Pleno deja sin efecto norma que encarga a Profonanpe administrar fondos derivados de bonos de carbono	2023	Centro de Noticias del Congreso	Blog post
18	MINAM	REDD y REDD+: iniciativas para reducir las emisiones de carbono derivadas de la deforestación y degradación de los bosques	2012	MINAM; CIFOR	Report
19	Greenfield, P.	'Nowhere else to go': forest communities of Alto Mayo, Peru, at centre of offsetting row	2023	The Guardian	News article
20	Peña, P.; Sarmiento, J.P.	Peru's regulatory framework for carbon markets: Current legal and policy developments in the context of REDD+	2022	CIFOR	Report
21	Peña, P.; Sarmiento, J.P.	Subnational governments and jurisdictional approaches to REDD+ in Peru: An analysis of the current legal and policy framework	2023	CIFOR	Report
22	DAR	MINAM publicó Decreto Supremo que precisa el alcance de PROFONANPE en la administración de fondos REDD+	2023	DAR	Blog post
23	Piu, H.C.; Menton, M.	The context of REDD+ in Peru: Drivers, agents and institutions.	2014	CIFOR	Occasional paper
24	CIMA	Proyecto REDD+ Cordillera Azul	2023	CIMA	Website
25	CIMA	Cordillera Azul destaca en la COP28 Dubai con compromisos claros: Gestión Biocultural, Conservación Inclusiva, Equidad Intergeneracional y Sostenibilidad Financiera.	2023	CIMA	Blog post
26	West et al.	Action needed to make carbon offsets from tropical forest conservation work for climate change mitigation	2023	VU	Academic paper
27	CI	DISNEY + CONSERVATION INTERNATIONAL: Investing in nature for the benefit of people and wildlife	2023	CI	Website
28	Walt Disney	Striking a balance	N.D.	Walt Disney	Document

Table 2. List of documents obtained from the grey literature search.

Attendance to events

Since before the start of this thesis, the author has attended four sets of events relevant to the development of NBCCs in Peru: Global Landscapes Forum's Symposium on Finance for Nature 2023, CAF's Forum on carbon markets for Latin America and the Caribbean, Profonanpe's Road to Carbon in

preparation for the RedLAC 2023 international congress, and CIFOR's 6th session of the Science and Public Policy Platform from the Global Comparative Study on REDD+.

The first event attended was the Global Landscapes Forum's 'GLF–Luxembourg Finance for Nature 2023: What comes next?', which was held in Luxemburg (and online) on March 7th. It comprised of more than 4'000 participants from 162 countries and 106 speakers, gathered to discuss the use of finance to "solve – rather than exacerbate – the climate and biodiversity crises" (GLF, 2023). This event allowed for first-person experience in learning the emerging trends in nature-related finance from high-level stakeholders, like carbon pricing or funding for conservation and agroforestry. One session was of particular interest for this thesis: the 'Cooperative carbon finance: enabling smallholder agroforestry at scale through carbon markets'. The speakers in this session included the Head of Business Development of Acorn (Ineke Keers), Head of Europe of the One Acre Fund (Tim Diphoorn), Finance Lead of Acorn (Max Berkelmans), Head of Agribusiness of FMO (Pieternel Boogaard), and Senior Program Manager of Microsoft (Catherine Martini). It entailed a panel on Acorn's proposal for a project that couples carbon credits with agroforestry for smallholder farmers in the Global South. As described in Chapter 4, this project is included as one of the current NBCC's operationalizations in Peru.

The second event took place on August 29th in Buenos Aires, but the author was limited to watch the live recordings of the event (available in: https://www.caf.com/es/actualidad/eventos/2023/08/online-mercados-de-carbono-perspectivas-y-desafios-en-america-latina-y-el-caribe/). Organized by the Development Bank for Latin America and the Caribbean (CAF) and the Argentinian Development Bank (BICE), the forum 'Carbon markets: perspectives and challenges in Latin America and the Caribbean' had the purpose to "analyze the perspectives around carbon markets and their harnessing as a tool to contribute to climate change mitigation goals" and included several speakers from national and international banking, standard developers and certifiers, and governmental institutions from the region. Therefore, this forum provided a useful source to get an understanding on these actors' interpretations over NBCCs.

The third set of events entailed a series of online webinars under the umbrella of 'The Route to Carbon', a group of preparatory sessions before the international meeting of the Latin American Network of Environmental Funds (RedLAC, 'Red de Fondos Ambientales de Latinoamérica y el Caribe' in Spanish) to be held in October, 2023. These sessions were held between September and October, organized by the main environmental fund of Peru (Profonanpe) and focused on carbon markets. Particularly, the sessions addressed were 'Blue Carbon' by the Conservation International Blue Carbon Programme director (September 14th), 'REDD+ as a mechanism for financing Nature Protected Areas management in Peru via Administration contracts' by AIDER's executive director (September 21st), 'Biodiversity Credits' by Verra's sustainable development innovation director (September 28th), 'Lessons learned and success factors from carbon projects with communities' by the Mexican Fund for Nature Conservation's research and institutional development director (October 5th), and 'Financing Nature Protected Areas via carbon credits' by SERNANP's director of the Nature Protected Areas management office (October 12th) (all recordings available in: https://congresoredlac.profonanpe.org.pe/es/la-ruta-del-carbono/). Similar to CAF's forum, this event is useful to look into the interpretations of the actors that the invited speakers represent but also provided relevant information on the operationalization of NBCCs. Particularly, the latter is related to the mechanism by which SERNANP (a governmental institution under the Ministry of Environment), NGOs (such as AIDER) and local communities engage in 'Administration Contracts' for co-managing carbon credit projects within Nature Protected Areas in Peru, as explained by the representative

from AIDER and SERNANP. As seen in Chapter 4, this will also be considered one of the main operationalizations of NBCCs in Peru.

Lastly, the 6th and last session of the Science and Public Policy Platform from the Global Comparative Study on REDD+ was an on-site event organized by CIFOR, held on December 19th, 2023 in Lima, Peru. The platform was described as a "gathering space so that scientists and people involved in the implementation of public policy could exchange ideas and, in turn, the first could improve their research and the second could make evidence-based decisions to improve forest governance" (PUCP, 2022). The event comprised of several presentations and panels that related to science, governance and funding of REDD+ projects, including experts from CIFOR-ICRAF, PUCP, MINAM, CIMA, ONAMIAP, SPDA (Peruvian Society of Environmental Law), Earth Innovation Institute, RFN (Rainforest Foundation Norway), Profonanpe, South Pole, Paskay, NORAD (Norwegian Agency for Development Cooperation), USAID (US Agency for International Development), GIZ (German Development Cooperation). Most of the entities present in this event are included in the actor map shown in Figure 4 and, since several Peruvian REDD+ projects depend on finance via the VCM, this event proved to be highly useful to gather data on current interpretations and operationalization of NBCCs.

In summary, the information gathered by attending these events related to carbon markets in the region provided important information for mapping the interpretations and operationalizations around NBCCs in Peru.

Semi-structured interviews

The sample of interviewees was planned to include individuals that belong to the organizations found in the map of actors (as stated at the start of the Methods chapter) and expanded by snowball sampling, aiming to maintain proportional representation of each actor group in the sample. Each potential interviewee was invited via website forms, email, phone call or messaging from contact details obtained from websites or other contacts. Of 57 invited individuals, 13 accepted to participate as interviewees in this thesis between October 2022 and January 2023 (see Table 3). Table 3 shows a list of the Code and Actor (as described in the actor map) the interviewees belonged to. Despite the aim to have a proportional representation of each actor group in the sample, the interviewees represented mostly Advisors (PUCP, VU, CIFOR-ICRAF, UNAS, DAR), Funding (Acorn, Profonanpe, CAF), Project implementors (Solidaridad, South Pole, Paskay) and one activist group for Local representation (Viernes Por El Futuro Perú). Therefore, representation from the Government, Certifiers and auditors, Buyers and Local representation is lacking. Nevertheless, these interviews provide additional intel that adds depth to the array of information gathered from the literature reviews and events attended.

Code	Actor
001	Pontificia Universidad Católica del Perú (PUCP)
002	Viernes Por el Futuro Peru
003	Acorn, Rabobank
004	Vrije Universiteit Amsterdam (VU)
005	Profonanpe
006	Acorn, Rabobank
007	Center for International Forestry Research (CIFOR-ICRAF)
008	Banco de Desarrollo de América Latina y el Caribe (CAF)
009	NGO Solidaridad
010	Derecho, Ambiente y Recursos Naturales (DAR)
011	Universidad Nacional Agraria de la Selva (UNAS)
012	South Pole
013	Paskay

Table 3. List of Actors from which the interviewees belonged to (right column), and their associated interview Code (left column).

The semi-structured nature of the interviews enabled tailoring each interview to the actor at hand (e.g., as specific questions regarding a publication of their organization), while transversally asking questions linked to the main characteristics of their organization, legislation relevant to carbon credit projects, the processes of building and implementing carbon credits, coordination and collaboration with other stakeholders to all interviewees. The interviews were carried out via online meetings or in-person, and all lasted approximately 60 minutes. Furthermore, it is relevant to mention that all interviewees had to sign a consent form that states their preferences regarding anonymity and highlights their right to skip any question they did not desire to answer or quit the interview at any moment if wanted. Nevertheless, none of the interviewees skipped any questions nor quit the interview, which enabled a rich collection of information from them.

Data analysis

Coding for interpretations and operationalizations

The information obtained from the literature review, events attended, and interview transcripts and notes were coded with assistance from the ATLAS.ti software. ATLAS.ti is a tool that allows the user to select quotations from the files uploaded, and group them under (groups of) codes (ATLAS.ti, 2022). The process of coding had the purpose of distilling the information in a way that would allow for the categorization of the interpretations and operationalizations of NBCCs, while identifying factors that may be relevant when looking into the potential implications of these credits. In this sense, Figure 5 shows a coding tree diagram that represents the categorization of quotes selected in the files analyzed. The use of Code Groups allowed for a straightforward classification of useful quotations, as they explicitly categorize codes associated with 'Interpretations', 'Operationalizations' and 'Potential implications' (Fig. 5). One particularity is that two of the Codes established are not nested exclusively in one Code Group: 'Link to nature/climate' and 'link to human wellbeing' are repeated in 'Interpretations' and 'Operationalizations'. The reasoning behind this choice is that there may be instances where links to human or non-human wellbeing are made when referring to interpretations (e.g., one of the interviewees may point out that they consider NBCCs as beneficial for biodiversity) and operationalizations (e.g., a link between biodiversity and NBCCs is grounded on a methodological framework for pricing NBCCs) in quotations.

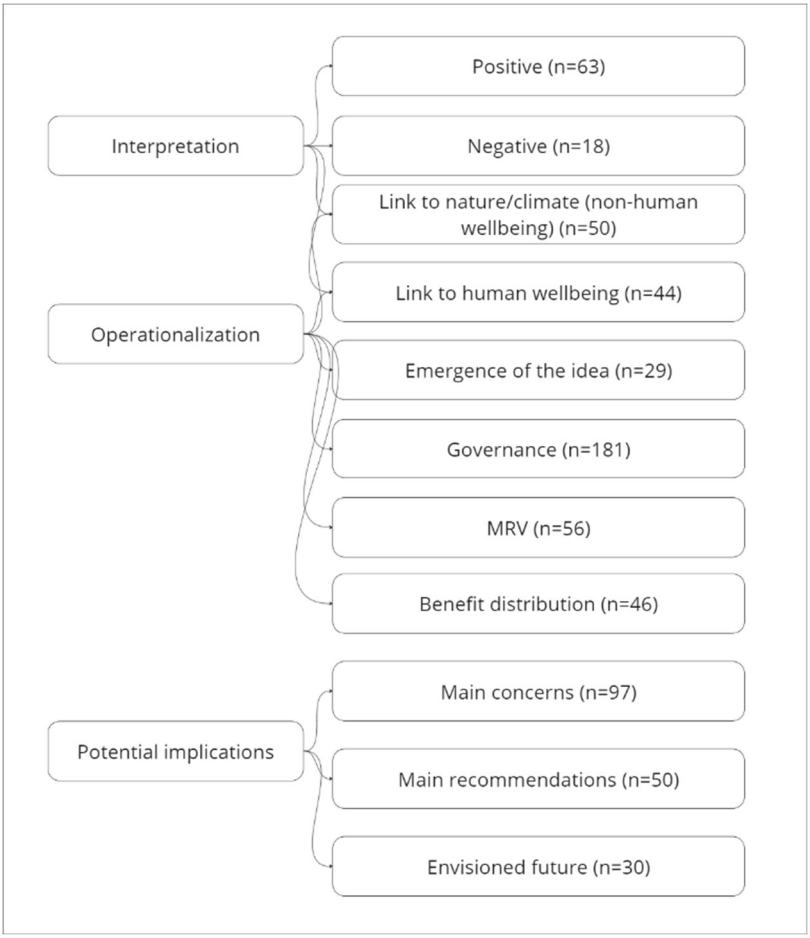

Figure 5. Coding tree diagram that shows Code Groups on the left and Codes on the right side at the end of the arrows, showing the number of associated quotations in brackets.

In total, 443 quotations were obtained from 51 files assessed, with a majority of quotations belonging to the codes 'Governance' and 'Main concern', and the least to 'Negative', 'Emergence of the idea' and 'Envisioned future' (see Figure 7). The quotations obtained from this phase allowed for the identification of interpretations and operationalizations that are described and analyzed in Chapter 4. The following subchapter details the use of Foucauldian discourse analysis for this thesis.

Foucauldian discourse analysis

The use of discourse analysis in this thesis is justified by the explicit consideration that discourses shape social structures and practices, and that this has implications in the distribution of benefits and repercussions (Salkind, 2010; Sharp & Richardson, 2001). As described in the Introduction chapter, Peru is a country with precedents of abuse of power using discourse and force, which has had implications in the social structures that govern natural systems and the (lack of) wellbeing of human and non-human actors. Particularly, Andreucci and Kallis (2017) highlighted this concerning history under the context of

Alan García's administration and his alienation ('othering'), repression and killing of indigenous people under the justification of a 'sustainable development' discourse. Moreover, this thesis focuses particularly in a Foucauldian approach because of its alignment with characteristics laid out by Sharp and Richardson (Sharp & Richardson, 2001, p. 198), such as:

- "a view of societal change as shaped by power, conceptualized as competition between differing systems of meaning or 'discourses';
- a view of a discourse as a specific ensemble of ideas, concepts and categorizations that are produced, reproduced and transformed in a particular set of practices, through which meaning is given to physical and social realities;
- a view of discourse competition as shaped by power relations;
- a view that Foucauldian analysis can challenge the status quo through narrating changes in the field of discourse competition over time."

In other words, this thesis uses a Foucauldian approach to explicitly investigate whether a (group of) discourse exerts dominant influence over the practices and reality (i.e., operationalization) of NBCCs in Peru over time. After having mapped the interpretations and operationalizations of NBCCs in Peru, it becomes necessary to frame the discourses by pooling or differentiating the interpretations. For this purpose, this thesis uses a bottom-up, iterative approach to discourse farming, meaning that it does not use predetermined discourse categories based on theory but establishes discourse tailored to the empirical findings (Sharp & Richardson, 2001). Since the identification of discourses can only be achieved after interpretations and operationalizations of NBCCs are defined, they are presented in Chapter 4.

Furthermore, this thesis attempts to determine the potential implications that NBCCs have in the distribution of benefits and repercussions among actors. The phrasing of *potential* implications reflect the lag of the effects that the (heterogeneous) influence of discourse may have on NBCCs as described by Sharp and Richardson (2001): "The outcomes of discourse struggle can be understood as a sort of echo - they usually reflect the winners of past discursive struggles. While present discursive struggles may be manifested in current outcomes, their substantial effects are more frequently delayed."

So why even make the attempt to include them in this analysis if they are yet to be settled? As in the justification for analyzing the effects of discourse on NBCCs and using a PE lens, the stakes that the Peruvian context carries are too high to not be critically considered when describing an environmental market strategy with rising popularity. From the historical reporting of the unequal distribution of power over national resources and the repercussions materialized in repression and deaths of environmental protestors (Andreucci & Kallis, 2017) to the current context of climate change adaptation and mitigation, increasing deforestation, institutional instability and government repression of protests (Amnesty International, 2023; Cayetano, 2023; Diario El Peruano, 2023; Ministerio del Ambiente, 2016, 2021a), the potential implications that NBCCs may have in Peru need to be inspected, even if coarsely. Therefore, this thesis critically reflects on the potential implications that NBCCs have in the distribution of benefits and repercussions among actors within the historical context of social and environmental conflicts in Peru.

Positionality

A Foucauldian approach implies that "the position of the researcher needs to be acknowledged, to help the research audience understand the choices made" (Sharp & Richardson, 2001, p. 203). In that spirit, this section hopes to provide some insight on the author of this thesis: their background in the Peruvian context, their educational foundations, their standing on environmental governance, and the potential ways that this influences the findings.

First, it is important to state that I am a light-skinned woman from the capital city Lima with an economic status higher than the average Peruvian citizen. This entails that I may hold a privileged position for access to certain information or spaces, while also conditioning the participation of actors to a certain behavior in the interviews. In addition, I hold a science bachelor's degree and have mostly developed in academic settings based in Lima. Therefore, my understanding of socio-ecological systems comes from a technical, environmentalist perspective that may clash with other actors, such as resource-focused mindsets from the private sector or spiritual cosmovisions from Andean or Amazonian communities. However, I am a Peruvian researcher studying in a Global-North setting, which provides a contextual lens in international academia.

Furthermore, I have vocally positioned myself against extractivist and neoliberal trends in nature governance, while promoting local, multi-actor, co-creation institutionalism. These factors not only influence my decision to engage in an explicitly critical and academic analysis for NBCCs in Peru, but also on the choice of the topic itself. This topic was chosen out of a personal concern on the ramping popularity of a market strategy that could deeply transform the Peruvian population and environment.

Consequently, this thesis is not meant to provide an objective, technical and seemingly universal view on NBCCs, rather, it is a personally motivated academic inquiry to understand the development of NBCCs in Peru under a critical lens. Therefore, the information laid out in this thesis should be used considering the specifications presented in this chapter, and the positionality of the researcher.

Limitations

Apart from the limitations that the positionality of the author may have implied to the research (e.g., biased sample of interviewees), it is relevant to mention that time and budget restrictions may have hindered the potential for further data collection and analysis for this thesis.

The time scheduled for the thesis was six months (from September 2023 to February 2024), in accordance with the Environmental Sciences Master program in Wageningen University & Research. Having a greater time range could have resulted in a greater number of interviews and events attended, consequently enriching the findings in this thesis.

On the other hand, the lack of funding for this thesis hampered the possibility of travelling for field work in other locations of Peru, such as the sites where NBCCs were implemented. Visiting the locations of NBCCs projects could have resulted in interviews with people locally involved in said projects, while allowing for the recollection of field observations.

Additionally, the scope of this thesis was focused on the offer side of NBCCs, rather than the demand side. Meaning, another potential approach for studying NBCCs is looking at them by highlighting the role of consumers and buyers of NBCC-related products, services or goals. As such, themes remain untapped, such as identifying the main actors, interpretations and discourses that may influence the market and operationalization of NBCCs from the position of a consumer. Instead, this thesis is mostly restricted to the localized empirical processes of conceptualization, creation and implementation that result in NBCCs – independently of their use by the final recipient.

Moreover, a focus on the demographic characteristics of the actors was not integrated in this thesis. In turn, factors such as gender, socioeconomic status, age, ethnicity, etcetera, are potentially being overlooked and should be explicitly assessed in future research.

Despite these limitations, this thesis provides broad and updated information on the development of NBCCs in Peru, that could be further enriched with complementary research.

