ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DOTTORATO DI RICERCA IN

STORIE, CULTURE E POLITICHE DEL GLOBALE

Ciclo 38°

Settore Concorsuale: 11/B1 – GEOGRAFIA

Settore Scientifico Disciplinare: M-GGR/01 – GEOGRAFIA

"*Qué es eso de la Amazonía?*"
Global value appropriation through carbon offsetting and environmental subject-making in Colombia

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Esame finale anno 2026

ACKNOWLEDGEMENTS

I wish to express my gratitude to my supervisor, Claudio Minca, as well as my co-supervisors Timothy Raeymaekers, Andrea Zinzani, and Jason Hickel, for their valuable guidance throughout my PhD journey. I am also thankful to the dissertation referees, Penelope Anthias and Arnim Scheidel, for their insightful feedback.

Furthermore, my heartfelt thanks go to the Colombian academics and NGO workers who welcomed me in Bogota, particularly Laura Gutiérrez, Nelsa De la Hoz, Brigitte Castañeda, Julián Trujillo, Tomás Vergara, and Camila Bermúdez, for sharing their expertise and offering support before, during, and after fieldwork. I am equally grateful to the many field collaborators, whose names I cannot disclose here due to safety concerns, and whose assistance was indispensable.

I wish to acknowledge numerous fellow scholars for their collaboration at different stages of my research project. Among them, with apologies to those I might be overlooking, I wish to specifically mention Torsten Krause (together with his PhD and post-doc students at Lund University), Emanuele Leonardi, Alberto Diantini, as well as Elisa, Dan, Micahela, Lorenzo, and all the other colleagues and administrative staff from the Geography section. Special thanks to AlliedOffsets for providing the data that underpins the quantitative analysis, and to Martina for her patience and support.

Last but certainly not least, I wish to express my deepest thanks to the Nükak people, and particularly to all the individuals I had the privilege of meeting during my field trips. My gratitude extend to the many human and more-than-human connections that enriched my time in the field. It is my hope that this dissertation contributes to increasing the visibility of their perspectives on these issues and, within the bounds of academic research, supports their ongoing efforts. Additionally, I hope that the knowledge-production and convivial activities carried out during fieldwork, however modest, have had a beneficial impact on their daily reality. *tüini*

ABSTRACT

While environmental scholars have long been denouncing the poor science behind technological solutionism, social sciences have yet to fully explore – especially on an empirical level – the issues of socio-environmental injustice related to 'green' growth and carbon offsetting. By taking a global historical perspective on the extraction and flow of raw materials and challenging the depoliticisation of the environmental debate, this dissertation aims to highlight the neocolonial geographies of carbon trading and offer a conceptual framework to question its social feasibility. More specifically, the dissertation makes a twofold contribution: first, by taking an understudied REDD+ project in the Colombian Amazon as a case study, it begins to uncover the subtle socio-economic and political impacts of carbon forestry on a small semi-nomad indigenous community while exposing the questionable motives of some of the actors involved. Second, it offers a novel quantitative contribution by estimating the South-North value drain through carbon offsetting (as well as the value drain from Colombia as a national-level case study), thereby exposing an unequal distribution of mitigation work on a global scale. While recognising the nuanced perceptions about mitigation schemes among Global South communities, the dissertation questions overly optimistic net-zero narratives, discusses what can be saved of the current offsetting paradigm, and ends by bringing into relief potential alternatives with the common vision of a post-growth society centred on environmental justice.

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LIST OF ACRONYMS

ANT	*Agencia Nacional de Tierras* (Colombian National Land Agency)
ARR	Afforestation, Reforestation, and Revegetation
CDA	*Corporación para el Desarrollo Sostenible del Norte y el Oriente Amazónico* (Corporation for the Sustabinable Development of Northern and Eastern Amazon)
CDM	Clean Development Mechanism
COP	Conference of the Parties (to the UNFCCC)
CSO	Civil Society Organisation
DAIRM	*Dirección de asuntos indígenas, Rom y minorías* (Directorate for Indigenous, Roma and Minorities Affairs)
EMC	*Estado Mayor Central* (guerrilla group)
ENGO	Environmental Non-Governmental Organisation
FARC-EP	*Fuerzas Armadas Revolucionarias de Colombia – Ejército del Pueblo* (Revolutionary Armed Forces of Colombia – People's Army)
ICVCM	Integrity Council for the Voluntary Carbon Market
ONIC	*Organización Nacional Indígena de Colombia* (Colombian National Indigenous Association
OPIAC	*Organización Nacional de los Pueblos Indígenas de la Amazonía Colombiana* (National Organisation of the Indigenous People of the Colombian Amazon)
REDD+	Reducing Emissions from Deforestation and Forest Degradation
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
VCMI	Voluntary Carbon Markets Integrity Initiative