Chapter 4 – Current interpretations and operationalizations of NBCCs in Peru

This chapter provides an updated overview on Peruvian NBCCs: who are the main actors, which interpretations they hold, how are NBCCs operationalized, and which discourses shape the latter. First, a description of actors involved in Peruvian NBCCs is presented, highlighting their (shared) roles. Then, the chapter dives into the main interpretations and operationalizations of NBCCs in the Peruvian VCM, by mapping the main discourses over NBCCs and processes for designing, monitoring, implementing and using NBCCs, respectively. Diversity has been found in both aspects: interpretations ranged from positivist to highly concerned rhetoric, and operationalizations do not follow a single standard or mechanism in Peru. Finally, the discourse analysis lays out the influence of the identified discourses on the operationalization of NBCCs.

Who are the actors?

The actors identified are clustered in relation to their roles in Peruvian NBCCs, in turn, Figure 6 shows light on which organizations provide similar services or fill similar functions. Although this is not the only (Profonanpe, 2023a) nor an exhaustive map of actors involved in the Peruvian VCM, it highlights the diversity of roles and organizations that take place in this market.

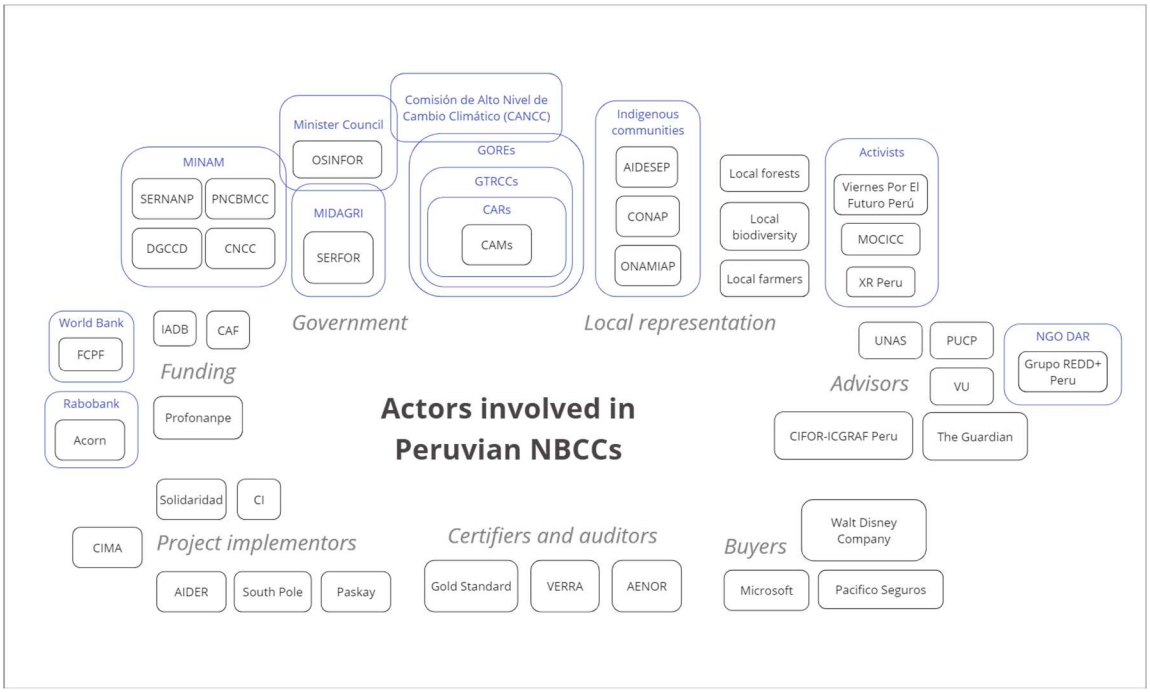

Figure 6. Map of the key actors involved in NBCCs in Peru, boxes are nested and linked to show relations between them.

The organizations associated with the *Government* cluster belong to different thematic and scale jurisdictions that attempt to regulate or channel NBCC projects and programs. The Ministry of Environment (MINAM) is the main governmental entity in climate change-related policy, such as the National Strategy for Climate Change (Ministerio del Ambiente, 2015), the National Strategy for Forests and Climate Change (Ministerio del Ambiente, 2016), the Framework for Identification and Classification of REDD+ activities (Ministerio del Ambiente, 2021b) and the Provisions for the National Registry of Mitigation Measures (RENAMI) (Ministerio del Ambiente, 2022). MINAM also encompasses many entities that influence the institutionalization of NBCCs: the General Directorate of Climate Change and Desertification (DGCCD), which is in charge of the RENAMI (Ministerio del Ambiente, 2022); the Climate Change National Commission (CNCC), which articulates public and private entities to climate change management (Ministerio del Ambiente, 2014); the National Program of Forest Conservation for Climate Change Mitigation (PNCBMCC), which contributes to forest conservation gathering native and campesino communities, indigenous organizations, subnational governments and citizens (Ministerio del Ambiente, n.d.); National Service of Natural Protected Areas by the State (SERNANP), which oversees protected areas at different government levels (Peña & Sarmiento, 2022; Piu & Menton, n.d.). In summary, MINAM has direct relation with NBCCs, as they are included in climate change policy and natural protected areas in Peru.

The Ministry of Agrarian Development and Irrigation (MIDAGRI) is the main governmental entity that oversees the agricultural sector and has jurisdiction over the use of forests and wildlife, mainly via the National Service of Forests and Wildlife (SERFOR) (Piu & Menton, n.d.). Although the National Forest and Wildlife Policy (from MIDAGRI) does not explicit mention carbon credits or markets, these institutions have been highlighted as important actors in the National Strategy for Forests and Climate Change (Ministerio del Ambiente, 2016), research (Peña & Sarmiento, 2022; Piu & Menton, n.d.), interviews (Interview 006) and events related to carbon markets (statements from the CIFOR event). The Monitoring Agency for Forest Resources and Wildlife (OSINFOR) belongs to the Council of Ministers and supervises the use of forests and wildlife. In turn, OSINFOR can be a potential key actor in NBCC (Piu & Menton, n.d.), although not recognized as such in current policies (Ministerio del Ambiente, 2015, 2016; Peña & Sarmiento, 2022; SERFOR, 2013).

Outside the ministries, subnational governments, mainly Regional Governments (GOREs), are key actors in Peruvian carbon markets, especially considering increasing interest in jurisdictional REDD+ (Peña & Sarmiento, 2023). Within subnational governments, there are Technic Climate Change Regional Groups (GTRCCs), Regional Environmental Commissions (CARs) and Municipal Environmental Commissions (CAMs) that may play a relevant role in NBCCs, since they are highlighted in the National Strategy for Climate Change as key decentralized institutions for climate policy (Ministerio del Ambiente, 2015). Combining the ministries and subnational governments lies the High-Level Commission for Climate Change (CANCC), led by the Presidency of the Council of Ministers, comprised of the 19 ministers, the Directive Council of Strategic Planning, National Assembly of GOREs, and the Association of Municipalities of Peru (Ministerio del Ambiente, 2023). This interinstitutional entity proposes interventions to reach NDCs and, under the context of NBCCs, is planned to take part in key procedures in RENAMI (Ministerio del Ambiente, 2022, 2023).

The actors associated with the *Advisor* cluster are organizations that investigate and report on NBCCs, from an academic or journalist perspective. Three universities that research in topics related to Peruvian NBCCs have been identified: Vrije Universiteit Amsterdam (VU), which publishes research on carbon offset projects in the Global South (West et al., 2023); Pontificia Universidad Católica del Perú (PUCP), that studies carbon credits related REDD+ projects in Peru (Peña & Sarmiento, 2022); Universidad Nacional Agraria de la Selva (UNAS), which investigates and collaborates locally with projects that participate in NBCC projects (CIMA, 2023a). Two NGOs stand out as frequent publishers of research related to REDD+ in Peru: CIFOR-ICGRAF Peru, the leading organization for the Global Comparative Study on REDD+ (Ministerio del Ambiente & CIFOR, 2012; Peña & Sarmiento, 2022, 2023; Piu & Menton, 2014), and the Law, Environment and Natural Resources Citizen Association (DAR), a Peruvian NGO that focuses on environmental governance and coordinates the multistakeholder dialogue platform REDD+ Group Peru (Grupo REDD+ Peru) (DAR, 2021; Piu & Menton, 2014). From a journalistic perspective, it is worth including The Guardian as a key actor given Patrick Greenfield's continuous critical reporting on carbon offset projects in the Peruvian Amazon (Patrick Greenfield, 2023b, 2023a).

The actors associated with the *Local representation* cluster are organizations that voice collective stands or concerns from different sectors of civil society, or human and non-human systems that directly inhabit and use the land designated for NBCCs. There are three main indigenous communities' collectives that are involved in NBCCs, as mentioned in Piu & Menton's REDD+ context diagnosis and evidenced in the CIFOR event: the Interethnic Association for the Development of the Peruvian Rainforest (AIDESEP), Confederation of Amazonian Nationalities of Peru (CONAP), National Andean and Amazonian Indigenous Women Organization (ONAMIAP). Local farmers are directly involved in agroforestry projects nested in NBCC projects, particularly Acorn and Solidaridad carbon projects. Moreover, local forests and biodiversity are often included as biophysical parameters within projects' design and monitoring. However, the PE perspective allows them to be interpreted as actors, meaning, as beings entitled to co-existence with whom they share the landscape. Although not mentioned in reviewed documents and events, groups that engage in environmental activism may become key actors as NBCC's increase in popularity and potentially contestation. The activist organizations identified in Peru are Viernes Por El Futuro Perú (which originated from the global movement Fridays For Future), Extinction Rebellion Peru (XR Peru) and Citizen Movement against Climate Change (MOCICC).

The actors associated with the *Buyers* cluster are some of the companies that have bought Peruvian NBCCs. This list is far from exhaustive, but some buyers that are included in this research are: Walt Disney Company, a long-time NBCCs buyer from the Alto Mayo Protected Forest (BPAM) (Patrick Greenfield, 2023a); Microsoft, a 'premium' buyer from Acorn and Solidaridad agroforestry projects (statements from GLF event; Interview 003); and Pacífico Seguros, a Peruvian insurance company that compensates their carbon footprint with offsets from Tambopata National Reserve and Bahuaja Sonene National Park (Pacifico Seguros, 2021). More buyers can be found in the Registered List of MINAM's Huella de Carbono platform (https://huellacarbonoperu.minam.gob.pe/huellaperu/#/listadoInscritos/99), where businesses get an official acknowledgment of and give informational access to their efforts to reduce their carbon emissions, including carbon credits' compensation certificates.

The actors associated with the *Certifiers and auditors* cluster are entities that supervise and regulate the VCM, mostly from the private sector. In detail, certifiers develop carbon credit standards and auditors certify, verify and audit the carbon credit projects under the same standard (Profonanpe, 2023a). Verra,

Gold Standard and AENOR have been mapped in the Peruvian VCM by Profonanpe (2023a), but most of Peruvian NBCCs are certified under Verra standards (statements from CIFOR event).

The actors associated with the *Project implementors* cluster are organizations that (co)lead the design, implementation, monitoring, and/or execution of NBCC projects. Among the project implementors identified, there are two international NGOs (Solidaridad, CI), one Peruvian NGO (AIDER), one Peruvian research centre (CIMA), one international company (South Pole) and one Peruvian company (Paskay). It is necessary to point out that Solidaridad, CI, AIDER, CIMA, and South Pole play a central role as NBCC project developers, while Paskay sets their role as a mediator in the implementation of projects (statements from Profonanpe's event; Interview 003, 006, 012 & 013). As Peruvian NBCCs become an increasingly attractive market, more project implementors may appear to match the high demand.

The actors associated with the *Funding* cluster are entities that provide funding for the readiness, initial stages or general scope of NBCC projects. Regarding development banks, funding for promoting NBCCs has come from the Forest Carbon Partnership Facility (FCPF, administered by the World Bank), for a REDD+ readiness phase in partnership with the IADB (Piu & Menton, 2014), and from the Development Bank of Latin America and Caribbean (CAF) via loans to the Peruvian governmental for promoting competitiveness in the forestry sector (Piu & Menton, 2014) and their increasing interest in NBCCs (statements from CAF's event). Acorn, an initiative from the Dutch bank Rabobank, has projects in Peru to combine agroforestry with carbon credits in smallholder farming (Acorn Rabobank, n.d.). The National Fund for Natural Protected Areas (Profonanpe) is a Peruvian private company specialized in environmental public-private projects, which manages the income from NBCCs obtained by NPAs or projects with other governments (DAR, 2023), and will soon offer a seed capital fund service to finance NBCC projects (Profonanpe, 2023b). This company presents a hybrid representation as its board comprises 8 persons, 4 from the public sector (two subnational government officials, one monthly representative and led by the Minister of Environment) and 4 from the private sector (a representative from CONFIEP, from an international cooperation, and from two environmental NGOs) (Interview 005).

Interpretations and discourses around NBCCs in Peru

After looking into each actor's interpretation of NBCCs, commonalities were found among some actors and four main discourses have been identified. Figure 7 shows the main discourses around NBCCs related to positive and negative interpretations. In other words, some discourses steer more towards a positive perception of rising popularity of the NBCCs (green in Fig. 7), while others lean into a concerned stand (red in Fig. 7).

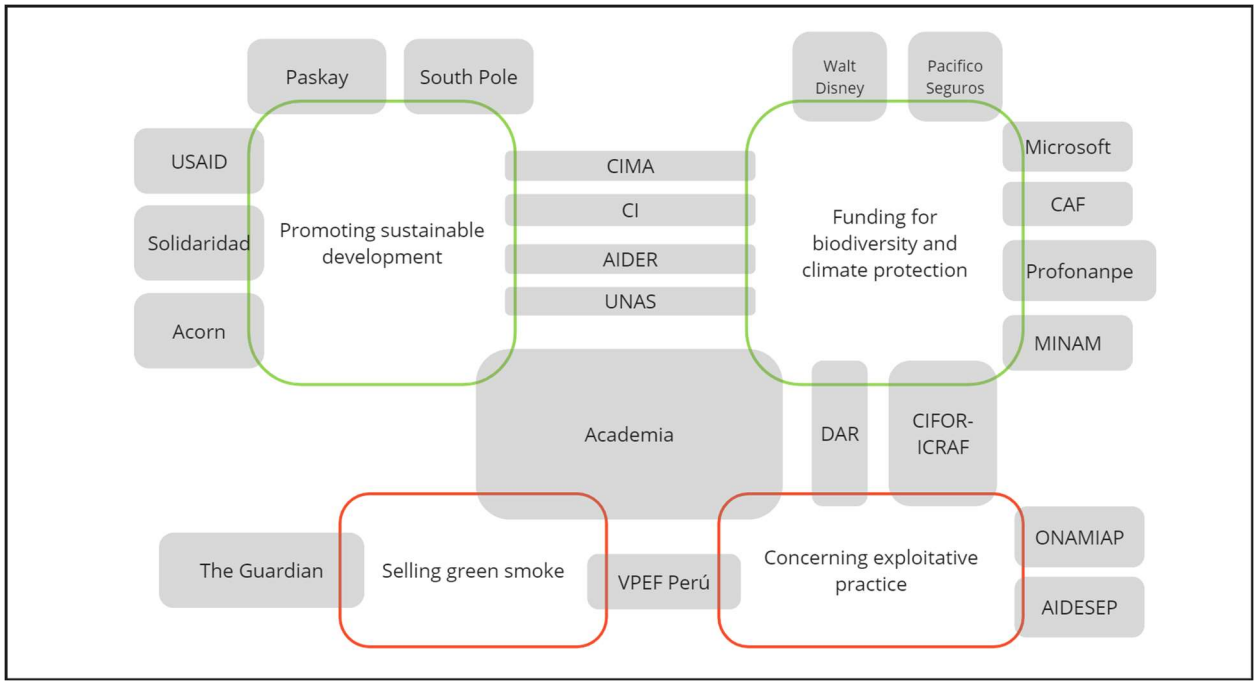

Figure 7. Discourses around NBCCs related to positive (green boxes) and negative (red boxes) interpretations from key actors (grey boxes).

The **'Promoting sustainable development'** discourse refers to thinking of NBCCs as a means to or part of transitioning to a sustainable economy. Repeatedly, actors that lead the design and implementation of NBCCs highlighted that projects aim to couple the 'sustainable' practices from local livelihoods, such as improved agricultural practices or artisan crafting, in an attempt to match the financial income that could be gained from other 'non-sustainable' economies, such as monoculture crops, mining and even narcotraffic. Many academics align with this perspective, as they consider NBCCs as a promising opportunity for deterring deforestation and enhancing rural development (Sabelli, 2011), as an innovative strategy for conservation and development (Ravikumar et al., 2017), revenue for improved agricultural practices (Gibbon et al., 2010), and agroforestry projects carried out by smallholder farmers (Corradi et al., 2013).

Particularly, agroforestry was linked to NBCCs by actors that oversee the projects' designs. Acorn, along Solidaridad as project partner, has highlighted the way their carbon credits allow the bank to provide support for smallholder farmers to transition to agroforestry, because the promise of carbon credit sales decrease the investment risk associated with an investment in agroforestry projects (Interview 003). They believe that their combination with agroforestry enables income diversification for the farmers (from coffee or cacao harvests and carbon credits), builds up sustainable products for the clients in the Global North, and avoids exploitative, 'cowboy' behavior (see Box 2 for the description of 'carbon cowboys') (Interview 003; Acorn Rabobank, n.d.). Solidaridad and USAID also promote the coupling of agroforestry activities and carbon credits as a way to promote rural development and climate change mitigation simultaneously, or as USAID portrays it: a human solution to a human problem (USAID, 2022; USAID & Solidaridad, 2022). From a more localized perspective, UNAS also mentioned the benefit of NBCCs as they avoid harmful agricultural crops and deforestation while promoting nature conservation and agroforestry

(Interview 011), and NGOs advertise their agroforestry activities in NPAs as part of their NBCC projects (AIDER's statements in Profonanpe's event; CIMA, 2023a; Conservation International, 2023). For example, one of these NPAs is the Alto Mayo Protected Forest, where Conservation International manages the Alto Mayo Conservation Initiative to "engage farmers to protect the forest" (Conservation International, 2023).

Expanding on the links between NBCCs and local people's wellbeing, South Pole and Paskay mentioned that NBCCs provide an opportunity to integrate indigenous peoples in the carbon market. They both believe that respecting indigenous governance is a core principle of carbon markets, but it has to be addressed appropriately for it to be beneficial for their communities (Interview 012; Interview 013). In a similar manner, DAR supports climate finance, but only as it promotes REDD+ Safeguards in carbon markets (Interview 010).

In summary, this discourse has a positive focus on the use of NBCCs as a way to promote local livelihoods and governance associated with sustainable development.

The **'Funding for biodiversity and climate protection'** discourse refers to the perception that NBCCs are a source of funding needed to protect forests or the global climate. For example, MINAM has set itself to attract funding to deter deforestation via, inter alia, REDD+ projects under the National Strategy for Forests and Climate Change (Ministerio del Ambiente, 2016). It also aims to promote financial mechanisms to carry out carbon capture and GHG reduction projects while integrating the value of ecosystem services in the market and highlighting associated co-benefits under the National Strategy for Climate Change (Ministerio del Ambiente, 2015). Furthermore, SERNANP (attached to MINAM) has aimed to harness the tropical forests' potential to generate financial income from NPAs via REDD+ projects according to the Financial Plan for the National System of Natural Protected Areas by the State (SINANPE) (SERFOR, 2016). This has already been achieved in three NPAs with REDD+ projects amounting to 8.7 million carbon credits (SERFOR, 2016). One of this NPAs is the Parque Nacional Cordillera Azul (PNCAZ), where CIMA developed a REDD+ project to finance their efforts to stop the deforestation and degradation in the area with carbon credit sales (CIMA, 2023b), which was later stated to be successful in this year's COP (CIMA, 2023a).

Finance-focused actors aligned with MINAM's interpretation, as Profonanpe considers the rise of the VCM as a commercial mechanism to prevent the rise of global warming and biodiversity loss, which is why they want to "contribute to the healthy development of the carbon ecosystem", and an interviewee from CAF stated that "carbon credits under VCM have proven over decades to be good at mobilizing funds for effective climate action and biodiversity" (Interview 008; Profonanpe, 2023b). This way, national and international actors related to banking have a positive view on NBCCs under the VCM.

As for the buyers' point of view, they usually interpret NBCCs as evidence to support their environmentally-friendly claims: Microsoft emphasized in the panel at the GLF event that they bought 'premium' carbon credits from Acorn to make ambitious contributions to climate change mitigation, Pacifico Seguros insurance company uses the term "ecologic car insurance" on the basis that their insurance policy directs funding to the protection of two Peruvian NPAs (Reserva Nacional Tambopata and Parque Nacional Bahuaja Sonene), and the Walt Disney Company purchase "high-quality forest carbon offsets" as part of their "imaginative ways" to reduce their carbon footprint (Pacifico Seguros, 2021; Walt Disney Company, n.d.). In this sense, their discourse did not go into the human wellbeing aspects of the NBCCs they financed (since most were associated with agroforestry), rather, they highlighted their contribution to mitigating climate change through these credits.

This premise only works under the assumption that deforestation is stopped because of the NBCC projects. However, as the VU interviewee pointed out: in theory NBCCs are an efficient way to promote carbon emission reductions, but reality is far from perfect (Interview 004).

The **'Selling green smoke'** discourse is an allegory to the critic that most of NBCCs do not amount to what they promise to be, i.e., the carbon emissions reduction claims are not supported by evidence. A carbon market researcher expressed that they believed carbon markets to be a theoretically great way to promote carbon emission reductions, but that interpretation of NBCCs clashed after investigating their real-life implementation, up to the point they do not believe in the product (Interview 003, see Box 1).

Box 1. NBCCs as a untrustworty product. "Funny enough, the other day I was at the grocery shop, and I was buying olive oil and I didn't know which one to buy. They have so many, it's impossible, but I saw one that said carbon neutral olive oil. And I guess they use the offsets, and you know that should influence me to choose that one. But it completely backfired. I thought I saw the net zero thing there and I was like 'you know what? I know that this one I will not buy'. I just don't buy it, I lost faith in this market" (Interviewee 003).

The Guardian has shared this interpretation by publishing highly critical articles on the unfulfilled claims of NBCCs (Patrick Greenfield, 2023b). However, there seemed to be one case that effectively avoided deforestation: Alto Mayo Conservation Initiative protected 3'329 hectares from deforestation by a REDD+ project (Patrick Greenfield, 2023a). 'Seemed', because in spite of its environmental success in avoiding deforestation, the NBCC project "appeared to have generated conflict and disharmony among the communities" in Alto Mayo (Patrick Greenfield, 2023a). In detail, this entailed some local people supporting the project, while others were removed from their homes by park authorities because they were inside the NPA's area, favoring the parks' land rights over the local people's living areas (Patrick Greenfield, 2023a).

Skepticism for NBCCs was also found in local interpretations. An interviewee from Viernes Por El Futuro Perú is skeptical about the real impact of NBCCs: "the mechanisms that they [NBCC project developers] use are not reducing emissions, they are not extracting CO_2. For example, they aim to avoid that forests are cut down, but the forests may not necessarily be at risk of being cut down" (Interview 002). Furthermore, they go beyond skepticism and into a critique of the idea of monetizing nature and perpetuating a neoliberal economy: "until which point do ecosystem services or natural resources are monetized?" (Interview 002). They also highlighted their awareness AIDESEP's critiques on NBCCs, as they discussed the lack of transparency about and of agency over these credits in Peru (Interview 002). AIDESEP critiques have also been mentioned by Piu & Menton (2014), referring to their argument that selling emission reductions via NBCCs would enable developed countries to reach their climate mitigation targets at the expense of ours. More recently, AIDESEP published an article in which they consider that Peru's current "phase of promoting climate funds pro-carbon markets and green agrobusiness is not enough to stop deforestation nor guarantee the protection of indigenous peoples' rights and collective territories" (AIDESEP, 2023a). However, these arguments go beyond a technical assessment on whether NBCCs are interpreted as trustworthy products. It opens a critique on the ethical nature of NBCCs in a context where vulnerable populations can be further disadvantaged.

The **'Concerning exploitative practice'** discourse gathers those arguments and highly critical interpretations of NBCCs. Apart from AIDESEP's concerns for a disorganized push for NBCCs in Peru (AIDESEP, 2023b, 2023a), ONAMIAP has also expressed their concern as indigenous representatives. During the event organized by CIFOR, a representative from ONAMIAP stated that they interpret NBCCs as a challenge, because many times funding arrives and the communities are not prepared, leading to a divide within the community and losing their connection with nature. She described it as "we are no longer seeing the trees, leaves as green; we see the green but as dollars", and went on highlighting the need to avoid mercantilization and respect their vision of nature as a living being.

From a more neutral stand, CIFOR and MINAM partially resonate with ONAMIAP's interpretation of NBCCs. CIFOR interprets NBCCs as part of the process of decarbonizing economies in the North, while moving funds to the South for forest stewards (Interview 007). With this, they recognize that carbon markets are here to stay, whether they want it or not, and investigate it to see how to make it as better as possible from a scientific perspective (statements from CIFOR's event; Interview 007). In this context, a researcher from CIFOR stated their more critical lens: "I see carbon as if it were petroleum, as if it were natural gas. Meaning, it is another thing that is being taken out, sold and people are going to be screwed somehow, so there is a need to see how to make it less screwed" (Interview 007). In this sense, a concern over exploitation feeds the motivation for researching NBCCs – as in this thesis.

Box 2. 'Carbon cowboys'. Wiesse & Saravia (2012) published an article called "Piratas del carbono", translated to 'carbon cowboys' or 'carbon pirates', where they described instances were a foreign carbon credit developer approached indigenous communities in the Peruvian Amazon offering deals with fake authorizations and undisclosed contracts. These stories are evidence of the conflict caused by unregulated NBCC projects in indigenous communities, and concern for the future of this markets.

Operationalizations of NBCCs in Peru

Two operationalizations were found for NBCCs in Peru: Acorn & Solidaridad carbon agroforestry projects, and REDD+ projects in Peruvian NPAs. The Acorn & Solidaridad carbon agroforestry projects reach several smallholder coffee farmers participating in an assisted transition to a carbon credit and agroforestry scheme. The REDD+ projects in Peruvian NPAs cluster various cases of NPAs that sell carbon credits justified by their REDD+ activities. These projects are led by SERNANP and NGOs under co-management agreements. These mapped operationalizations hints at the diversity of routes an NBCC can take: an agricultural-focused carbon removal product, or a payment for nature conservation and deforestation avoidance.

Operationalization 1: Acorn & Solidaridad carbon agroforestry projects

As an agriculture-focused bank, Rabobank found it desirable but difficult to grant credits to smallholder farmers, since that is considered as a high-risk investment because of their potential inability to pay back the loan (Interview 003). This is why Rabobank, through Acorn, came up with the idea of using carbon credits as a way to address that risk: agroforestry could be implemented as an investment for agriculture

in smallholders and the loan would be repaid with part of the income from carbon credits (Interview 003). As first steps, Acorn approached Solidaridad to pitch the idea and invite as a 'local partner' to the initiative (Interview 003 & 009). With this, four main parties started with the projects in San Martin: Solidaridad recruited the smallholders for the projects and led the domestic and on-site logistics (e.g., contracts, authorization, on-site monitoring), the smallholder farmers committed to learn and use agroforestry practices in their land in order to receive the initial investment and subsequent associated revenues, Plan Vivo designed and certified the carbon credit methodology for Acorn, and Acorn sold the carbon credits and monitors the land by remote sensing (Interview 003; Acorn Rabobank, n.d.).

Each project starts with Solidaridad onboarding smallholder farmers. When asked how, an interviewee from Solidaridad stated that it is not difficult to sell the idea of a set up that gives money with little effort from the farmer and, coupled with testimonies and advertisement from the success of other farmers, the smallholder farmer agrees to sign a contract for 3-4 years with Solidaridad (Interview 006 & 009). This is either done by direct approach from Solidaridad or by farmers registering their interest on a web page (Interview 009).

Then, an initial investment from Acorn is given to the smallholder farmers: seed, tools, and material for the agroforestry system. Only as the trees have grown and absorbed carbon, the carbon credits are built and sold (Interview 003 & 006). These carbon credits are called Carbon Retrieval Units (CRU), as they refer only to the carbon sequestered, unlike other carbon credits that also add deforestation risks and co-benefits into their price (e.g., in REDD+ projects) (Acorn Rabobank, n.d.). This terminology and methodology were considered more appropriate to apply, since fitting the project into REDD+ framework would have entailed more complex procedures (Interview 006 & 009). As for the species chosen for the agroforestry set up, Acorn and Solidaridad choose coffee or cacao as main crops given that there is a lot of information on which species to couple them with (Interview 006 & 009). The species chosen to complement the main crops in the agroforestry system are mainly selected to benefit the crop and maximize the financial revenue for the farm – excluding other factors such as biodiversity (Interview 006 & 009).

Along the project, Solidaridad organizes local councils for consultation, voting and agreements which are then sent to Acorn as minutes of these meetings (Interview 003). These are carried out in order to "make sure that they [the smallholder farmers] are happy" (Interview 003). In this sense, Solidaridad acts as a communication channel between Acorn and the smallholder farmers. Digging deeper into how communication works in these projects, there are different ways in which Solidaridad explains CRU to the smallholder farmers. On one hand, they directly present it as a new product: "as cacao, but you cannot see it" (Interview 009). This way, they explain how instead of selling coffee by kilograms, you sell carbon capture in CRUs. Since CRUs are explicitly carbon-based, Solidaridad's interviewee considered it easier to explain than REDD+ carbon credits, which would have entailed projecting scenarios and many parameters (Interview 009). However, there are still doubts from the farmers with questions such as: if I plant one tree, how much money does that give me? The interviewee from Solidaridad commented that this is not measurable by the satellite and equations, so they cannot answer that (Interview 009). Nevertheless, they have increased their communication efforts by founding a Carbon Academy for alphabetization to be used online and in workshops for farmers, associations, and technical staff involved in the projects (Interview 009). Furthermore, these projects also require communication with external stakeholders, such as the Peruvian government (Interview 006). In this sense, obtaining permits for these projects was reported to be complex, especially because the political instability and lack of clear institutionalized processes

demands constant and disorganized communication with the government to understand and navigate the national legislation (Interview 006). Particularly, fluent dialogue was needed with MINAM and MIDAGRI: MINAM for the approval of the projects via the DGCCD, and MIDAGRI to collaborate on the understanding of agroforestry in the Peruvian institutional systems (Interview 006). Although Acorn is not responsible for the in-country logistics, they support Solidaridad when required, as they have with interministerial communication (Interview 003 & 006). With this, Acorn aims to respect the local context by assigning more roles to the local partner, Solidaridad (Interview 003 & 006).

At the later stages of a project, the CRUs are sold. The sale occurs when potential clients, usually already clients or partners from Rabobank, approach or are approached by Acorn to buy CRU for their emission reduction commitments (Interview 006). This way, Acorn functions as a link between the buyers and project managers, with the added benefit of transparency, traceability and credibility of the CRUs traded (Interview 006). The pricing of the CRU is negotiated with the buyer, considering the minimum fare stated by Acorn (~15 euros per CRU, but increasing) to guarantee its quality (Interview 003). For example, Microsoft asked explicitly for a higher price that would entail higher quality CRUs, fitting in Acorn's 'premium price' (statements at the GLF event; Interview 003). The income obtained from the CRU sale is distributed in: 10% commission for operational costs of the seller (Acorn), 10% for operational costs of the local partner (Solidaridad) and 80% for the smallholder farmers (Interview 003 & 009; Acorn Rabobank, n.d.). However, in the first CRU sales, half of the 80% (40%) of income destined for the smallholder farmers are directed to Acorn until the initial investment is paid back, after which the 10-10-80 distribution design is enforced.

Operationalization 2: REDD+ projects in NPAs

In 2021, MINAM published the Guidelines for Identification and Classification of REDD+ activities in Peru with eight classifications: deforestation-free sustainable agriculture, communitarian forest monitoring and granting land rights to *campesino* and native communities, forest conservation in *campesino* and native communities, strengthening NPAs and other conservation arrangements, sustainable forest management, RIA (Amazonian Indigenous REDD+) and RIAC (Andean and Coastal Indigenous REDD+), communitarian forest management, and forest reforestation, rehabilitation and restauration with a landscape approach (Ministerio del Ambiente, 2021b). In accordance, NPAs efforts for nature conservation have been integrated in REDD+ projects led by SERNANP and NGOs under 'Contratos de Administración' and have sold carbon credits in the VCM (statements from Profonanpe's event; Ministerio del Ambiente & CIFOR, 2012; Peña & Sarmiento, 2022). The Contratos de Administración are co-management agreements that lay out shared responsibilities over the area and the distribution of revenue from NBCCs, which is directed to fund the operations for the agreement, the financial sustainability of the NPA, and contribute to the national budget for protected areas (SERFOR, 2016).

The idea of using NBCCs as a source of funding came from both sides of these agreements. On one hand, SERNANP has stated that there is a budgetary gap in NPAs in Peru, that is now being partially addressed by these agreements and MINAM had mapped the potential of funding from REDD+ activities more than a decade ago, but mostly from international entities such as the FCFP and the German and Norwegian governments (Ministerio del Ambiente, 2016; SERFOR, 2016). On the other hand, NGOs had also taken initiative to enter the VCM. In 2014, CIMA agreed to a loan from Althelia Climate Fund, insured by more than 8 million carbon credits, to finance their operations in PNCAZ (USAID, 2014). However, then SERNANP

took the lead over the development of the carbon credits and the associated financial income is now handled by Profonanpe (statements in CIFOR's event; Interview 005). In summary, the government and NGOs have started using NBCCs as a source of funding for their work in NPAs as a response to unfilled budgetary gaps.

In general, MINAM has the authority and duty to oversee and coordinate climate efforts such as NBCCs (Peña & Sarmiento, 2022). However, NBCCs are not only an instrument for addressing the climate crisis, but they are also a product for which there is little legal clarity of who it belongs to (Interviews 007 & 013; Peña & Sarmiento, 2023). In the context of NPAs, the responsibilities and benefits of NBCCs are shared between SERNANP and the NGOs as part of their Contratos de Administración. Nevertheless, Profonanpe handles the funds generated by the projects led by SERNANP together with NGOs such as CIMA and AIDER, as per clarified by MINAM after members of Congress advocated against Profonanpe's intervention on NBCCs traded in the VCM (Interview 005; Congreso de la República del Perú, 2023; DAR, 2023). Congress' arguments were that Profonanpe was removing the native communities and farmers from their right over the NBCCs' governance and benefits (Congreso de la República del Perú, 2023). However, MINAM stated that Profonanpe's involvement did not apply to deals among private actors, rather, it concerned funds received by the Peruvian government, such as the ones from NPAs (DAR, 2023). With this set up, Profonanpe aims to provide financial sustainability by their portfolio management capacities, and a transparent, more straightforward distribution of funds when compared to the 'black hole' of broad governmental funds (Interview 005).

As for the indigenous people and local farmers' agency over the NBCCs, they ought to be respected and integrated in the projects according to the REDD+ Safeguards in the Guidelines for Identification and Classification of REDD+ activities in Peru, the National Strategy for Forests and Climate Change and the National Strategy for Climate Change (Ministerio del Ambiente, 2015, 2016, 2021b). Particularly, REDD+ Safeguards are mandatory criteria that minimize risks and promote potential benefits from REDD+ activities, which have been linked to the protection of indigenous rights (Interview 007 & 010). However, little mention of their *de facto* participation has been made in the reviewed documents, interviews and attended events. The participation of indigenous people has been presented as beneficiaries of the NBCC projects (by participating in the park's operations), rather than co-developers along with SERNANP and the NGOs (statements from Profonanpe's event).

Another set of actors involved in these NBCC projects are the certifiers, such as Verra, Rainforest Alliance or Aenor (statements from Profonanpe's event; Talledo, 2015). These are foreign, private businesses that verify NBCCs to give them credibility in the VCM (Profonanpe, 2023a). These may become unnecessary if national standards and certification were set by the government, which could integrate and order the Peruvian (or regional) VCM (Interview 004; Peña Alegría et al., 2021). Either way, carbon credits developed under REDD+ are usually calculated and verified by comparing a business-as-usual scenario (deforestation threats succeed) with the REDD+ project implementation scenario (Interview 004). This way, the NBCC claims their value as a strategy that avoided the deforestation that would have happened in the business-as-usual scenario. However, there is lack of transparency over how these NBCCs are being handled, if REDD+ Safeguards are followed or indigenous rights are being respected (Interviews 007, 008 & 010). Therefore, the Monitoring, Reporting and Verification (MRV) aspect of these projects are still to be adequately developed.

Revenue from NBCCs are distributed by Profonanpe: first, to the needs of the NPA associated with the credits, and then directed to the common fund of SERNANP for protected areas (Interview 005). An interviewee from Profonanpe used the example of the PNCAZ to explain this, stating that CIMA (the co-managing NGO) has "generated credit carbon sales of 47 million dollars", which is "an amount of money that exceeds what CIMA needs to operate the park each year" (Interview 005). Therefore, the excedent of income generated by the sale of carbon credits is directed to SERNANP (Interview 005). Furthermore, by going through Profonanpe, the funds are also handled by JP Morgan. In detail, Profonanpe's portofolio comprises an array of independent accounts in JP Morgan that follow a defined investment strategy, resulting from a three-party agreement, for example, between SERNANP, CIMA and Profonanpe (Interview 005). With this setting, Profonanpe supports its claim to bring more transparecy and increasing the traceability of the distribution of revenues, that would otherwise go to the public spending system, where the revenue gets pooled and used without an explicitely targetted distribution (Interview 005). As for local communities, Guidelines for Identification and Classification of REDD+ activities in Peru, the National Strategy for Climate Change and the National Strategy for Forests and Climate Change highlight the social and environmental benefits from REDD+ projects for local communities in the shape of co-benefits (Ministerio del Ambiente, 2016, 2021b). Although these may entail benefits such as job opportunities and capacity building for sustainable livelihoods, local communities and indigenous people from the area were not mentioned in the financial distribution arrangements designed by SERNANP, Profonanpe and the NGOs that work in the NPAs. Furthermore, the co-benefits are also under public scrutiny. For example, in a NBCC project led by Conservation International advertised their promotion of agroforestry with local people (Conservation International, 2023), while also being criticized by the Guardian for enabling the displacement of local residents from their homes within the NPA's area (Patrick Greenfield, 2023a).

The paper boat: The Shaping and the Shapers of NBCCs

Back to the paper boat, two main travel routes have been mapped: through agroforestry fields (Operationalization 1) and across high-biodiversity areas destined for nature conservation (Operationalization 2). Along the paper boat's travels, four main discourses have been identified by looking at the diverse interpretations from individuals that engage with it. In this section, the discourses and travels will be looked at simultaneously in order to map the *shaping* and *shapers* of the paper boats. In order words, this section shows the influence of certain discourses on the operationalizations of NBCCs and which actors hold agency on the way these operationalizations take place.

For Operationalization 1, Acorn and Solidaridad have shown to have the most agency in all the aspects of the NBCC (Figure 8). This includes Acorn and Solidaridad the agroforestry and NBCC design, implementation and monitoring, Acorn's search of and negotiation with clients, Acorn and Solidaridad's coordination with governmental entities for the project's implementation, and Acorn and Solidaridad's distribution of revenue from NBCCs (Interview 003, 006 & 009; Acorn Rabobank, n.d.). Even tough smallholder farmers are at the center of these projects, it seems that their participation in the operationalization of the NBCC is reduced to more passive roles, such as signing the contract, taking care

of the project area, and participating in the carbon alphabetization activities (Interview 003, 006 & 009; Acorn Rabobank, n.d.). As for the governmental entities involved in the authorization of these projects, such as MINAM and MIDAGRI, their role does not go beyond the permission granting stage (Interview 006). Regarding buyers, they can affect the operationalization during the negotiation for the NBCC sale. For example, as Microsoft requested a premium fare for NBCCs, the price of the product rose at their demand (statements from the GLF event). In this sense, the main shapers of these NBCCs are Acorn and Solidaridad, while the smallholder farmers, governmental entities and buyers are secondary participants.