INTRODUCTION

That the climate crisis is the challenge of our time is an almost timeworn refrain. It is less of a platitude to frame it as a socio-environmental crisis, as the chief architects of the neoliberal paradigm regard it merely as a technical mishap to be overcome through technological innovation and market mechanisms, while right-wing populist leaders tend to deny the problem altogether. If it is true that, as Rosa Luxemburg maintained, the first revolutionary act is to call things by their name, it is crucial for critical geography scholarship to side-step the veneer of depoliticisation that the "climate change" framing confers to an eminently anthropogenic crisis. As part of this effort, this work sets out to interrogate the social feasibility of greenhouse gas mitigation policies, particularly of nature-based carbon offsetting, by offering two different but interrelated contributions: an original quantitative analysis and an in-depth qualitative study. To do this, the dissertation applies a 'telescopic lens', moving from an investigation of value appropriation along global commodity chains to the situated effects of carbon projects, with a focus on an understudied carbon forestry project under implementation in the Colombian Amazon. The overall objective is to unpack the flaws of carbon markets, both from a theoretical and from an empirical standpoint, and to offer a conceptual framework grounded historical environmental justice to address them.

"Rio, we have a problem": Scientific rationale

In 1992, in the wake of decades of scientific and – to a lesser extent – social unrest whose starting point can be traced back to pivotal works such as Rachel Carson's 1962 "Silent Spring" and "The Limits to growth" report by the MIT (Meadows et al., 1972), the international community appeared to awake to the issue of planetary-scale environmental degradation. That year, world leaders and non-governmental organisations convened in Rio de Janeiro for the United Nations Conference on Environment and Development, commonly referred to as the "Earth Summit". At last – it appeared – world leaders had taken notice of the substantial influence of human activity on climate and ecosystems, a state of affairs that would later be referred to as the Anthropocene[1]. Over thirty years later, and over half a century after the early warnings by MIT scholars, the climate breakdown is advancing at accelerated speed, threatening humans and non-humans alike (Hansen et al., 2025). Not only has there been little progress in differentiating climate impacts along the fault lines of class and colour, but even basic climate action is being deterred and deferred (Climate Action Tracker, 2025), with climate activism facing increasing authority crackdown, most conspicuously in the 'democratic' West (Berglund et al., 2024). As a result, most of the nine planetary boundaries identified by the Stockholm Resilience Centre, representing safe

[1] Although in 2024 the International Commission on Stratigraphy rejected a proposal to formally define the Anthropocene as a new geological epoch, the term has established itself as a synthetic descriptor for the current historical phase. For a problematisation of the use of the concept in the academic and public debate, see chapter 1.

limits for human pressure on nine critical biological processes, have been exceeded (see Fig. 1). This includes atmospheric CO_2 levels, which continue to rise (WMO, 2025).

The climate breakdown will not spare human-made infrastructures, be they physical ones like buildings and bridges or abstract ones like economic systems. Despite controversial theories inclined to downplay the severity of the problem[2], the climate crisis is estimated to result in "50% GDP destruction – somewhere between 2070 and 2090" (Trust et al., 2025) and is projected to make the average citizen up to 40% poorer depending on the warming scenario (Neal et al., 2025). In recent decades, some economies in the Global North have been reducing their carbon intensity, thereby moving towards the "decoupling" of emissions from GDP growth, yet even the most virtuous among them are not decarbonising nearly fast enough to meet the Paris Agreement's 1.5°C goal, especially if consumption-based emissions are considered (Haberl et al., 2020; Ritchie, 2021; European Commission, 2025a).