Furthermore, the main discourse used by Acorn and Solidaridad in advocating for and developing these projects is 'promoting sustainable development' (Fig. 8). Mainly, this is attributed to the frequent mention of the benefit these projects bring to the smallholder farmers (statements from the GLF event; Interviews 003, 006 & 009; Acorn Rabobank, n.d.). The lesser influence of the 'Selling green smoke' refers to Acorn's answer in the GLF when being questioned about how was their methodological approach to CRUs going to avoid a similar type of scandal as the one that had just been published in The Guardian against Verra, to which they argued that their methodology is publicly available and more robust than Verra's (statements from the GLF event). This instance added to their claim of environmental robustness via remote sensing monitoring and asserted their clients' (in the case of the event, Microsoft) trust and commitment with their NBCCs, associated to the slight influence of the 'Funding for biodiversity and climate protection' discourse on the operationalization (statements from the GLF event). It is important to highlight that although the NBCCs are considered a climate mitigation strategy (therefore, deterring the climate crisis), the 'Funding for biodiversity and climate protection' discourse was not dominant as climate change was not the main focus and biodiversity was not a relevant factor in the projects. In summary, the discourse of 'promoting sustainable development' led the shaping of these NBCCs.

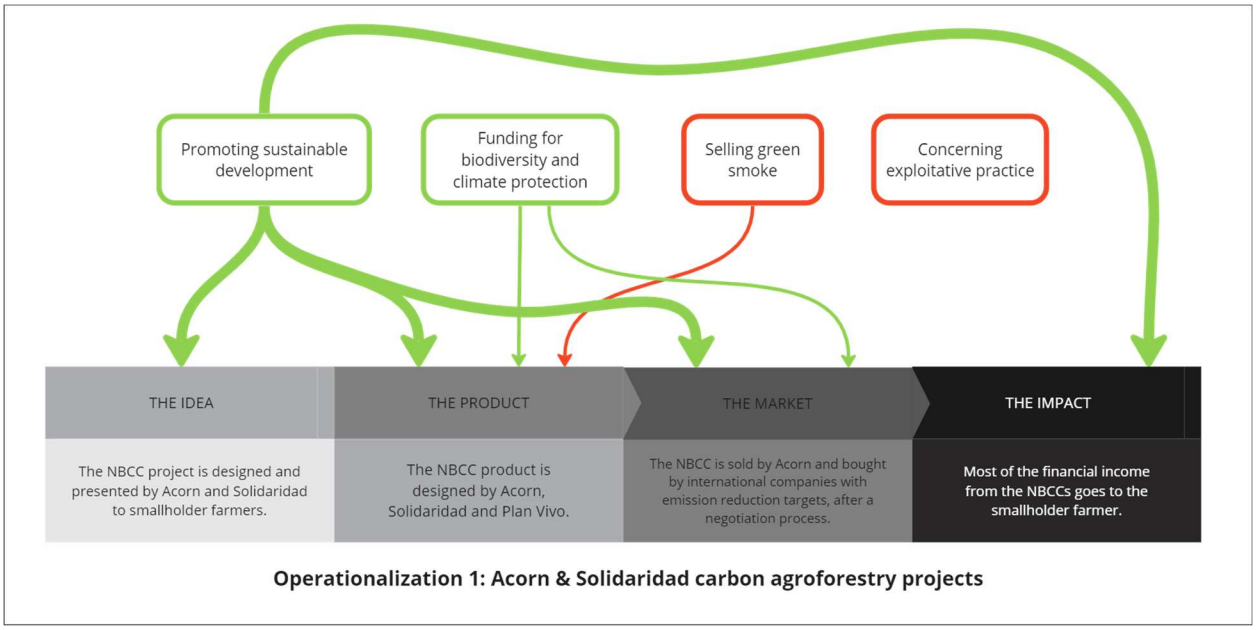

Figure 8. Diagram of the influence of discourses on Operationalization 1, the width of the arrows represents the relative dominance of the associated discourses on the operationalization stage signaled.

As the signatories of the agreements for co-managing the NPAs, it is not surprising that SERNANP and the NGOs have the most agency in Operationalization 2 (Figure 9). Regarding SERNANP, it has expressed its desire to participate in the VCM in its financial plan, designed the NBCC in accordance with Peruvian frameworks for REDD+, and designated Profonanpe as the entity in charge of handling the financial income from the credits (Interview 005; SERFOR, 2016). On the other hand, the NGOs have also been interested in the VCM as a market to bridge their budgetary gap, finding buyers for the NBCCs, and making use of those funds to maintain the parks (statements from Profonanpe's & CIFOR's events). Furthermore, Profonanpe has had a particularly great influence in the operationalization in the impact stage, as it is in charge of handling and redistributing the funds received from NBCCs. As for the local and indigenous population near or in the parks, they hold little or no agency over the NBCCs: either by participating in the sustainable activities organized by the NPA managers, or even being evicted from their houses with the parks' area (statements from Profonanpe's event; Patrick Greenfield, 2023a). Therefore, the main shapers of these NBCCs are SERNANP and the NGOs that co-manage the NPAs, while Profonanpe, buyers, and local and indigenous people are secondary participants.

The main discourse used by SERNANP and the NGOs in the context of NBCCs from NPAs is 'funding for biodiversity and climate protection' (Fig. 9). As pointed out in the Interpretations section, SERNANP and these NGO's main objectives are to promote and contribute to nature conservation in Peru and, by extension, aiming to decrease the negative impacts on biodiversity and the global climate. As such, this discourse is at the core of all the operationalization stages of these NBCCs (Fig. 9). To a lesser extent, the discourses of 'promoting sustainable development' and 'concerning exploitative practice' were found to influence the design of the NBCC. This is related to the inclusion of sustainable economic activities in the areas (e.g., agroforestry in PNCAZ and Alto Mayo National Park), and of REDD+ Safeguards that entail respecting indigenous rights and practices while deterring exploitative and discriminatory activities. Overall, the discourse of 'funding for biodiversity and climate protection' led the shaping of NBCCs in Peruvian NPAs.

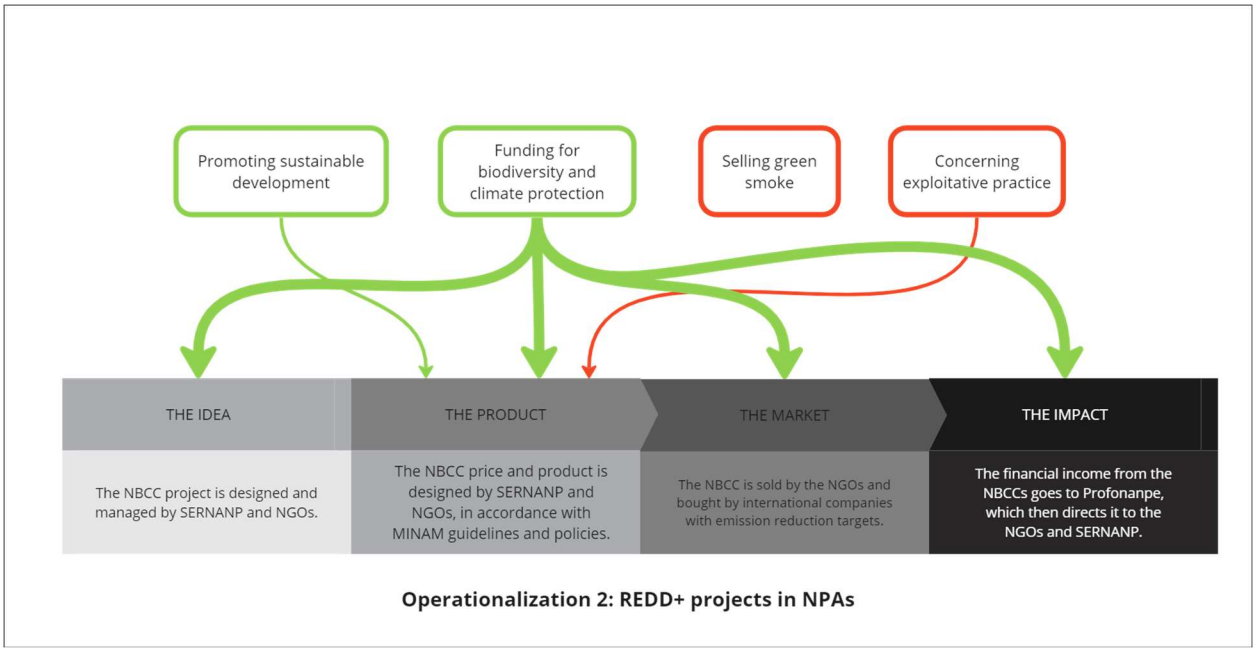

Figure 9. Diagram of the influence of discourses on Operationalization 2, the width of the arrows represents the relative dominance of the associated discourses on the operationalization stage signaled.

In summary, the identified operationalizations are predominantly shaped by positivist discourses of NBCCs: 'promoting sustainable development' for Operationalization 1 and 'Financing biodiversity and climate protection' for Operationalization 2. Furthermore, the main shapers are high-level actors: an international bank and NGO for the first case, and national level governmental institutions and NGOs for the second. Furthermore, the following chapter examines the potential consequences of who is (not) a shaper, and who is (not) benefiting from the shaping.

Chapter 5 – Potential implications: an interrogation on the Shaping and the Shapers

As the paper boat keeps travelling along its varied routes, questions about the effect of its trajectory arise. Kull et al. set themselves an interrogation similar to this thesis: they used a PE approach to assess whether ecosystem services (which include carbon sequestration) are "an indispensable tool to save nature in the modern world, a further appropriation of nature by capital, or something else altogether" (2015, p. 123). In their findings, they describe the 'winners' and 'losers' in framing nature as ecosystem services and use a REDD project as an example. Theoretically, the environment, countries and local communities would benefit from REDD activities, as they avoid deforestation, provide a cost-effective policy and enable sustainable financing sources. However, they quote studies that highlight how REDD reinforces capitalism and its destructive traits, weakens local governance over nature, and displaces other types of relationships with nature (Kull et al., 2015). In this sense, it was hypothesized that all participants were winners – but does not seem to be the case.

The previous chapter showed heterogeneous power in the shapers and discourses that shape NBCCs. This chapter aims to unpack the potential implications of the identified NBCC operationalizations and the power disparities associated to them in terms of benefits and repercussions, meaning, it investigates the potential *winners* and *losers* from Peruvian NBCCs. Furthermore, this does not aim to portray the actors as fixed victors or victims. Instead, this chapter provides a cross-sectional diagnosis on the current distribution of benefits and repercussions in the Peruvian NBCC context, and exploring the negotiations and tendencies that might unravel over time.

Winners: shapers benefit from the shaping

This thesis was explicitly born out of a personal and academic concern over the potential of NBCCs to perpetuate a system of exploitation of human and non-human beings with the justification that it contributes to addressing the biodiversity and climate change crises. Grounded in PE, this thesis' motivation considers that human and non-human wellbeing should guide actions, instead of a neoliberal proxy (such as economic growth) that claims to contribute to human and non-human wellbeing. Therefore, it would align with NBCCs as long as they place the involved human and non-human as winners.

The dominant discourses found in the operationalizations are 'promoting sustainable development' and 'funding for biodiversity and climate protection'. In this sense, it would be expected that the benefits associated with these discourses would be directed at all human and non-human beings. Meaning, the discourses assume that sustainable development entails the success of local and non-local livelihoods, and that biodiversity and climate protection translates to safeguards for the environment. However, instances have shown that these assumptions are not met, ergo, not all are winners.

Governments and companies can take advantage of choosing certain NBCC methodologies or harnessing methodological loopholes. Regarding the methodological approaches for REDD+ projects' counterfactuals, there are concerns related to the way in which the diverse manners to calculate the

added value of REDD+ projects to avoid deforestation are too variable, affecting the credibility, forecasted impact and reportability of these projects. Ebeling and Yasué (2008) mentioned that the choice on how to model scenarios with historical deforestation data could greatly influence the amount of avoided deforestation calculated. For example, using a multi-year average of historical deforestation rates would favor countries with high historical deforestation rates like Brazil or Ecuador, but would disfavor countries which have maintained a very high forest cover like Guyana or Suriname (Ebeling & Yasué, 2008). Moreover, West et al. (2023) published a paper that argued in favor of steering towards a different type of approach: using real-time control areas, rather than making control-intervention scenarios based on historical data and a set of assumptions. Mainly, their reasoning behind this argument is that the scenarios could be flawed, because of unexpected economic or political changes that influence deforestation, or manipulated, as they could be inflated by profiteers, as if deforestation was forecasted to increase more than realistically (West et al., 2023). In their results, they show that a difference is found when comparing both methodologies to the same projects: their real-time control methodology shows that "only 5.5 million (6.2%) of the 89 million ex-ante offsets from the REDD+ projects would likely be associated with additional carbon emission reductions" (West et al., 2023). This sets the governments and companies as winners, while the forests fall at risk of being losers because of setting unrealistic deforestation expectations and valuation.

Nation-states and companies can also reach their climate goals despite double counting, by using the same NBCC more than once to contribute to different climate mitigation targets. Joseph (2013) mentioned from a technical perspective that "the overall challenge is to make sure that the sum of all projects and subnational emission reductions does not exceed the total claimed at national scale", and that it can be achieved by selecting methodologies for standards that allow for nesting subnational and national projects. Moreover, an interviewee from VU portrayed it as an institutional issue, stating that the solution to avoid double counting is to 'define the rules': "It's really up to the government of Peru to decide how they want to handle that. Maybe if the government says 'look, we're gonna officially recognize this voluntary project, so if you have your voluntary project, you're selling carbon credits, just tell us', the government knows how many credits you are selling. And they're gonna discount those credits from their own national reductions or NDCs, and then everything's good. Then you can sell your credits to Germany, Germany can use them in their own NDCs, but we're making sure there's no double counting". With this, they are arguing that a comprehensive system for registering and tracing NBCCs is the answer, so that the existence and destination of each emission reduction is clear and accounted for. An interviewee from Acorn also coincides that this is a governmental task, however, their preference lies in the government (e.g., national government, GOREs) to not apply their NBCCs in Peru's NDCs (Interview 003). In the same line, a Paskay interviewee argues for the same cause and adds that "a balanced solution must be found, with the country's expectations of meeting its climate commitments, its NDCs. But we must understand that if this [NBCC] sale does not occur, there will not be resources to continue financing the activities. Therefore, deforestation will not decrease, because deforestation decreases with field activities and field activities cost money" (Interview 013). In this case, governments and companies may approach a contestation over who should the NBCCs go to: while both argue for increasing transparency and traceability of the NBCCs and their positive impact on nature, companies can only trade (and benefit from) NBCC if they are not used for domestic climate goals.

Furthermore, if the impact of NBCCs is calculated accurately and realistically, and accounted for with pertinent traceability and without double counting, there still could be an issue of impermanence of

emission reductions. In Ebeling and Yasué (2008)'s words, "if a newly created [carbon] sink is burnt or logged, the sequestered carbon will be released back into the atmosphere and there will be no net emission reduction". In turn, the parties that benefit from the income received and goals reached (governments and companies as winners) come at the expense of an unfulfilled environmental promise (a non-preserved forest as loser).

In summary, the way current methodologies for calculating and accounting the positive impacts associated with NBCCs set nation-states and private companies as the main winners, by having the upper hand on shaping these methodologies and benefiting from them, and the environment as a loser when considering the high potential of inflated values or unmet expectations.

Particularly in Peru, the steering power over NBCCs held by Peruvian ministries seem to set them as winners, despite conflicting interests. Sears et al. (2021) highlighted the diverse agendas and roles held by different ministries: MINAM's focus on forest conservation and carbon sequestration, MIDAGRI's management of land use change and land titling governs forest use, and the Ministry of Economy and Finance's promotion of economic development in the forest sector – such as increased timber production and export that may conflict with forest conservation goals. In accordance with those interests, MIDAGRI sets agriculture as a priority, which can complement NBCC projects – as with Acorn and Solidaridad's agroforestry projects) – or hinder them – as the government relegates the efforts that UNAS and CIMA do for nature conservation (Interviews 006 & 011). Furthermore, MINAM has also used its influential power to prevent GOREs from integrating in NBCC markets. Peña and Sarmiento (2023) reported on the intention of GOREs to implement REDD+ programs that include selling NBCCs, which was portrayed as a rushed decision that should be previously coordinated with MINAM and fit into the (still pending) legal frameworks and governmental procedure for REDD+ in Peru (see Box 3 for a related quote). Overall, it appears that the Peruvian high-level governmental entities are winners in the NBCC context.

Box 3. On the stand-off between MINAM and GOREs over NBCCs and REDD+ projects.

Interviewee 007, from CIFOR: "So, since everything [the legal framework for REDD+] is so gray, those kinds of things are still being done. And that is also because of the way that Peru decided to do REDD: when REDD began in our country, the idea was either (i) you wait for you to complete the mechanism and just start or (ii) you let early initiatives and you build your mechanism and then you do a process called nesting. Once you have put together your mechanism, all the projects will fall within what you have said you are going to do. Peru has not yet completed that. RENAMI, which is the national registry of mitigation measures, is the way in which all of this is going to be nested. There are still no defined rules of the game, or there are to a certain extent, but nothing is finalized. Therefore, there is still this gray space that is allowing there to be projects that, although they are not as successful in environmental terms, are successful in economic terms. […] So the GOREs see this and say 'well, I want it too', but there is no legal mechanism for the money to reach a regional government. […] Then they signed two contracts, Ucayali and Madre de Dios, and the MINAM had them declared null and void, as illegal. […] But of course, whose fault is it? From the MINAM is taking so long [to implement RENAMI]? From the GOREs because they are getting into something they don't understand? From the private sector because they are making them believe that they are going to receive... in the agreement that was something like that they were going to pay 20 million dollars a year and was signed for 90 years? Then the regional governor saw that, made dollar eyes and signed. And when MINAM says 'you can't do this', they are like 'of course, Lima always telling us what to do'."

As a legal framework for NBCCs in Peru is still to be defined, actors are currently attempting to participate in its construction – trying to be shapers and winners. As mentioned previously, the castaña (Brazilian nut) producers federation collaborated with the Peruvian Congress to state that they do not wish for Profonanpe (in collaboration with MINAM) to handle their NBCC-related income as they were concerned for ambiguous legislation that could allow it, resulting in MINAM giving a clarifying statement that it would not be the case (Congreso de la República del Perú, 2023; DAR, 2023). Also, many actors claimed participating in RENAMI's consultation process, which could mean that a multi-stakeholder approach feeds into a multi-winner NBCC framing. However, an interviewee from Viernes Por El Futuro Perú mentioned that they feel like their (and other civil society organization's) contribution to NBCC regulations and climate change policies in general is reduced to delivering comments in workshops or consultations that are subject to MINAM's discretionary power, and that there is a gap in transparency and participation platforms for carbon markets to be addressed in order to make them inclusive (Interview 002). In summary, various actors engage in NBCC institutionalization via consultation processes or indirectly by talking with governmental entities. Consequently, high-level governmental entities are leading the institutionalization and conditioning the practices around NBCCs in line with their agenda, potentially reinforcing their position as winners.

On a more precise scale, the main shapers mapped in Chapter 4 hold the greater agency over the NBCCs' operationalization, which translates into their ability to direct greater benefits for themselves. For Operationalization 1, Acorn and Solidaridad focus on promoting agroforestry and carbon sequestration, and have designed the NBCC projects in accordance, making them winners. As for other parties, Ravikumar (2017) and Sabelli (2011) wrote about their concern that the reduced focus on carbon emissions can overshadow other aspects associated with forests, such as local peoples' livelihoods, adaptation to climate change, and access to land. Particularly, Sabelli (2011, p. 113) used Baldwin's term carbon nullius to refer to how "strong focus on carbon accounting has successfully isolated the molecule of CO_2 from the forest, and the social and environmental realities that influence forest cover". In this sense, the agroforestry based NBCCs reduce the forest to a commodity to be managed and traded. Nevertheless, this could also imply a benefit for local people, as claimed by the 80% income destined for smallholder farmers in Acorn and Solidaridad's projects. However, Sabelli (2011, p. 112) uses another term to describe the social and ethical implications of these projects: carbon colonialism, referring to how rich countries and organizations restrict the use and access to land in order to protect that area's carbon storage. This is particularly worrisome considering statements like the one from USAID and Solidaridad (2022) warning that farmers may not receive the payment they expect from carbon credits because their trees did not grow enough and did not capture enough carbon (see Figure 10) and considering that local farmers are not co-leading the management design for their land. This could transform a supposedly win-win set up into another form of land restriction under the will of a neoliberal market. In this sense, Acorn and Solidaridad stand as current winners in Operationalization 1 NBCCs, while the environment and local communities risk the position of losers.

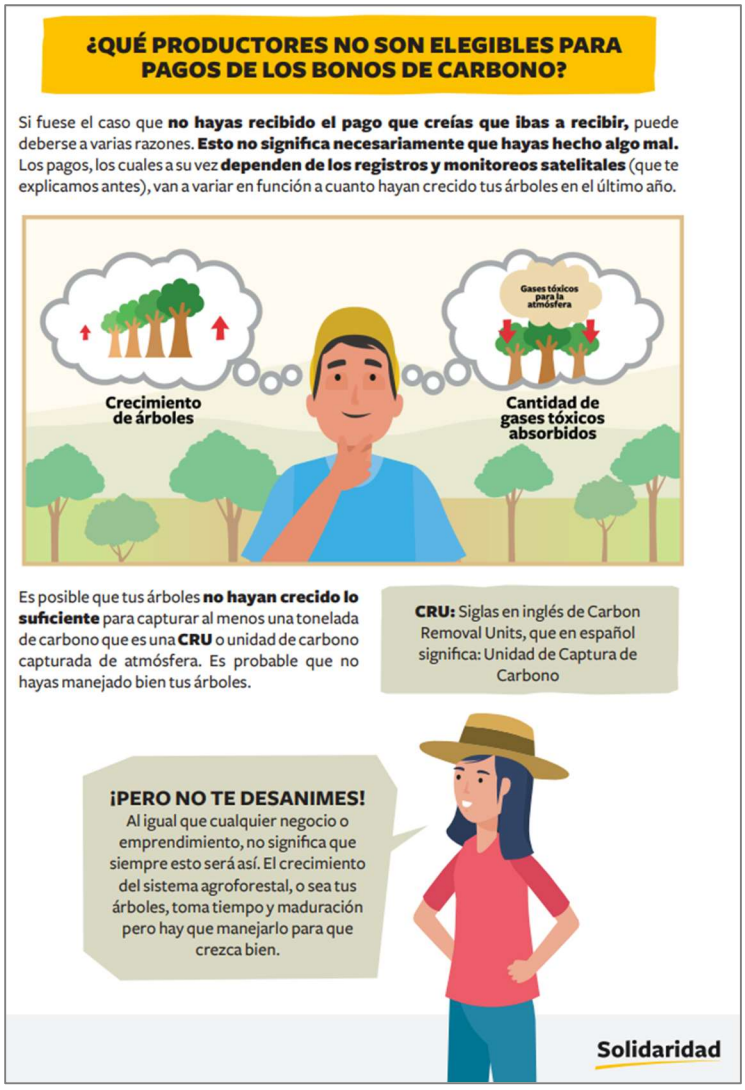

Figure 10. Image from USAID and Solidaridad's infographic for their agroforestry and carbon offset projects (USAID & Solidaridad, 2022).

Moreover, MINAM and NGOs, the main shapers of Operationalization 2, have among their priorities strengthening biodiversity protection and local livelihoods. MINAM (2016) has emphasized this purpose while acknowledging that climate change-related strategies can have positive or prejudicial contributions to it: "Adaptation projects can affect ecosystems and their capacity to absorb and store carbon, and mitigation projects can improve the adaptation capacity or increase the vulnerability of people. Therefore, considering both adaptation and mitigation at the moment of planning forestry activities allows to avoid conflict, for example, preventing that a REDD+ mitigation project increase the vulnerability of the population to climate change or that an adaptation project for communities contributes to increasing greenhouse gases. Increasingly, innovative and integrative ideas are being developed for forest management in the context of climate change". In this sense, MINAM states that the efforts of the ministry will simultaneously address climate change adaptation and mitigation in order to contribute to human and non-human wellbeing. Accordingly, Piu and Menton (2014) noted that the Peruvian government had set REDD+ co-benefits as one of its priorities, promising to bring improvements for local and indigenous communities under REDD+ projects. However, the authors also argued that other similar forestry instruments had failed in their objective to alleviate poverty and consider this to be a "concrete

risk of REDD" (Piu & Menton, 2014). Already, Profonanpe (2023b) has mentioned that "diverse carbon projects have been questioned over the legitimacy of their impact and the real benefit they bring to local actors in their territories", and Peña and Sarmiento (2022) shared in a CIFOR InfoBrief that developers of REDD+ projects in Peru have been accused of deceiving indigenous peoples. Although the intentions from the shapers of the NBCCs in Operationalization 2 aim for a generalized win-win setting, instances have shown local people as losers of these schemes.

Overall, it becomes evident that the actors for which the benefits of NBCCs persist – independently of the execution of NBCCs – are the shapers: high-level governmental entities, private companies and project designers and implementors.

Losers: the continuation of historical marginalization

As mentioned before, there are current practices around the design, calculation and accountability of NBCCs that drive non-human beings to become losers. The inflated claims of carbon sequestration admitted by methodological set-ups, double counting or unmet assumptions on the state of the area contribute to the use of nature and climate as an instrument for financial revenue in NBCC markets. Even when carbon sequestration is successful as intended, promoting carbon sinkage does not mean promoting biodiversity protection. Ebeling and Yasué (2008) argued that carbon markets value carbon, not biodiversity. Gibbon et al. (2010) coincided with this concern and mentioned that projects that focus on carbon sequestration and revenue can set a preference for tree species that do not contribute to biodiversity or water supply sustainability. In this sense, NBCCs are aimed at capitalizing from reduced costs and high carbon capture, which could favor forest landscapes that do not align with biodiversity conservation. This logic aligns with Acorn and Solidaridad's focus on the crop productivity and carbon sinkage capacity of the agroforestry system, which is why they select between two or three tree species in accordance with those criteria (Interviews 006 & 009). In summary, non-human beings – mainly biodiversity, forests and the climate – persist as potential losers in Peruvian NBCCs, depending on the focus and conditions of the projects.

The loosing position of local and indigenous peoples in NBCCs is of particular concern as power disparities persist in this context. Wiesse and Saravia (2012) reported on several instances of indigenous communities being approached by carbon pirates (see Box 2 for definition) or NBCCs implemented without their consent in their territory. The examples include an NBCC project that overlaps with paths used by PIACI people (indigenous communities in isolation) and indigenous Ese Eja territory without consent, while also reporting on an Australian scammer that tried making deals with several indigenous communities for selling NBCCs (Wiesse & Saravia, 2012). The latter included fixed conditions unilaterally established and managed by the scammer, a contract in English with a duration of 100 years, and other behaviors that put indigenous people in a vulnerable legal state. Currently, AIDESEP has expressed their concern on false claims of indigenous participation contested NBCC projects, coupled with a disorganized rise of these projects (AIDESEP, 2023b). A CIFOR interviewee shares this concern, relating it to past experiences with extractive activities done on ancestral territories of indigenous land, where the communities' rights and safety were not guaranteed by the government (Interview 007). However, the same interviewee acknowledges that there is interest now in working with indigenous peoples to carry

out the REDD+ projects (Interview 007). Adding to this, a Paskay interviewee stated that they consider participatory processes with the local population as an essential part of NBCC projects, which is why they develop documents for equitable contracts between indigenous communities and buyers and make available the information of all participatory processes they are involved in (Interview 013).

However, a non-paternalistic prioritization of local and indigenous communities' wellbeing and participation has not been characteristic of NBCC projects. For example, even though Acorn and Solidaridad's projects have set the smallholder farmers as the main recipients of the financial income from NBCCs, they do not seem to have agency over the design or decision-making processes of the credit. Additionally, it is doubtful whether they are fully informed on what a carbon credit is before committing to the NBCC project, as smallholder farmers are attending carbon alphabetization activities after their subscription to the project.

Furthermore, various actors recognize that the lack of carbon literacy in indigenous communities is an obstacle for a more balanced negotiation footing (Interview 006-007, 010 & 013). Particularly, an interview from DAR stated that indigenous organizations approach them when addressed by Colombian, Brazilian and Ecuadorian companies for NBCC projects, because they lack the knowledge and capacity to make informed decisions (Interview 010). An interviewee from CIFOR coincided on this and expanded on further implications: "[…] a community has the right to decide, to be informed, etcetera: what happens if you change your mind 10 years after the start of the [40-year] contract? What defends you from that?" (Interview 007). There are efforts from non-governmental actors to strengthen the capacities and participation of indigenous people, to even the scale. For example, DAR assists them to access information and to make proposals for MINAM's guidelines, and CIFOR invited indigenous organizations to the multi-actor dialogue event mentioned along this thesis (Interview 001, 007 & 010).

In summary, the current state of carbon alphabetization and decision-making positions for local and indigenous peoples weakens their capacity for negotiation and setting their benefits – prevents them from becoming winners. More than non-winners, NBCCs can set them as losers by triggering internal conflict in local communities. As ONAMIAP's representative expressed in CIFOR's event, the implementation of NBCCs was related to the fragmentation of some indigenous communities' relationship with nature, dividing the population in those who keep a cosmovision of forests as living entities with whom they share the landscape, or those who adopted a marketized lens for nature. Andreucci and Kallis (2017) described the precedent of indigenous peoples and nature alienation, marginalization and exploitation for a neoliberal market under a context of oil extraction in Peru. Here, the past emerges as a contemporary concern for the pervasive vulnerability of these actors under the context of Peruvian NBCCs.

Governmental institutions, international organizations and project implementors were presenting scientific evidence and lessons learned for improved NBCCs management in CIFOR's event last December, while emphasizing that they strived for a multi-actor co-production of NBCC projects. However, at the same event, ONAMIAP's representative had highlighted that they could not find *their* evidence in the presentations. Looking ahead, the question of what does a 'multi-actor co-production of NBCCs' entails is necessary in order to determine if there is an envisioned future where NBCCs can satisfy the promises they currently fail at delivering.

Chapter 6 – The lost boat: floating, but to where and how?

The paper boat is going through a stormy ride: several hands are attempting to shape it in different manners while it travels diverse and unplanned routes. First, the findings in this thesis show that Peruvian NBCCs comprise a great diversity of actors, which translate into a varied set of interpretations. Furthermore, it was revealed that these interpretations can be fit into four main discourses: 'promoting sustainable development', 'funding for biodiversity and climate protection', 'selling green smoke' and 'concerning exploitative practice'. As for the NBCCs per se, two operationalizations were identified: agroforestry projects implemented by Acorn and Solidaridad, and REDD+ projects implemented in NPAs by NGOs and the Peruvian government. By relating interpretations with operationalizations, as asked in the third sub-research question, NBCC projects were predominantly linked to (positivist) discourses related to 'sustainable development' or 'financing for biodiversity and climate protection', even though these may be not be reflected in the implications of these projects.

Addressing the last (fourth) sub-research question, the main discourses and actors that have influence over NBCCs were found to perpetuate the trend of neoliberal, exploitative markets: high-level actors have greater agency and benefits than historically marginalized groups. This was identified through the PE lens, by grounding this rising market in the historical systems of multi-level exploitation. Particularly, relating it to Andreucci and Kallis highlights on the conditioning power from international organizations (e.g., World Bank) and high-level governmental entities (e.g., Presidency of Peru) and consequential marginalization and violence towards indigenous peoples to exploit nature. For the case of NBCCs, they are increasingly promoted and led by similar actors, and are not effectively integrating the historically marginalized or exploited ones. Furthermore, a PE approach highlights and empowers practices of resistance – activities that reshape systems in order to prioritize human and non-human wellbeing. As such, this thesis highlights the critiques around the lack of prioritization in integrating local communities, indigenous peoples and nature in Peruvian NBCCs.

Overall, the empirical contribution of this thesis to existing literature can be considered as substantial, as it fills informational gaps unaddressed by academia and institutions. Particularly referring to interpretations, few investigations have been made which explore the perceptions and relationships of actors to NBCCs in Peru. Piu and Menton (2014) portrayed a comprehensive landscape of these, but the publication dates back to 2014 and is restricted to REDD+ projects. Furthermore, Peña and Sarmiento (2023, 2023) have made more updated efforts to describe the context of carbon markets in Peru, but also limited to the REDD+ domain. In contrast, this thesis provides an updated and broader scope of interpretations around NBCCs. Regarding operationalizations, there have been no attempts to scout for the current operationalizations of NBCCs in Peru. Several actors aim to define or report on the operationalizations of NBCCs, but often tailored to their own field: agroforestry or REDD+ activities. For example, Profonanpe has made progress in mapping the actors that participate in the Peruvian VCM (2023b), Peña and Sarmiento (2023) and Paskay have reported on the novel and disputed processes for carbon projects within jurisdictional REDD+, and Acorn and Solidaridad are continuously navigated Peruvian legislations and institutions to find a suitable coordination for their carbon projects (Interviews 006, 009 & 013). Therefore, this thesis offers a broader look into Peruvian NBCCs than current literature has provided, giving a scan of the current interpretations and operationalizations from diverse actors and arenas.

During CIFOR's event, a speaker from the Peruvian Society for Environmental Law (SPDA) made a comment relevant to the contribution of the final two sub-research questions addressed in this thesis: that there is a lack of power analysis concerned with REDD+ in Peru. This comment can be extended to the current state of academic research of NBCCs, since it has focused on their economic and environmental feasibility or performance but not on core social (and ethical) factors (Giudice & Börner, 2021; West et al., 2020). As mentioned in the introduction, the historical marginalization and exploitation of local nature and peoples in the Amazon for the will of the market sets a precedent that highlights the need for addressing social and ethical factors in research over NBCCs. Therefore, the theoretical contribution of this thesis is centered on subjecting Peruvian NBCCs to a critical lens that explicitly questions their advocacy for human and non-human wellbeing.

Looking into Osborne's research on Scolel Té carbon projects in Mexico, their use of PE allowed them to analyze beyond the environmental and economic implications of NBCCs and expand into their associated power relations and social implications in local communities, particularly "the process of carbon commodification and the resulting implications for common property forest governance" (2015, p. 74). Through this lens, their results provide a parallel NBCC case study that resonates with the findings of this thesis. For example, the article reported on how high-level entities steered land governance away from local actors: "In particular, the centralization of forest governance and decision making into the hands of project implementers and brokers [of the carbon forestry project], the necessity for legible land rights and boundaries, and the technical requirements for measurement, calculation, and monitoring of carbon have reshaped forest governance in ways that have undermined the social and ecological benefits often associated with common property management schemes" (2015, p. 69). Furthermore, they mention that "the project has ultimately prioritized timber species over subsistence systems and exchange value over use value", which resulted in the loss of local biocultural diversity (Osborne, 2015, p. 72). In this sense, a parallel scenario can be drawn from Acorn and Solidad carbon forestry projects, as they disregard local biodiversity in favor of land productivity. Lastly, they conclude that the commodification of carbon via Scolel Té carbon forestry projects "has weakened the social and ecological controls communities use to manage common property, thereby compromising the success of collective action captured in the work of Ostrom and other institutional political economists" (Osborne, 2015, p. 74). This way, they argue that the carbon forestry projects have reduced the agency of local actors over the land they own and inhabit – as this thesis have found it to also be the case. Therefore, the use of PE as a theoretical framework for current and future research on Peruvian (and regional) NBCCs shows promise for integrating critical questions over the social and ethical implications of these projects.

On a broader scale, this thesis feeds into different angles of academic debates around carbon markets, mostly supporting critical claims rather than ecomodernist assessments. As a summary, two main academic debates can be highlighted in literature related to carbon markets: a methodological and an ontological debate. First, the methodological debate proposes different approaches on *how* these credits ought to be operationalized. Within this, a universal and technocratic focus on design, performance and evaluation contrasts with a localized and integrative approach to carbon credit governance. The technocratic approach emphasizes the need for more precise, extended and robust environmental and economic analysis of (potential) areas designated for carbon credits (Balmford et al., 2023; Giudice & Börner, 2021; Nunes et al., 2012; West et al., 2023). To achieve that, academics argue that higher technical capabilities and improved standards and mechanisms would translate into better performance and outcomes from carbon credit projects. On the other hand, the localized approach stresses the need for

prioritizing the rights and livelihoods of local communities over the land they inhabit (Nel, 2014; Osborne, 2015; Sarmiento et al., 2023). In this sense, the rigor of quantifiable parameters stands second in line after the importance of effectively integrating indigenous and local peoples' rights and governance in the design of carbon credits. As this thesis emphasizes the importance of the latter, it contributes to situating carbon markets in their local contexts as a methodological priority.

Regarding the ontological debates, carbon credits may be unquestionably portrayed as part of the global sustainability transition, or subject to interrogations about the legitimacy of their existence. On the first case, research around carbon credits follows an ecomodernist trajectory of improving the efficacy and efficacy of green market initiatives that enable economic growth, without questioning the underlying implications of the mercantilization of nature and unintended consequences of the imperatives of economic growth (Balmford et al., 2023). On another hand, Fletcher et al. (2016) lay out a critique of market-based instruments for nature conservation and declare carbon markets as a 'failure'. By interrogating the broad economic implications of carbon markets, they argue that the attempt of internalizing the costs of environmental externalities from extractive industries is contradictory, since it depends on the profitability of the extractive industries and their capacity to invest in carbon credits – which stems from the revenue of the polluting activities they compensate for (Fletcher et al., 2016). In this sense, they argue that "the effort to reconcile the people, planet, and profit perspective central to market-based conservation is thus a contradiction in terms" and advocate for "moving away from market mechanisms toward a more fundamental redistribution of resource control in order to reign in extractive expansion and put land back under local control to manage as a commons" (Fletcher et al., 2016, p. 675). This thesis presents itself as a mixed contribution to this debate, acknowledging the financial needs for nature conservation in developing countries embedded in a global capitalist system, while advocating for more localized modes of governance.

Limitations of the thesis

Apart from the mentioned contributions this thesis provides, improvements could be made in its empirical and theoretical aspects. First, the interviewees sample was too biased to actors that were more accessible via virtual means, contrasting with more localized groups that had less representation such as indigenous organizations, local farmers, activists or local governments. An alternative would have been to carry out *in situ* interviews to reach these groups, however, greater funding and time is needed for undertaking this task. The unsuccessful stratified sampling across all actor groups has been partially addressed by triangulation with other data sources, meaning, the academic and grey literature review and attended events. Nevertheless, external validity could always be improved, as the content obtained from one actor does not necessarily translate to the interpretation of the actor group. For instance, the interpretation from the representative of one activist collective, such as Viernes Por El Futuro Perú, may not represent the interpretation of all activist collectives in Peru. Therefore, the generalizability of these findings would greatly benefit from further research with more exhaustive data collection.