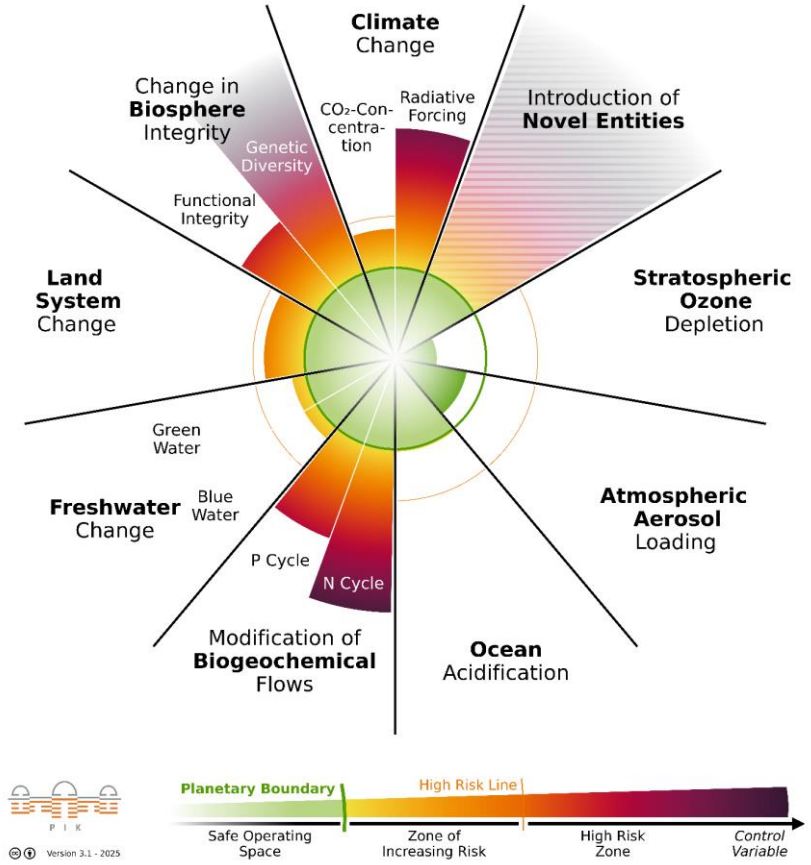


Figure 1: The 2025 update to the planetary boundaries. Source: Potsdam-Institut für Klimafolgenforschung.

[2] Prominent economist William Nordhaus famously asserted that "[g]ood policies must lie somewhere between wrecking the economy and wrecking the world" (Nordhaus, 2013:76) and that most economic activities will not be affected by the climate breakdown because they take place indoors. For this, he was awarded the Nobel prize in economics in 2018. For a problematisation of the neoclassical economics of climate mitigation, see Keen (2020) and Buller (2022).

On top of this, even consumption-based data provides an incomplete picture. Emissions from land-use change, for example, are often excluded from official accounts, despite recent research suggesting a considerable impact of externalised land-based emissions (Wiebe and Wilcove, 2025). Indeed, forests are being razed all over the Global South and critical ecosystems are showing alarming signs: ecologists have warned that major terrestrial carbon sinks such as tropical rainforests are losing their capacity to mitigate climate change (Ke et al., 2024). The Amazon rainforest, a key focus of this dissertation, might have already stopped being a sink for carbon sequestration to become a net source of emissions (RAISG, 2021; Flores et al., 2024). Not surprisingly, global evidence suggests that only a fraction of climate policies have succeeded in achieving major emission reductions (Stechemesser et al., 2024).

The spectacular failure of climate policies can be partly attributed to the derangements[3] that have shaped the dominant climate governance paradigm, deeply rooted in a neoliberal worldview (Fletcher, 2023). After the initial dismissal and denialism, once policymakers could no longer turn a blind eye on the issue, the era of green growth dawned – not only as a stratagem to preserve the status quo, but also as a way to seize the opportunity for a further expansion of the system through the rollout of green energy generation and the commodification of runaway emissions. Herein lie two of the many derangements that, for reasons of space, cannot be fully addressed here: first, as energy scholars are showing with increasingly robust evidence, the so-called "energy transition" is turning out to be in fact an energy addition (York and Bell, 2019). Following a pattern that characterised past energy breakthroughs, the new energy capacity powered by renewable energies primarily serves the rising demand rather than replacing the fossil fuels in the energy mix (see IEA, 2024, particularly p. 98). Indeed, governments worldwide "still plan to produce more than double the amount of fossil fuels in 2030 than would be consistent with the median 1.5ºC pathway" (SEI, Climate Analytics, and IISD, 2025). Second – and more relevantly to this dissertation – the faith in net-zero paradigm, the notion that emissions need not be abated if they can be compensated (or "offset"), has effectively thrown a lifeline to polluting industries and carbon-intensive societal processes, as Green (2025) and others have shown. Based on the apparently unassailable principle that greenhouse gas emissions are not geographically-bound to the area of release and can thus be offset by capturing or preventing the emission of the same amount of greenhouse gases elsewhere on the planet, including through "nature-based" methods, carbon trading (or "offsetting") has conveniently put off taboo debates on emissions reduction and system change. No longer fetters on economic development, the environment and its never fully predictable quirks came to be seen as a pool of untapped resources such as carbon offsets and biodiversity offsets. Like the mythological King Midas, orthodox economics, "in addressing environmental problems, constantly seeks to transmute ecological values into economic ones" (Foster et al., 2009: 1088). In the neoliberal era, realising the value of offsets

[3] To Ghosh (2016), contemporary societies' are caught in a collective derangement defined as the failure of political leaders, as well as artists and writers, to grasp the scale of the ecological crisis, and its relation to the legacy of colonialism. Capital flowing toward the over-exploitation of unregulated common resources is seen as the essence of humanity's derangement.

– seen as abstract certificates divorced from their socio-environmental context – required their financialisation. For good measure, policymakers turned to financiers (see chapter 1.2).

Arguably, carbon markets are the component of the global climate governance paradigm that best exemplifies these contradictions. The assumption of neoliberal climate governance is that emissions can be accurately measured, if necessary converted to CO_2 (Lohmann, 2011), isolated in discrete units and exchanged through market mechanisms. Such "spatial abstraction" (Bumpus, 2011), i.e. treating an individualised thing in one place as essentially the same as any apparently similar thing located elsewhere, led to the creation of cap-and-trade schemes (compulsory emissions reduction programmes) and international carbon markets, allowing individuals and companies to offset their emissions through carbon credits. Critical scholars and civil society organisations, as chapter 1 will detail, have warned that the carbon trading paradigm has not delivered and, on present terms, is very possibly unfit to deliver: "Two decades of all-but-futile climate negotiations have shown that global warming cannot be managed by means of technocratic expertise nor dealt with separately from the politics of inequality and the paradox of economic growth" (McAfee, 2016:333). The UN itself, by the mouth of its special rapporteur on climate change, admitted that "[a]fter 30 years, evidence that carbon markets are contributing to mitigation or helping mobilize finance is just not there" (Lakhani, 2025). This candid admission is a testament to the bipolarity of the transition as noted by Bonelli et al. (2022), characterised by the alternation of manic moods that propose frenetic decarbonisation and tensions that generate depressive moods. This irrationality has prompted critical observers to dub carbon offsets as modern-day Papal indulgencies: "Just as in the fifteenth and sixteenth centuries you could sleep with your sister and kill and lie without fear of eternal damnation, today you can live exactly as you please as long as you give your ducats to one of the companies selling indulgences" (Monbiot, 2006).

In the global race for emissions mitigation, as this dissertation will seek to substantiate building on existing literature, the agenda is set by private capital. Governments too, however, have been accused of hiding "behind forests to meet their emission goals" (Hare and Forner, 2025), and so have individual policymakers (Camut et al., 2023) and international institutions, particularly since EU countries unveiled plans to offset 5% of their domestic emissions through international offsets (Mishra and Abnett, 2025), a move that would imply the purchase of over 200 million credits to meet the bloc's 2040 targets (Abnett, 2025). Forest-based offsets, given the complex, fragile ecosystems underpinning them, are among the most contentious. Despite studies finding that ecosystem restoration can sequester only 4-12% of emissions by 2100 (Tölgyesi et al., 2025), and despite rainforest offsets having been debunked on virtually all accounts (see next chapter), high-ranking climate officials – including, but not limited to, the leader of the UN-REDD programme[4] – appear to assume that the only way to protect and restore forests is by throwing money at them (C. Lang, 2024a). This resonates with tech giants believing they "can plant trees