Moreover, these results should not be directly generalized to larger or other regions, since Peru carries many contextual particularities that define the ways in which NBCCs are emerging. For example, Andreucci and Kallis' (2017) work is often quoted along this text, emphasizing the importance of

contextualizing this research in Peruvian (environmental) history. In turn, the theoretical framing of this thesis pursued a localized, critical lens that reduces the generalizability of the findings. However, similarities can be pointed out with other cases in the Latin American region. For example, Osborne's research on the development of Scolel Té was mentioned above as a carbon forestry project in Chiapas that resembles Acorn and Solidaridad projects in Peru. Similar to Acorn and Solidaridad's projects, Scolel Té entails developing carbon forestry and agroforestry systems with the participation of a locally based NGO, project implementers and carbon sellers, local producers, Plan Vivo as standard setter, and governmental institutions associated with forests and the environment. And, as was found for the Acorn and Solidaridad case, they showed that "In Scolel Té the centralization of authority occurred early in the project's history when decision-making was transferred from a local producer group of coffee growers to project administrators in state, national, and international arenas" (Osborne, 2015, p. 69). As such, it can be argued that Acorn and Solidaridad's agroforestry projects engage in a similar dynamic: shifting the power of decision over the land from the local actor to high(er)-level entities. More cases need to be critically studied and reported in order to make statements at the regional level, therefore, the generalizability of these findings depends on upcoming literature on NBCCs – in case they add to this seemingly common phenomenon.

Zooming back into the thesis' methodology, the interval validity could have been greater by including an analysis that looks beyond discourse. Discourse analysis was chosen as an appropriate tool for exploring potential differences in the influence of some actors via the use of ideas, perceptions and rhetoric. Coupled with the coding of documents and interviews, this proved to be a useful strategy to identify the discourses and actors that most influenced the construction of NBCCs. However, the findings in Chapter 5 showed that the actors with most agency over NBCCs procedures for design and implemented were related to securing their long-term benefits (phrased as 'shapers benefit from the shaping'). Therefore, this thesis could have focused more on other channels in which influence or power can be manifested, for example, redirecting attention from discourse towards access and use of participation spaces. This could have been achieved by using an Environmental Justice (EJ) analysis, since the distributive, procedural and recognition justice categories could classify the findings in a way that allows further analysis on the distribution of benefits and repercussions, agency over operationalizations, and influence of interpretations addressed in this thesis. EJ emphasizes that 'environmental problems' have a differentiated impact on groups of people, with greater negative repercussions on marginalized and vulnerable populations, who also do not hold "equal power to decide solutions to these problems, or to take the necessary action to solve them" (Holifield et al., 2018, p. 1). In this sense, EJ traditionally focuses on 'people', a framing that clashes with the PE lens used in this thesis, as the latter explicitly recognizes the existence of non-human beings (or nature) as an actor involved in NBCCs. However, in recognition of indigenous and post-colonial understandings and knowledges, EJ integrates non-humans as beings entitled to rights and agency in societal institutions (Holifield et al., 2018, pp. 119–120). This way, EJ could have provided a richer analysis (and greater internal validity), while using a PE lens, in presenting the distributive, procedural and recognition (in)justices associated with Peruvian NBCCs.

Considering the methodological limitations and reconsiderations presented in this thesis, further research is needed to explore the characteristics and effects of NBCCs in Peru. On one hand, a finer and greater representation of interpretations and identification of operationalizations is needed for Peruvian NBCCs, while studies at a regional or global scale are necessary to determine the large-scale effects of NBCCs that are not generalizable by the findings of this thesis. As mentioned above, EJ could provide a more suited

analytical framework to categorize the implications of NBCCs, as the fourth sub-research question aimed to address. Overall, PE proved to be an appropriate lens for critically assessing NBCCs in the Peruvian context, as it explicitly recognizes the historical marginalization and exploitation of vulnerable actors, while focused on the implications for human and non-human wellbeing. Therefore, it is recommended that future research continues pursuing a critical perspective for studying NBCCs.

Potential new directions

This thesis does not aim to predict the future of NBCCs in Peru. However, there *is a future* for NBCCs in Peru, as has been recognized by all actors considered in this thesis. Therefore, the paper boat will keep on traveling – whether we all agree on it or not. Although there seems to be no chance of stopping the boat, there may be some room for *steering* it. This chapter is an attempt to map the recommendations made for the future of NBCCs. The previous chapters conclude that Peruvian NBCCs do not bring benefits to all actors, or could even harm them. In turn, from a PE perspective, recommendations entail transversalizing benefits and minimizing repercussions across all human and non-human beings involved in NBCCs. For the paper boat to sail smoothly, it should be surrounded by the desirable conditions, steered adequately and directed towards a clear destination.

The river

Ideally, the paper boat travels along a tamed and mapped river, a condition that escapes the scope of the boat but defines its trajectory. There are two major issues that are not restricted to the NBCC context, but condition it: land tenure and governmental instability. On one hand, several actors coincided that there is a lack of clarity of land tenure in Peru (Interviews 007, 010, 012-013; Piu & Menton, 2014; Sabelli, 2011; Sunderlin et al., 2015). This may be considered as an obstacle for implementing NBCC projects (Sunderlin et al., 2015) or as a potential source of conflict by competing land-uses (Piu & Menton, 2014; Sabelli, 2011). Recently, the article from The Guardian reported on an example of the latter: an eviction of local residents from the NPA where an NBCC project is taking place (Patrick Greenfield, 2023a). The article stated that “even though many Alto Mayo residents have lived in the forest for decades, they have no formal right to be in the protected area”, and that the managing team declared that they were aware that many people moved there before it was declared as a protected area, which makes it very complex to solve (Patrick Greenfield, 2023a). The CIFOR interviewee made a comment on that article, highlighting that, although it is a terrible situation, one must take into account that the Peruvian State is continuously trying to deal with these issues better than many other countries. Although not related to the Guardian’s article, an interviewee from South Pole may agree, as they stated that “if you compare the subject of land tenure clarity with other countries from the region, it is much clearer in Peru: Peru has well-defined protected natural areas, native communities in titling processes, and efforts from the government and civil society to document and spatialize areas where communities are” (Interview 012). Nevertheless, they recognize that there are still gaps (Interview 012). Wiesse and Saravia (2012) reported at the time of their publication that approximately 20 million hectares of indigenous territory was unrecognized by the State, which entails a threat to indigenous peoples under a rising NBCC context. In the same line, an interviewee from DAR argued that guaranteeing the territorial security of indigenous peoples is a precondition for

NBCC projects, especially in the Peruvian context of high informality and overlapping territories (Interview 010). In Mexico, Osborne (2015) reported that carbon forestry projects have technical requirements that drive the land management to centralization, reducing local governance and agency over the space they inhabit. Considering that high-level governmental and non-governmental entities are leading the design and implementation of NBCCs in land adjacent or overlapped with local livelihoods or residence, the concern over contested land rights and uses is crucial.

Moreover, there is lack of clarity over what the land rights guarantee in the carbon markets. Peña and Sarmiento (2023) have mentioned that it is "generally understood that actors who hold legal title to forests can develop or participate in REDD+ programmes or initiatives and can be entitled to receive economic benefits for their role in maintaining or enhancing the forest ecosystem services that produce carbon emissions reductions". In other words, the landowner is the carbon owner. However, they also recognize that there is no legal clause that defines who is entitled to carbon ownership – it is the result of legal interpretations of an unfinished NBCC legal framework (Peña & Sarmiento, 2023), and carbon ownership itself is not defined (see Box 4 for a related quote).

Box 4. On doubts around carbon ownership.

Interviewee 007, from CIFOR: "The other issue that I think is super important and that doesn't get talked about much is carbon ownership. […], from the forestry law it can be understood that whoever owns or has control of a forest space has the right to receive benefits from what comes out of there, including the carbon, it is assumed. Therefore, a native community can say "sure, I have the right to receive income from whatever you are doing, including my forest", but there is a bigger problem. I believe because since carbon ownership is not defined (the right to whose carbon it is), the community has the right to receive money, but it does not have the right to participate in who you sell it to, how much you sell it for, what type of contract you do, etc. And that for me is also very problematic."

Therefore, the Peruvian government needs to clarify and coordinate land tenure and build a legal framework around carbon rights. However, this may be a difficult task as it depends on the capability of the government to plan for long-term changes – which it currently lacks.

Peru is known for its governmental instability: we have had 6 presidents in 6 years and 4 ministerial cabinets in 6 months (Olmo, 2022b, 2022a). As such, it is unsurprising that several actors find it difficult to coordinate with governmental entities to make long term commitments. For example, interviewees from the Acorn and Solidaridad NBCC projects acknowledged that coordinating with the Peruvian government is a costly, ever-changing hustle (Interviews 006 & 009). An interviewee from Acorn stated that their work requires long-term exercises, such as training the producers and delivering seedlings, and that fragile institutionality makes it harder: "what if you sign an agreement with another [ministerial] cabinet today and tomorrow? You literally have to start from scratch" (Interview 006). In addition, the Peruvian government, particularly MINAM in this context, is perceived as too slow at implementing policies and mechanisms (Interviews 002, 005-006). In turn, actors start signing and implementing NBCC projects without institutional certainty, as seen with the subnational REDD+ projects above and as

happens with Acorn and Solidaridad projects. An Acorn interviewee added on the decisions made when the government delays setting regulations, saying that "it [carrying out NBCC projects] is a situation that, as long as it is not restrictive, can always be reviewed. Because we also understand that if we are going to wait for governments to finish their regulations, finish their records and do something, we are not going to do anything in practical terms. So, not having a framework cannot stop efforts in the field. Also, because when you work with Nature-based Solutions, with small producers, you need a lot of time: to schedule seedlings, to deliver the seedlings, to do all the training exercises" (Interview 006). For other actors that promote and participate in NBCC projects, concerns broaden as they perceive the government not only as unstable, but absent (see Box 5 for a related quote). So, the absence of the Peruvian government in areas where NBCC projects are implemented adds to previous concerns on how "low levels of corruption control, governance, rule of law and transparency in Peru" are risking the benefits from NBCCs, while raising the potential for conflicts in that land (Piu & Menton, 2014).

Box 5. Concerns on governmental instability and absence.

Interviewee 013, from Paskay: "It [jurisdictional REDD+] presents us with a series of political challenges, because the governor changed and everything must be explained again to the new governor. And obviously it is much more difficult to work in an entire state, because if you take Madre de Dios, you have not only the national parks and the concessionaires, but you have the miners who are not interested in any of this and want to continue doing their activity, you have the Ataucusi's Israelis wanting to grow their corn fields... So, it [jurisdictional REDD+] is much more difficult, but it is what is really going to have a scale and long-term effect. That's what we've been pushing for. As I told you, this year the governors changed, so it's a restart."

Interviewee 012, from South Pole: "But what worries me above all are two things: especially in REDD projects, it is the lack of presence of the State in many areas throughout the Amazon. It enables illegal industries, such as illegal logging, drug trafficking and shifting agriculture. […] There is a lot of risk that they [REDD projects] are very expensive, because imagine dealing with a driver such as drug trafficking, illegal mining, illegal logging. It is very difficult, so that creates risk. And as the risk increases, the chances of a company starting to develop a project are lower and are very expensive. […] Then you have to think about a project where there is no government, it is a project that has to mitigate many drivers, things that the government should do."

Additionally, the current state of the Peruvian government also implies risks outside the NBCC projects' area. As an interviewee from Viernes Por El Futuro Perú stated, the disproportional governmental repression of protestors in the last years affects citizens mental health and right to protest (Interview 002). Furthermore, the desire to protest is weakened by resignation (that no changes will be accomplished) or fear (of extreme repression) (see Box 6 for related quote).

Box 6. Concerns on governmental repression.

Interviewee 002, from Viernes Por El Futuro Perú: "What if, for example, the protest is criminalized, is like "ok, we organize, we protest, we address these issues", and maybe we get tagged as terrorists or we get a notification that we are being investigated and such. Just by the idea of criticizing the government, just a subject like that. And that has also made collective organizations to keep a low profile or disaggregate. Until each member's individual situation gets better I guess, that at one point were very active, but now they feel burnt out. Like a situation that they can no longer handle, they need time, a break. Because there is a lot, within all the crisis there are. Not only the climate crisis, but there are several crises: the civil, political crisis."

Despite the grim description of current governmental institutions, the National Registry of Mitigation Actions (RENAMI), as explained previously, is set out to institutionalize the standards, registration and mechanisms associated with carbon credits in Peru in the near future. In detail, RENAMI has the aim to (i) guarantee the environmental integrity of carbon removal units, (ii) provide juridic security to state and non-state actors that implement mitigation strategies in Peru, and (iii) grant access to information about NDC and carbon markets to civil society in a transparent manner (Ministerio del Ambiente, 2022, p. 1). As for its scope, this registry is applicable to all state and non-state that participate in any phase of the mitigation strategy and their associated carbon credits (Ministerio del Ambiente, 2022, p. 1). This way, the registry would influence both operationalizations identified, as it applies to all participating in NBCCs.

Figure 11 attempts to show how NBCCs currently navigate Peruvian regulation and the potential pathways they could take once RENAMI is functional. At the start of both pathways lies the demand for NBCCs: originated from any interested party (mostly international businesses) and sectors listed in INFOCARBONO that ought to reduce their GHG emissions. For the latter, entities from the polluting sector can participate in NBCC projects as they manage to reduce their emissions by changing their practices, or buy NBCCs to compensate for their high emissions.

As NBCCs currently unfold, the demand for these credits is supplied in the VCM. The alternative under RENAMI would not impede the VCM from filling this role, but would theoretically provide a list of registered NBCCs in a more orderly, regulated and transparent manner (Interview 007; Ministerio del Ambiente, 2022). Most interviewees considered that improving the transparency for NBCCs is an urgent and necessary addition to Peruvian carbon markets (Interviews 001-002, 004-007, 010). With this, actors that manage the projects presented in the operationalizations above have expressed their willingness to coordinate and integrate to RENAMI (statements from Profonanpe's event; Interview 006). Additionally, it would provide governmental credibility to the NBCCs recognized and approved under RENAMI, in turn, reducing the credibility (and demand) of the NBCCs that choose not to comply with these governmental standards (Interview 007; Peña & Sarmiento, 2022). Furthermore, RENAMI would enable institutional coordination with other environmental platforms, such as the Registry for Retribution Mechanisms of Ecosystem Services (Ministerio del Ambiente, 2016, p. 83).

Towards the end of both pathways shown in Figure 11, NBCCs reach their clients: either contributing to Peruvian or foreign NDCs, or adding to a business' environmental commitments. Regarding the latter, the NBCC could be used in the business' registration in MINAM's Huella de Carbono platform, where businesses are formally recognized for their emission reduction efforts. In these last stages, RENAMI is expected to guarantee the avoidance of 'double counting', meaning, to make sure that an NBCC is not used for more than one environmental target. For example, an NPA could build an NBCC from their reduced deforestation and, if not managed or traced properly, could be sold to an international client and included in Peru's NDC. This would entail that the carbon reduced by the NBCC is being accounted for twice, which would not represent a real compensation.

Further detail on how governmental and non-governmental actors may use RENAMI for registering and trading NBCCs are shown as diagrams from Annexes 2 to 4, using MINAM's Provisions for the National Registry of Mitigation Measures as reference (Ministerio del Ambiente, 2022). However, the implementation and the new version of the regulation text of RENAMI is still pending, while actors eagerly wait for its implementation.

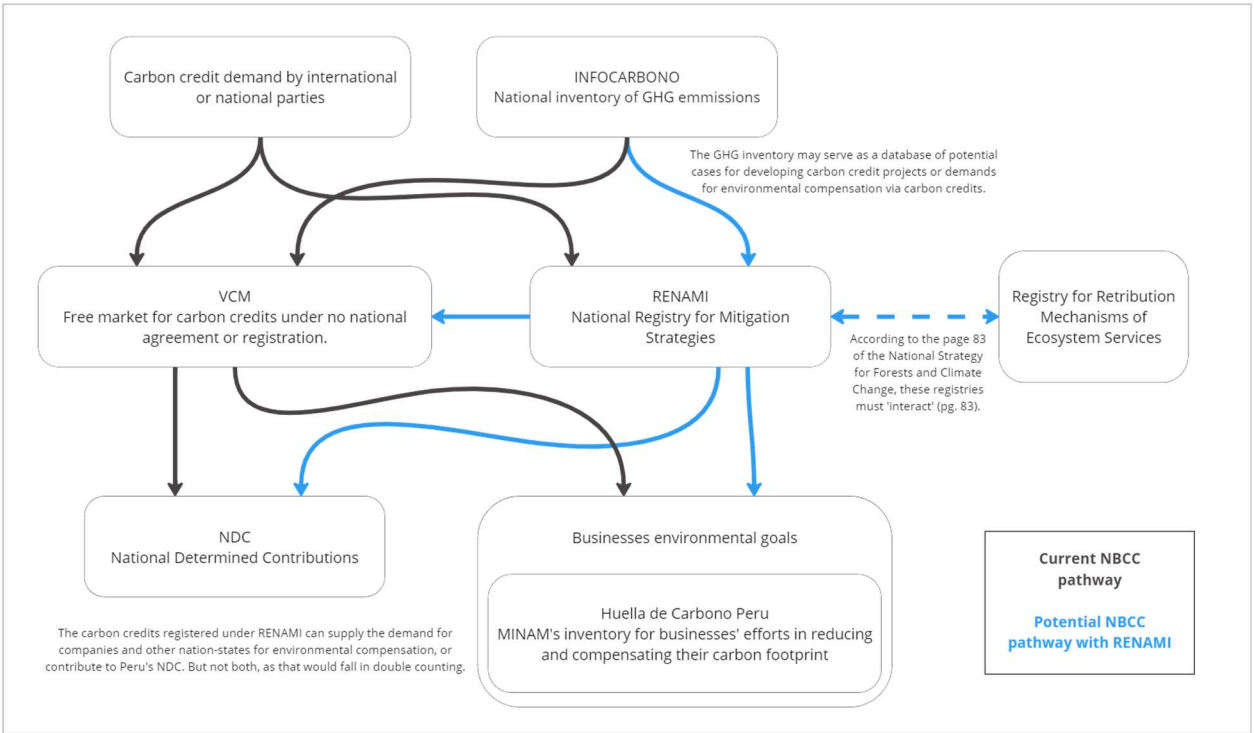

Figure 11. Pathways by which NBCCs currently travel (grey arrows) and could potentially travel once RENAMI is functional (blue arrows).

Although RENAMI's final version is yet to be published and implemented, it is already acknowledged as the main institutional mechanism for registration, regulation and monitoring of NBCCs in Peru's near future (statements from Profonanpe and CIFOR's events; Interviews 001, 006-007, 010, 012-013). As stated in the Provisions for the National Registry of Mitigation Measures, MINAM will lead RENAMI via the DGCCD (Ministerio del Ambiente, 2022). MINAM, and especially the DGCCD, has an explicit focus on

climate change adaptation and mitigation (Ministerio del Ambiente, 2015, 2016). Nevertheless, RENAMI has been exposed to a public consultation process, in which they published a draft and welcomed comments from readers (Peña & Sarmiento, 2022). Interviewees from CIFOR, Paskay, South Pole and DAR mentioned that they have made recommendations for RENAMI during the consultation process (statements from CIFOR's event; Interviews 007, 010, 012-013). Particularly, CIFOR and DAR have been focused on advocating for a legal framework on carbon rights, and indigenous rights in REDD+ Safeguards (Interviews 007 & 010). The outcome of the actors' contributions in the implementation of RENAMI is still to be seen. Hopefully, RENAMI will be a step towards the multi-actor co-production processes sought for NBCCs.

Beyond the delay on implementing RENAMI and lack of governmental reach in remote areas, concerns over the government's capacity to manage NBCC projects have been frequently raised. For example, as addressed briefly above, Acorn had several difficulties in their coordination with the Peruvian government. Mainly, related to the fact they needed to bring in MIDAGRI in order to understand how to explain to MINAM that although their project was focused on NBCCs, it consisted of agroforestry, not reforestation (as MINAM thought) (Interview 006). Additionally, in the context of rising interest in jurisdictional REDD+ projects, a CIFOR interviewee stated that GOREs barely have the technical capabilities to address their tasks, so "adding one more thing to it is impossible" (Interview 007).