[4] The REDD+ carbon forestry programme, the main empirical focus of this dissertation, is analysed in great depth in the following chapters.

better than everyone else" (Calma, 2024). From a political economy perspective, it is key to understand that, for large, financialised businesses, the green transition is not merely a subterfuge for securing social license, nor simply a "global money laundering scheme" (Ogada, 2021), as poignantly put by Kenyan ecologist Mordecai Ogada, but rather a necessary socio-ecological fix (Andreucci et al., 2023) for the expansion of the system.

As Harvey (2006) reminds us, capital is "value in motion": if it remains frozen in any form (commodity, money, or productive capital), it ceases to be productive of surplus value. In this sense, carbon markets came to the rescue of global capital to overcome a crisis of accumulation that became obvious with the 2008 financial crisis. Not by coincidence, large tech companies and fossil fuel corporations have gone "all in" for carbon offsetting and nature-based 'solutions' (Mulkern, 2025; Shell, n.d.; McLeod, 2025) and removals (Segal, 2025). Despite scientific consensus indicating that stopping deforestation and leaving fossil fuels in the ground would be much preferable to offsetting the resulting emissions (Winter, 2004; Naef et al. 2025), fossil companies too are joining in the gorging (in 2024, Saudi Aramco retired a record 513,103 credits to offset corporate emissions, see Aramco, 2024). After all, as a knowledgeable observer affirmed: "There are trillions of dollars to be made out of hot air" (Bryan, 2024a). According to estimates, global carbon markets are projected to reach a value of 1.1 trillion USD by 2050 (South Pole, 2025) or to hit 1 trillion as early as 2037 (BloombergNEF, 2023).

Besides the biogeochemical effectiveness of climate policies, the 'elephant in the room' of many environmental schemes is their social feasibility – the main focus of this dissertation – both in terms of localised effects and of global socio-environmental justice. Similarly to development interventions, which environmental policies in many respects originate from (Angelsen, 2017), climate policies cannot – or should not – be planned, executed, and analyse in isolation from the socio-political context they are embedded in. Yet, precisely like development programmes, defined by Ferguson (1994) as "anti-politics machines", the dominant neoliberal solutions to climate change adopt a predominantly technocratic approach in which – as geographers and political ecologists have noted (see among others Büscher, 2014, Nightingale et al., 2019, and Asiyanbi and Massarella, 2020) – the political is superseded by the imperative of climate action and the proposed solutions are purported to benefit both the environment and local populations. Typically, the benefits to local inhabitants are conceived in purely economic terms, a focus that obscures the corners of life and social reproduction lying outside capitalism's narrow cone of light. Yet who would dare oppose "nature-based *solutions*"[5], "win-win" projects and similarly persuasive formulas aligned with socio-technical imaginaries of modernisation? The idea of the Earth as a single

[5] There is no universally-accepted definition of "nature-based solutions": the UN defines them as "actions aimed at protecting, conserving, restoring, and sustainably managing […] ecosystems, which address social, economic and environmental challenges […] while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits" (UNEP, n.d.), whereas the EU more tautologically defines them as "solutions […] inspired and supported by nature, [which] are cost-effective, simultaneously provide environmental, social and economic benefits" (European Commission, 2024a). For a critical engagement with the concept, see Osaka et al. (2021).

place, where the damage wrought in one place can be mended in a different location, "is itself contingent on particular histories of exploration and dominance" (Jasanoff, 2010:241). Nevertheless, with few exceptions, Dooley et al. (2022) contend, "climate mitigation pledges have paid little attention to who, in practice, is living on, using and managing the lands involved, much less to existing land rights of indigenous peoples and local communities" (p. 52). Along decarbonisation pathways, then, governments are counting their proverbial chickens before they are hatched, hiding not only behind forests but also behind rural inhabitants and indigenous people who, despite often bearing the heaviest brunt of environmental degradation, are enlisted as "stakeholders" in the fight to save the planet through market-based initiatives.

In essence, from its very beginning, the climate crisis has been governed through small steps for humanity but giant leaps for capital, a process geared toward tokenistic policies and incremental changes at best. In recent years, things appear to have come full circle, moving past cosmetic climate concern right into outspoken denialism, anti-scientism (Joselow, 2025) fanatic techno-optimism, and unprecedented spending on 'climate killer' industries, such as the military-industrial complex. This fairly recent trend, however, has not yet completely changed the discourse: many corporations, policymakers, and citizens still acknowledge anthropogenic climate change and, to varying extents, pledge to take action against it. As governments across the Global North devise critical mineral onshoring plans (van Meer and Zografos, 2024), the champions of green growth are not backing down[6]. This dissertation thus assumes that climate governance – in some shape or form – will remain relevant in the near future and endeavours to make an intervention in the relevant debates.

Given the foregoing, the dissertation will attempt to address the following overarching research questions (see chapter 2 for further details): where is the value of carbon credits produced and captured along offset commodity chains? How is carbon commodification articulated across scales and how are indigenous communities brought 'on board'? What are carbon projects' impacts on local socio-environmental relations and livelihoods?

(Inter)disciplinary setting

This dissertation is situated at the intersection of political ecology and critical development studies, against the overarching background of human geography and informed by cognate disciplines such as anthropology and political economy.

Taking seriously the reflections on the social production of nature and on the commodification of nature (Castree and Braun, 2001; Heynen et al. 2006; Smith, 2007; Uggla, 2010; Moore, 2015), this work interrogates different perceptions on ecosystems and socio-environmental processes while seeking to illuminate their points of contact as well as of friction. Departing from the technocratic strands of

[6] In mid-2024, fully within the Trump era, Canadian PM and former UN climate envoy Mark Carney urged carbon markets stakeholders to "Stop debating carbon markets and start building them" (Carney, 2024).

literature that dominate sustainability studies and environmental economics, an attempt is made, consistent Robbins' (2012) invitation, to track "winners and losers" amid social–environmental change. To put it another way, to bring into focus 'the political' and the different forms of agency that exert an influence on the stage of the "digital-political forest" (Gabrys et al., 2022) while eschewing rigid narratives that lump together 'disadvantaged' groups as the inexorable victims of neoliberal policies.

Critical geography constitutes a valuable vantage point for building on the efforts of those who, in the last few decades, have effectively challenged the colonial gaze that contributed to the framing of tropical environments as wild and too hostile to be managed and 'civilised', in doing so more or less willingly partaking in their mapping and violent conquest. Relatedly, this dissertation contributes to the body of work showing how "contemporary, market-based conservation initiatives extend the temporalities and geographies of colonialism"[7] (Collins et al., 2021) and how they further entrench a problem they are purported to help resolve. This body of literature has focused on EU and global policies (Vela Almeida et al., 2023; Balmford et al., 2025; Santer and Bluwstein, 2025, see also chapter 1), but many aspects of the evolving landscape of climate policies remain to be investigated. Specifically, the dissertation takes issue at nature-based offsetting as a socio-ecological fix and as a territorial disciplining framework while adopting a markedly historical materialist perspective on the distribution of environmental benefits and ills. While acknowledging the valuable contributions of authors who have critically engaged with these topics before (Bumpus, 2009; Corbera and Schroeder, 2011), I attempt to take a further step forward in two ways: first, by stressing the material, neocolonial dimension of the offsetting paradigm; second, following Mahanty et al.'s (2015) call to "examine the positioning and roles of key agents that mediate forest carbon production and exchange, and how they generate and capture value" (p. 178), by providing empirical support – both qualitative and quantitative – through an empirical analysis of several of its various nodes. This multiple perspective allows for a framing of emissions offsetting as a form of neocolonial extractivism, whereby what is extracted is not fossil fuels but fetishised 'green credits' for capital expansion.