Therefore, it is desirable that national and subnational governments increase their stability and technical capabilities to plan, coordinate and implement NBCCs. In line with this, AIDESEP's concerns persist as they recommend, inter alia, the surveillance over applying land titling and forest management, and stopping the land invasion and illicit crops (AIDESEP, 2023a). As the DAR interviewee foresees, it is hoped that enhancing land tenure and planning will feed into judicial clarity over the competences of the actors related to NBCCs (Interview 010). The DAR interviewee adds that if this condition is not met, informal or illegal carbon credit trading could take place (Interview 010). Furthermore, clarification over carbon rights and ownership needs to be explicitly addressed in coordination with land tenure rights and planning. The future of NBCCs needs a tamed river, to set a clear and stable track for the paper boat to travel. However, since Peru is historically unpredictable, emphasis must be placed on the following section: the steering, be it in calm or agitated waters.

The steering

First, recommendations for the standards and methodologies that ought to be used in NBCCs varied among actors. For example, West et al. (2023) promotes the use of control sites for building NBCC baselines, rather than modelling fictitious scenarios, and Gibbon et al. (2010) argued that, to make NBCCs profitable, they need to take into account more than just trees in the carbon sequestration calculation, such as aboveground and roots. Beyond academia, the CAF and Profonanpe promote the use of ICVCM's standards from their perspective as financial entities (statements from CAF's event; Interview 008; Profonanpe, 2023b). The ICVCM (Integrity Council for the Voluntary Carbon Market) is an entity that publishes documents and standards to serve as an additional validation for implementors that wish to develop 'high-integrity' NBCCs (Interview 008; Profonanpe, 2023b). In a more domestic scale, West et al. (2023) have recommended attributing the task of building baselines to the government, mentioning that "transferring the responsibility of baseline construction from project developers to jurisdictions could also reduce the room for 'baseline gaming'". That is, under the assumption that the government would not

attempt to artificially inflate the expected carbon sequestration attributed to the NBCCs. Even to a smaller scale, interviewees from Viernes Por El Futuro and CIFOR mentioned that management of NBCCs should be explicitly and specifically integrated to its local context, to avoid the project having colonial characteristics and to promote its appropriateness to the site (Interviews 002 & 007).

Then, the question of ONAMIAP's representative at the CIFOR event can be addressed here as a first step: how is the agency of local and indigenous evidenced from the very start of conceptualizing an NBCC project? Since many actors claimed that a multi-actor co-production NBCC is an ideal one. Under PE, Escobar (2006) acknowledges that globalization has led to forms of homogenization under hegemonic European and US cultural forms and practices. In this sense, the globalized neoliberal context prevents several individuals from exerting their demanded agency and self-determination (Escobar, 2006). In the realm of carbon markets, the integration of all actors, and particularly historically marginalized and alienated groups such as local and indigenous peoples, becomes a necessary practice from the conceptualization of the NBCC (and beyond).

Again, the conclusion is that all actors must have the access and capacity to influence the operationalizations of NBCCs: everyone can be a shaper for the paper boats and transveralize its benefits. In a practical manner, how can this be pictured? Who ought to fulfill which roles and in which spaces? As Pettenella and Brotto (2012) stated when referring to successful REDD+ projects in Peru: "A network of actors with carefully defined roles and established trustworthiness looks to be essential for the delivery of a project where the design phase can last years". The CAF interviewee mentioned the importance of improving domestic institutional stability and capacities while strengthening national, regional and international systems for NBCC information sharing (Interview 008). Focusing on a regional scale, Peña et al. (2021) suggested that the Andean Community (CAN) could establish a regional carbon market that could strengthen the region's cooperation and coordination, standards' integration, and later connect to bigger markets (EU ETS) and agreements (UNFCCC).

Domestically, interviewees from CIFOR, DAR, UNAS and Acorn recognize that the government, via MINAM, has the roles of leading public policies for NBCCs, strengthening and regulating subnational entities (GOREs) to (not) participate in NBCC projects and guaranteeing REDD+ Safeguards (Interviews 006-007, 010-011). On one hand, the authority attributed to MINAM over NBCCs is legally justified as a it is declared as the national authority for the UNFCCC (Interview 007). Apart from the legal aspect, actors also perceive MINAM as the entity to look for in the goal of improving the governance of NBCCs (Interview 002, 004 & 010). For example, an interviewee from DAR stated that they "want the State's role to be strengthened, which in this case is the Ministry of Environment, [to drive] the compliance of integrity standards and respecting the Safeguards of carbon bonds [credits] under REDD projects" (Interview 010). As MINAM is assuming the role of strengthening the capabilities of subnational governments and supervising the compliance of REDD+ Safeguards under the approval of several actors, it becomes necessary to determine how MINAM is going to enable platforms and spaces for effective multi-stakeholder co-creation.

RENAMI is often considered as a step forward towards increasing robustness, organization and cooperation for Peruvian NBCCs. However, for RENAMI to function, MINAM needs to have sufficient resources to operate it, coordinate all actors for information sharing, integrate indigenous peoples in a culturally-sensitive manner, and make sure that the involved actors understand RENAMI's objectives and functions (Peña & Sarmiento, 2022). Left unaddressed, these tasks add to the capabilities and activities

already necessary to carry out NBCC projects, which are very expensive and technical (Interviews 007 & 012). In turn, MINAM is expected to lead them and to contribute to improving the capabilities of potential participants in NBCC projects, particularly the subnational governments (GOREs) (Interview 007). This is not only important because GOREs can directly participate in jurisdictional REDD+ programmes (and are increasingly interested in doing so), but because they are seen as the entities responsible for strengthening capacities of local people in their jurisdictional area (Interviews 007, 010-011). In this sense, subnational governments are seen as entities that should receive more information about NBCCs and then promote carbon alphabetization in their region (Interviews 010-011). Consequently, in the governmental scope, assisted decentralization could promote better informed, localized and multi-actor design and implementation of NBCCs.

Apart from RENAMI, the current political context for Peruvian NBCCs is not looking bright. Congress has modified the Forestry Law in favor of unsustainable agriculture and deregulating land (use) planning. The Peruvian Society for Environmental Law (SPDA) has reported that this jeopardizes the safety of nature and indigenous populations in Peruvian forests. Even if this amendment is removed, it still showcases the political tendency of the current Congress – and the tide to which the metaphorical boat has to sail against. This only highlights the need to uphold the rights of the most vulnerable actors involved in NBCCs.

In the international context, Lily Rodriguez (leader from CIMA) has recently stated in a podcast that she feels sorrow at the harsh critiques from the public and analysts of carbon credits, especially from foreign groups or individuals (Developing Carbon Stories, n.d.). She highlighted that these critiques often overlook the hard work behind projects focused on forest protection and wellbeing of neighboring (indigenous) populations. Moreover, she argues that the critiques on NBCC reduce their value and investment, ergo, reducing the funding for sustainability projects in poor regions. However, the aim of these is not necessarily to cross out NBCCs as a mechanism in Peru, rather, to assess their current state and propose new approaches.

From an indigenous peoples perspective, AIDESEP has expressed that they are continuing to pursue indigenous territorial security and Amazonian Indigenous REDD+ (RIA) implementation in the context of carbon markets (AIDESEP, 2023a). Furthermore, they have also stated that the Platform of Indigenous Communities to combat Climate Change (PPICC, coordinated by MINAM) is key for their participation and strengthening their indigenous rights (AIDESEP, 2023a). Therefore, the relevance of the PPICC as a platform for participation in carbon markets considered as a necessary contribution to building fairer NBCC governance in Peru (Interviews 002 & 010), on top what is also being expected of RENAMI.

An interviewee from Paskay coincided on the importance of having access to spaces for multi-actor dialogue, highlighting that the one offered by the CIFOR's REDD+ Global Comparative Study was a good example (Interview 013). Since CIFOR's dialogue sessions focused on finding synergies between scientific evidence and public policy, it aligns with two interviewed academics' comments on that science (although not scientists) should shape NBCCs and is essential in the governance of NBCCs (see Box 7 for related quote) (Interviews 004 & 007). However, this could prioritize and institutionalize certain types of knowledges at the expense of others. In detail, this traces back to ONAMIAP representative's comment that indigenous knowledge and self-determination rights should have been more highlighted in the last session's agenda.

Box 7. The participation of science over scientists.

Interviewee 004, from VU: "It's not a matter of scientists, or what I think is good. What I think is almost irrelevant. It's only relevant when it's backed up by evidence, by science, by logic, by theories, etcetera. I think that's what governments and the UN and whoever is involved in this [carbon] market should be listening to."

The limited integration of local and indigenous demands, practices and knowledge in shaping NBCCs is a key issue to address in the immediate future. Even as NBCC's benefits are directed to local communities and indigenous peoples, as Acorn and Solidaridad's projects have prioritize the smallholder farmers as the main financial beneficiaries, it is unclear how much agency (if any) the smallholders have in making decisions over the projects. Since that benefit is restricted to the outcome of the NBCCs, this could have long-term implications in the benefits from the NBCCs in terms of design (do they conflict with local and indigenous cosmovisions, knowledges and practices?) and implementation (do they respect the land rights and potential self-determination demands?). Considering the previously stated consensus on multi-actor co-production approaches to developing NBCC projects, it would be congruent to address the future decisions over benefit distribution as such.

Regarding biodiversity, Ebeling and Yasué (2008) has proposed that finance could be steered for non-carbon benefits, such as biodiversity, by supporting specific programs related to "probiodiversity or pro-poor RED activities". This could be interpreted as an attempt to address the factors excluded in the isolation of the carbon, as portrayed by Sabelli as *carbon nullius*, but does not include biodiversity as a key factor in all NBCC projects. However, Escobar could argue that NBCCs are fundamentally not reconcilable with PE, since nature cannot be reduced to a purely economic value (Escobar, 2006). In the CIFOR event, an ONAMIAP member shared that their perception of nature as non-commodifiable beings collided with their framing under NBCC projects, coinciding with the PE perspective stated by Escobar. Nevertheless, the ONAMIAP member also expressed interest in participating in said projects as long as they contributed to their fight for self-determination, particularly in their 'Planes de Vida' (translated to Life Plans, these documents articulate indigenous and technical arrangements for the governance of their territories). In this sense, the argument made at the start of this thesis could still stand: that in a context of historical and current dispossession of territories and rights for marginalized populations, NBCCs could result as a tool for reappropriation of nature and land for actors that prioritize a non-exploitative coexistence of human and non-human beings.

Overall, there is a consensus on the need for creating spaces for dialogue and collaboration for NBCC governance in Peru, which in this case would be led by MINAM and strengthen localized institutions and actors. From a PE perspective, Escobar (2006, p. 11) has highlighted how "it is important to create spaces for the continued activation of non-dominant cultural forms, such as less individualistic forms of economy and ecology" in the context of environmental governmental governance. In Peru, this is particularly urgent considering the history of alienating indigenous peoples and their portraying as undemocratic and irrational agents, because of their resistance to neoliberal policies for the extraction of natural resources in their territories (Andreucci & Kallis, 2017).

Currently, the concern that NBCCs could repeat the same conflicts as with oil extraction in the Amazon is present in some actors (Interview 007; Wiesse & Saravia, 2012), and the conditions for universally beneficial NBCCs are not set. More than 30 indigenous leaders have been assassinated for protecting their territories against illegal activities in the Amazon (Chumpitaz, 2023), lack of clarity over land tenure and carbon rights in REDD+ programs in the Global South persist (Sarmiento, Vigil, et al., 2023), and the quantity of NBCC projects in Peru keeps increasing. In this sense, effective processes for collective governance of NBCCs – with key participation of local and indigenous communities – needs to be central in steering the future of these credits in Peru.

The destination

This thesis does not aim to impose a fixed vision of what Peruvian NBCCs ought to achieve but explores what type of world does it contribute to building. Tracing back to the origins of carbon credits, they were created for reaching a world that preserves its biodiversity and climate. However, as seen in interpretations found in this thesis, the envisioning of this future world transcends the biophysical description, but also pictures societal wellbeing. Broadly, it can be argued that the ideal destination for Peruvian NBCCs is tackling the biodiversity and climate change crises while upholding human and non-human wellbeing.

By recognizing that destination, it must be acknowledged that NBCCs are just a stop gap, transitionary measure. Meaning, mechanisms for offsetting carbon emissions are not desired nor needed in a world where there is no climate crisis. On the contrary, if NBCCs persist infinitely, it implies that polluting economies have not transitioned to sustainable practices – which would entail that the environmental crises withstand. The latter scenario aligns with García Jimenez (2022)'s argument that, from a PE perspective, climate change agreements (in the same manner as NBCCs) propose mechanisms to intervene society and landscapes to contribute to a market that promises to mitigate environmental degradation while exploiting resources. Furthermore, she argues that poor regions such as Latin America are sites that continue to be exploited by businesses and richer countries under the premise of a benevolent economic growth, while resistance from cooperatives or indigenous communities advocate for collective rights that are not framed by a neoliberal, capitalist regime (García Jiménez, 2022).

As well as acknowledging that NBCCs are a temporary mechanism for contributing to a desired sustainable world, it also needs to consider that it requires other mechanisms for transition. For the case of REDD+ activities, their additionality claims entail that there is a threat for deforestation or degradation of forests that needs to be stopped by the projects. As a friend of mine put it: "it's a practice based on the existence of vulnerability: a flower threatened to being crushed by a hammer hanging above". Therefore, the NBCCs are a protectionary measure that should be coupled with other strategies that 'remove the hammer'. The threats of deforestation, nature exploitation, illegal economies and many others must be addressed while measures for dealing with the current effects are in place.

Furthermore, continuous dialogue and research is needed to learn from past practices and collectively imagine the envisioned futures that NBCCs aim to contribute to. Especially considering that this is an expanding market with new frameworks, such as the upcoming implementation of RENAMI. As mentioned in the justification of this thesis, NBCCs have too much risk and interest to be left out of updated, critical research – a just and sustainable world depend on it.

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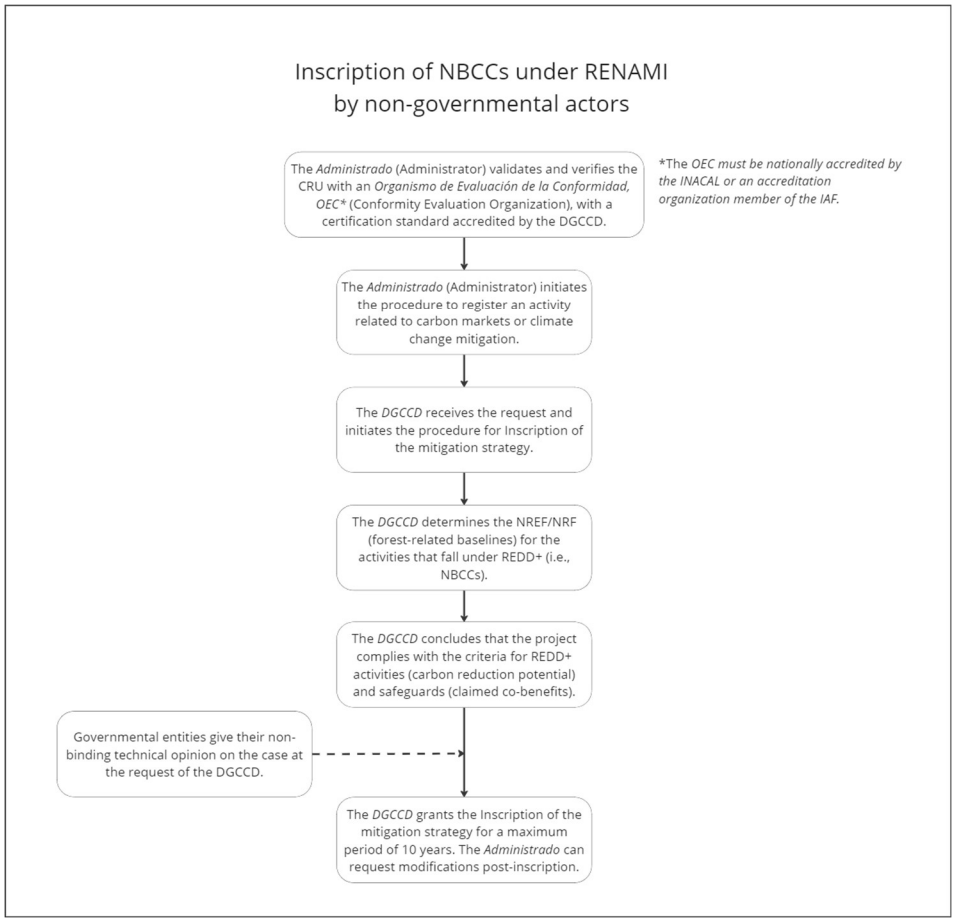
Annexes

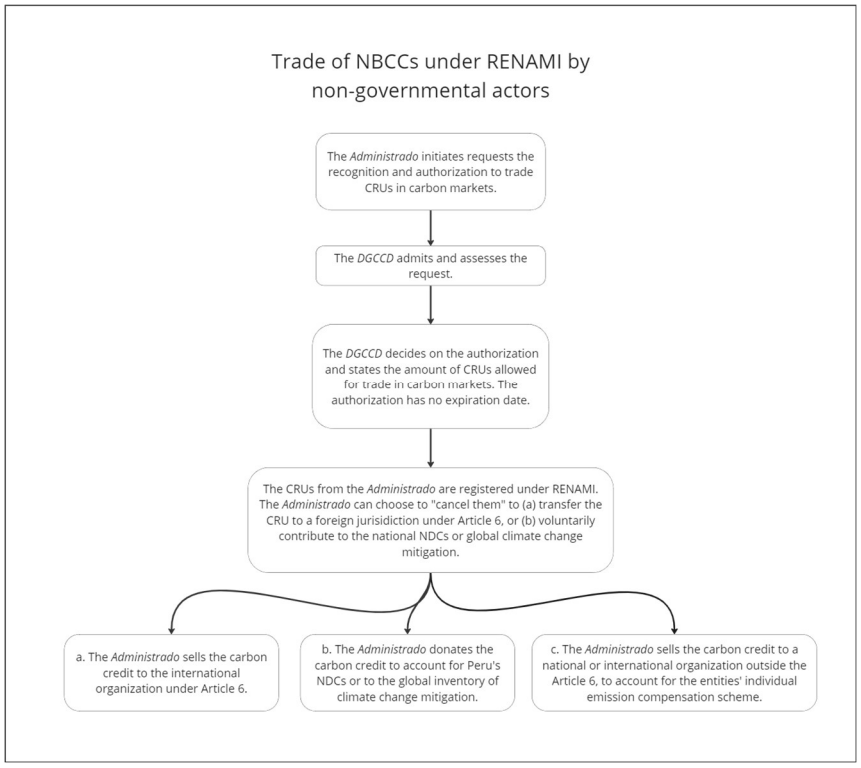
A1. Details on academic search

	Query string		Search results (27-oct-2023)	
	WoS	Scopus	WoS	Scopus
Spanish	("Perú" OR peruan* OR "Amazonía" OR amazónic* OR "Andes") AND ("créditos de carbono" OR "bonos de carbono" OR "compra de carbono" OR "venta de carbono" OR "mercado de carbono")	TITLE-ABS-KEY-AUTH(("Perú" OR peruan* OR "Amazonía" OR amazónic* OR "Andes") AND ("créditos de carbono" OR "bonos de carbono" OR "compra de carbono" OR "venta de carbono" OR "mercado de carbono"))	0	11
English	("Peru" OR "Peruvian" OR "Amazon" OR "Amazonian" OR "Andes") AND ("carbon credits" OR "carbon bonds" OR "carbon trade" OR "carbon market")	TITLE-ABS-KEY-AUTH(("Peru" OR "Peruvian" OR "Amazon" OR "Amazonian" OR "Andes") AND ("carbon credits" OR "carbon bonds" OR "carbon trade" OR "carbon market"))	53	61

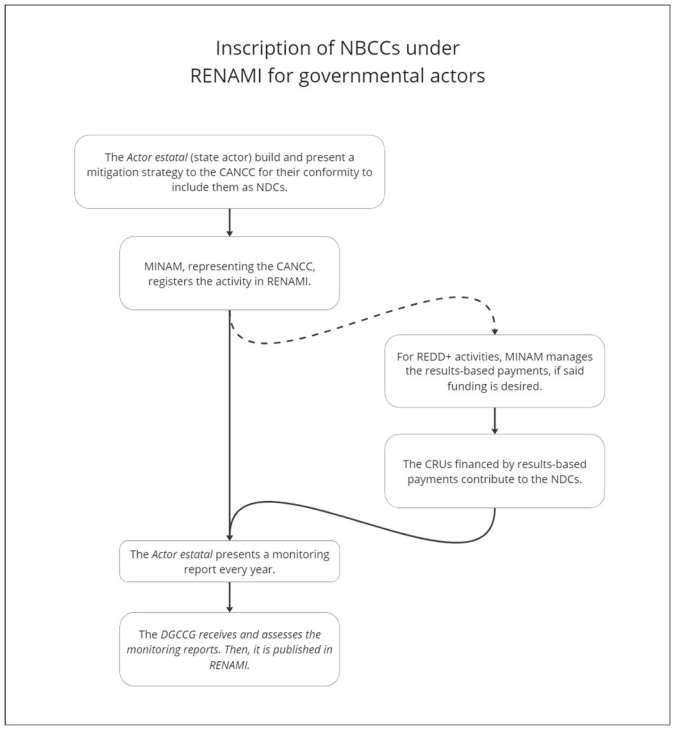
A2. Diagram of the inscription of NBCCs under RENAMI by non-governmental actors



A3. Trade of NBCCs under RENAMI by non-governmental actors



A4. Inscription of NBCCs under RENAMI for governmental actors



RESEARCH INFORMATION SHEET

Project Title: ***Nature-based carbon credits in Peru: a critical overview of interpretations and operationalization***

Researcher: ***Caterina Ossio Tord***

This consent form describes the research study to help you decide if you want to participate. This form provides important information about what you will be asked to do during the study, about the risks and benefits of the study, and about your rights as a research subject.

If you have any questions about or do not understand something in this form, you should ask Caterina Ossio Tord (caterina.ossiotord@wur.nl) for more information.

What is the purpose of this study?

This is a research study. I invite you to participate in this research study because you have relevant knowledge.

The purpose of this research study is to contribute to the current understanding on the interpretations, operationalization, and potential implications of nature-based carbon credits in Peru via a critical political lens, which will provide useful information for the potential future of this market.

What will happen during this study?

You have been invited to take part in an interview of a maximum of 60 minutes (1 hour), either online or in person, in which you will be asked to answer questions mainly related to the creation and use of carbon credits. You will also be asked if the session can be recorded for transcriptions. You are free to skip any questions, to reject being recorded and to leave the interview at any moment.

In case you accept to have the meeting recorded for transcriptions, they will be kept anonymously. Only the MSc student, Caterina Ossio Tord, and the supervisor, Prof. Aarti Gupta, will have access to the database with the names of the interviewees for this research. Your name will not be included in the reports nor presentations.

What are the risks of this study?

Considering that your participation in this research comprises one interview, there is little risk to you. However, there may be risks that have not been anticipated by the researcher. If so, please communicate to the researcher any potential discomfort or risks that you, as a potential participant, may find relevant.

What are the benefits of this study?

By participating in this interview, you may help get a more comprehensive understanding of how carbon credits are interpreted and operationalized in Peru and, hopefully, enhance the current state of information for better decision-making.

What about confidentiality?

We will keep your participation in this research study confidential to the extent permitted by law. The research data will be stored in accordance with the rules for research data management at Wageningen University for a period of 10 years and will only be accessible for purposes of inspection of research integrity.

Is being in this study voluntary?

Taking part in this research study is completely voluntary. You may choose not to take part at all. If you decide to be in this study, you may stop participating at any time. If you decide not to be in this study, or if you stop participating at any time, you won't be penalized or lose any benefits for which you otherwise qualify.

What am I signing?

This Prior Informed Consent Document is not a contract. It is a written explanation of what will happen during the study if you decide to participate. You are not waiving any legal rights by signing this Prior Informed Consent Document. Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

PRIOR INFORMED CONSENT

Researcher copy

Please tick boxes

1. I confirm that I have read and understand the information sheet dated 26-09-2023 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐

3. I understand that any information given by me may be used in the MSc thesis of Caterina Ossio Tord. ☐

4. I give you permission to make audio recordings of me during this study. ☐

5. I understand that my name will not appear in any reports, articles or presentations. ☐

6. I agree to take part in the above study. ☐

Name of Participant	Date	Signature

Researcher	Date	Signature

When completed, please return in the envelope provided (if applicable). One copy will be given to the participant and the original to be kept in a secure file of the Environmental Policy Group, Wageningen University.

If you have further questions, please contact Caterina Ossio Tord (caterina.ossiotord@wur.nl)

PRIOR INFORMED CONSENT

Informant copy

Please tick boxes

1. I confirm that I have read and understand the information sheet dated 26-09-2023 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐
3. I understand that any information given by me may be used in the MSc thesis of Caterina Ossio Tord. ☐
4. I give you permission to make audio recordings of me during this study. ☐
5. I understand that my name will not appear in any reports, articles or presentations. ☐
6. I agree to take part in the above study. ☐

Name of Participant	Date	Signature

Researcher	Date	Signature

When completed, please return in the envelope provided (if applicable). One copy will be given to the participant and the original to be kept in a secure file of the Environmental Policy Group, Wageningen University.

If you have further questions, please contact Caterina Ossio Tord (caterina.ossiotord@wur.nl)

HOJA DE INFORMACIÓN DE INVESTIGACIÓN

Título del proyecto: ***Créditos de carbono basados en la naturaleza en Perú: una visión crítica de las interpretaciones y la operacionalización***

Investigadora: ***Caterina Ossio Tord***

Este formulario de consentimiento describe el estudio de investigación con el fin de informarlo(a) en caso desee participar. Este formulario proporciona información importante sobre lo que se le pedirá durante el estudio, sobre los riesgos y beneficios del estudio y sobre sus derechos como sujeto de investigación.

Si tiene alguna pregunta o no comprende algo en este formulario, puede preguntarle a Caterina Ossio Tord (caterina.ossiotord@wur.nl) para obtener más información.

¿Cuál es el propósito de este estudio?

Este es un estudio de investigación, al cual se le invita a participar porque usted tiene conocimientos relevantes pertinentes.

El propósito de este estudio de investigación es contribuir al conocimiento actual sobre las interpretaciones, operacionalización y posibles implicaciones de los créditos de carbono basados en la naturaleza en el Perú a través de una lente política crítica, que proporcionará información útil para el potencial futuro de este mercado.

¿Qué pasará durante este estudio?

Le han invitado a participar en una entrevista de un máximo de 60 minutos (1 hora), ya sea online o presencial, en la que se te pedirá que responda preguntas principalmente relacionadas con la creación y uso de créditos de carbono. En detalle, se le harán preguntas relacionadas a características generales de la organización a la cual pertenece, legislación relevante para proyectos de crédito de carbono, procesos de creación e implementación de créditos de carbono, coordinación y colaboración con otros actores y la relación con la naturaleza. También se le preguntará si la sesión se puede grabar para transcripciones. Usted es libre de saltar cualquier pregunta, rechazar ser grabado y abandonar la entrevista en cualquier momento.

En caso de que acepte que se grabe la reunión para las transcripciones, estas se mantendrán de forma anónima. Sólo la estudiante de maestría, Caterina Ossio Tord, y la supervisora, Prof. Aarti Gupta, tendrán acceso a la base de datos con los nombres de los entrevistados para esta investigación. Su nombre no será incluido en los informes ni presentaciones.

¿Cuáles son los riesgos de este estudio?

Teniendo en cuenta que su participación en esta investigación comprende una entrevista, el riesgo para usted es mínimo. Sin embargo, puede haber riesgos que el investigador no haya previsto. Si es así, comunique al investigador cualquier posible malestar o riesgo que usted, como posible participante, pueda considerar relevante.

¿Cuáles son los beneficios de este estudio?

Al participar en esta entrevista, puede ayudar a obtener una comprensión más completa de cómo se interpretan y operacionalizan los créditos de carbono en Perú y potencialmente mejorar el estado actual de la información para una mejor toma de decisiones.

¿Qué pasa con la confidencialidad?

Mantendremos su participación en este estudio de investigación confidencial en la medida permitida por la ley. Los datos de la investigación se almacenarán de acuerdo con las normas para la gestión de datos de investigación de la Universidad de Wageningen durante un período de 10 años y solo serán accesibles para fines de inspección de la integridad de la investigación.

¿Estar en este estudio es voluntario?

La participación en este estudio de investigación es completamente voluntaria. Puede optar por no participar en absoluto. Si decide participar en este estudio, puede dejar de participar en cualquier momento. Si decide no participar en este estudio, o si deja de participar en cualquier momento, no será penalizado ni perderá ningún beneficio para el que de otro modo calificaría.

¿Qué estoy firmando?

Este Formulario de Consentimiento Informado Previo no es un contrato. Es una explicación escrita de lo que sucederá durante el estudio si decide participar. No renuncia a ningún derecho legal al firmar este Formulario de consentimiento informado previo. Su firma indica que se le ha explicado este estudio de investigación, que se han respondido sus preguntas y que usted acepta participar en este estudio. Recibirá una copia de este formulario.

FORMULARIO DE CONSENTIMIENTO INFORMADO PREVIO

Copia del investigador

Por favor llenar las casillas

5. Confirmo a ver leído y comprendido la información en este documento informativo con fecha 18-10-2023 para el estudio mencionado. He tenido la oportunidad de considerar la información brindada y resolver cualquier duda pendiente satisfactoriamente. ☐

6. Comprendo que mi participación es voluntaria y que soy libre de retirarme en cualquier momento, sin tener que dar una justificación. ☐

7. Comprendo que cualquier información que provee puede ser utilizada para la tesis de maestría de Caterina Ossio Tord. ☐

8. Concedo permiso para que se grabe la entrevista en la que participo para el estudio. ☐

5. Comprendo que mi nombre no aparecerá en los reportes, artículos ni presentaciones. ☐

6. Confirmo mi participación en el estudio mencionado. ☐

Nombre del Participante	Fecha	Firma

Nombre del Investigador	Fecha	Firma

Una vez completado, por favor entregar en el empaque original (si aplicable). Una copia será entregada al participante y la original será almacenada en un sitio seguro del Environmental Policy Group, Wageningen University.

Si tiene preguntas adicionales, por favor contacte a Caterina Ossio Tord (caterina.ossiotord@wur.nl).

FORMULARIO DE CONSENTIMIENTO INFORMADO PREVIO

Copia del investigador

Por favor llenar las casillas

9. Confirmo a ver leído y comprendido la información en este documento informativo con fecha 18-10-2023 para el estudio mencionado. He tenido la oportunidad de considerar la información brindada y resolver cualquier duda pendiente satisfactoriamente. ☐

10. Comprendo que mi participación es voluntaria y que soy libre de retirarme en cualquier momento, sin tener que dar una justificación. ☐

11. Comprendo que cualquier información que provee puede ser utilizada para la tesis de maestría de Caterina Ossio Tord. ☐

12. Concedo permiso para que se grabe la entrevista en la que participo para el estudio. ☐

5. Comprendo que mi nombre no aparecerá en los reportes, artículos ni presentaciones. ☐

6. Confirmo mi participación en el estudio mencionado. ☐

Nombre del Participante	Fecha	Firma

Nombre del Investigador	Fecha	Firma

Una vez completado, por favor entregar en el empaque original (si aplicable). Una copia será entregada al participante y la original será almacenada en un sitio seguro del Environmental Policy Group, Wageningen University.

Si tiene preguntas adicionales, por favor contacte a Caterina Ossio Tord (caterina.ossiotord@wur.nl).

Interview [code]

Introduction: Thank you very much for agreeing to participate in this interview. I really value you sharing your experience and knowledge for this research. As mentioned in the consent form, you are free to quit at any moment, and you are not obliged to answer any question you do not wish to address. Once again, thank you for your time and I will start with the questions and recording to be as brief as possible.

Date:

Place:

1. Organization

Could you please introduce yourself? What is your background and where you are now? Now, I would appreciate knowing a bit more about the organization you represent/belong to. For example:

a. Name of the organization:
b. Role in the organization:
c. Years in the organization:
d. Relation of the organization with carbon credits:
e. Geographical area associated with carbon credits:

2. Interpretations towards the activity:

Starting with the carbon credits, I would like to know about it related to your experience and knowledge within the organization:

a. How and when did the idea of engaging with carbon credits appear?

i. Was there any particular person or organization that promoted this idea?

b. How did you decide whether it was a good strategy to get into carbon credits? (E.g., informal discussion, voting, supervisor's decision, etc.)

c. Why did you consider carbon credits as an appropriate strategy? Which were the criteria?

3. Operationalization of the activity:

The questions in this section depend on the phases (design, trade and/or implementation) in which the stakeholder was involved.

Regarding the practical aspects of the carbon credits, I would like to know more about how it unravels in time:

Phase	Question
Design	a. Which were the steps to create the carbon credits? How were they financed? b. How was the carbon credit price determined? c. How were the responsibilities over the carbon credit distributed among the involved parties? d. Do you consider that the introduction of the carbon credit changed any practice within your organization? How? e. How where the benefits distributed? Does this distribution reflect in practice what was agreed a priori?
Commercialization	a. Who introduced the carbon credit to the market or deal agreement? How? b. Did the sale or agreement occur after a negotiation process? How did it take place?
MRV	a. Who handles the monitoring, reporting, and vigilance of the carbon credit? How?

Contextualizing this under institutions and legislation…

1. Which laws or agreements do you consider the most important to abide for the proper performance of carbon credits?

2. Which authorities are responsible for ensuring the design and compliance with these regulations?

3. Do you consider that any regulations or laws **difficult** carbon credit performance? How? In which stages?

4. Do you consider that any laws or regulations **benefit** carbon credit performance? How? In which stages?

Going deeper into what decision-making is like regarding carbon credits…

5. Do you consider that your organization is involved when decisions are made regarding the management of carbon credits? (Yes/No)

    a. **If the answer is Yes:** Which factors contribute to your organization being considered when making those decisions?
    b. **If they did not mention EIAs/SEIAs:** Do you consider that prior consultation processes are sufficient to influence decision-making?

6. Have you ever had any type of support or struggle with any other sector/stakeholder (e.g., government, industry, organization)? Which and in what sense?

7. What recommendations would you give so that your organization or sector (e.g., industry, NGO, civil organization) is more included when making decisions that affect carbon credits in Peru?

4. Final considerations

Thank you very much for your answers and patience! To finalize, I'd like to ask a couple of questions looking into the future:

a. Is it in your organization's interest to continue exploring the use of carbon credits or preferably not? Why?
b. Do you have any recommendations to improve the management and performance of carbon credits in Peru?

Done, that concludes my list of questions. Once again, thank you very much for your time and openness. Please tell me if you want to know the result of my research once it is completed. Do you have any questions? Thank you! Goodbye.

Entrevista [código]

Introducción: Muchas gracias por aceptar participar de esta entrevista. Realmente valoro mucho su experiencia y conocimiento para esta investigación. Como mencionado en la ficha de consentimiento, usted es libre de retirarse en el momento que desee y no está obligadx a responder ninguna de las preguntas en caso lo desee. Una vez más, gracias por su tiempo e iniciaré con las preguntas para ser lo más breve posible.

Fecha:

Lugar:

5. Agrupación

¿Podría presentarse por favor? Por ejemplo, ¿cuál es su profesión y rol actual? Ahora, apreciaría saber un poco más sobre la organización a la cual representa/pertenece, por ejemplo:

a. Nombre de la agrupación:
b. Rol en la agrupación:
c. Número de años en la agrupación:
d. Relación con los créditos de carbono:
e. Área geográfica operativa relacionada a créditos de carbono:

6. Interpretaciones hacia la actividad:

Comenzando con los créditos de carbono, me gustaría saber los inicios desde su experiencia y conocimiento en la organización:

a. ¿Cómo y cuándo apareció la idea de involucrarse en créditos de carbono?
b. ¿Hubo algún grupo que promovió esta idea particularmente?

c. ¿Cómo decidieron que era una buena estrategia involucrarse en créditos de carbono?
d. ¿Por qué consideraron a los créditos de carbono como una estrategia buena? ¿Cuáles fueron los criterios?

7. Operacionalización de la actividad:

Las preguntas en esta sección dependen de en cuáles fases (creación, comercialización y/o implementación) está involucrado el actor.

Respecto a los aspectos prácticos del manejo de los créditos de carbono, me gustaría saber más sobre cómo se desarrolla a lo largo del tiempo:

Fase	Pregunta
Creación	f. ¿Cuáles fueron los pasos para crear el crédito de carbono? ¿Cómo se financiaron? g. ¿Cómo se determinó el precio del crédito de carbono? h. ¿Cómo se dividieron las responsabilidades? i. ¿Considera que la implementación del crédito de carbono ha cambiado alguna práctica dentro su organización? ¿Cómo? j. ¿Cómo se dividieron los beneficios? ¿Esto refleja lo que sucede en la práctica?
Comercialización	c. ¿Quién introdujo el crédito de carbono al mercado o estableció un acuerdo para él? ¿Y cómo? d. ¿La venta/acuerdo requirió de negociaciones? ¿Cómo se llevaron a cabo?
MRV	b. ¿Quiénes manejan el monitoreo, reporte y vigilancia de los créditos de carbono?

Contextualizándolo en las instituciones y normativas peruanas…

8. ¿Cuáles considera que son las normativas más importantes que se deben cumplir para que el crédito de carbono funcione?

9. ¿Qué autoridades son las responsables de velar por el diseño y cumplimiento de estas normativas?

10. ¿Conoce algunas normativas o leyes **que dificultan** el desempeño del crédito de carbono? ¿Por qué?

11. ¿Conoce algunas leyes o normativas considera **que beneficien** el desempeño del crédito de carbono? ¿Por qué?

Adentrando más en cómo es la toma de decisiones respecto a los créditos de carbono…

12. ¿Considera que su agrupación es considerada cuando se toman decisiones respecto al manejo de créditos de carbono? (Sí/ No)
    a. **Si la respuesta es Sí:** ¿Qué factores contribuyen a que su agrupación sea considerada al momento de tomar esas decisiones?
    b. **Si no mencionó EIAs/SEIAs**, preguntar ¿considera que los procesos de consulta previa son suficientes como para influir en la toma de decisiones?
    c. **Si la respuesta es No:** ¿Qué recomendaciones daría usted para que su agrupación o sector (e.g., industria, ONG, organización civil) esté más incluido al momento de tomar decisiones que afecten los créditos de carbono en Perú?

13. ¿Alguna vez ha tenido algún tipo de apoyo o problema con algún otro actor (e.g., gobierno, industria, organización)? ¿Cuál y en qué sentido?

8. Consideraciones finales

¡Muchas gracias por sus respuestas y su paciencia! Para terminar, me gustaría hacer un par de preguntas con miras al futuro:

a. ¿Está dentro del interés de su organización seguir explorando el uso de créditos de carbono o preferiblemente no? ¿Por qué?
b. ¿Tiene alguna recomendación para mejorar el manejo y desempeño de créditos de carbono?

Listo, con eso termina mi listado de preguntas. Una vez más, muchísimas gracias por sus tiempo y disposición. Por favor coménteme si desea enterarse del resultado de mi investigación una vez esté culminada. ¿Alguna pregunta de su parte? ¡Gracias! Adiós.