A problematisation of the neoliberal environmental agenda inevitably implies a problematisation of orthodox economics, as well as some of its offshoots such as environmental economics and development economics. Although a comprehensive critique of these subfields would far exceed the scope of a dissertation that does not primarily focus on disciplinary analysis, their theoretical assumptions and practical implications are nonetheless addressed at various points throughout this work. Popularised by US President Harry Truman (Escobar, 1995; Hickel, 2018), the conceptual constellation of "development", and the related field of study and policy of development economics, may be argued to have at least two major 'blind spots': history and ecology. The former because the linear idea

[7] Colonialism is not as straightforward to define as it might appear; its boundaries frequently overlap with related concepts such as imperialism (Arneil, 2023). For the purposes of this dissertation, colonialism is understood as a multifaceted, primarily historical but still ongoing phenomenon whereby a foreign power establishes political, economic, and cultural authority over an indigenous population and its territory.

of progress proposed by US development officials entails adopting a future-oriented perspective that wipes the slate clean of the past, along with its legacy of resource plunder and the dismantling of socio-political networks; the latter because, especially in the Cold War era, notions of progress and development were deeply intertwined with imaginaries of anthropocentrism, industrialism, and unlimited fossil-powered economic growth (Escobar, 1995; Victor, 2008). Ecological economics, a heterodox branch of economics that challenges normative assumptions about 'the economy' as a separate sphere from society, is mobilised throughout the dissertation (particularly in chapter 3) to bring back ecology into the picture. Marxist theory, in a complementary manner, is employed to bring back history, or rather to anchor socio-environmental analysis in "the real ground of history" (Marx and Engels, 1968 [1932]), particularly through the historicization of inter-scalar processes that, over the last half century, have sought to incorporate more and more geographical and social spaces into the capitalist whole.

The existing literature on carbon offsetting and forest conservation, as I have argued at length elsewhere (Rizzi, 2025a[8]), has tended to overlook class-related considerations. This dissertation aims to partly fill this gap, building on a bedrock of existing theoretical frameworks, by drawing on case-study-based fieldwork to empirically substantiate the ensuing reflections. While this cannot be considered a Marxist dissertation in that the advancement of Marxist theory is not its main goal, the analysis is informed by a Marxist conceptual framework. In particular, chapter 1 makes an original – if minor – contribution to the debate on the commodification of nature, with specific reference to the labour involved in forest-based carbon offsets, whereas chapters 4 and 5 give empirical depth to conceptual discussions by delving into local power struggles and value appropriation dynamics.

Political ecology, through its emphasis on plural epistemologies, multiple ontologies, and different "languages of valuation" (Villamayor-Tomas and Muradian, 2023), has the potential to foreground the voices of the colonised, thereby drawing a more 'multidimensional' picture of socio-environmental relations. In the Anthropocene, "the denial of the possibility of being to what cannot exist within the worlding practices of the modern onto-episteme because it does not meet its requirements has reached an unprecedented destructive capacity, one that is even self-destructive" (De la Cadena and Escobar, 2023:34). Against this backdrop, Western geographers have a prominent responsibility not only in reimagining cartographical imaginaries, but also in challenging geographical knowledge and language on fundamental issues of space, landscape, and representation. At the sites of friction of subaltern ontologies and Western modernity, the tools of political ecology, Newell and Bumpus (2012) argue, enable "an understanding of (1) the 'local' social and environmental consequences of global (environmental) governance—the ideologies, discourses, structures, and interests that it embodies, rejects, and projects; and (2) the ways in which 'regimes' that govern resources at different levels engage and transform one another through global circuits of capital, production, and consumption" (p. 51). From

[8] This dissertation partly consists of a revised synthesis of (or expansion on) papers published during my doctoral pathway, namely Rizzi (2025a), Rizzi (2025b), and Rizzi and Krause (2025). I also draw on Rizzi (2022).

a more radical perspective, these tools may open up spaces not only for *understanding* such processes, but also for other forms of knowing and being to emerge and be taken seriously in formal academic production.

Chapter 3 and – in a less organic fashion – other parts of this work attempt to bring together political ecology, political economy, and ecological economics through the twin thought traditions of dependency and unequal development, which, following Kvangraven (2020), are approached here as a research programme rather than as a static body of theories. Moving from the same political and ethical concern for persistent – in fact, rising – inequalities on a local and global scale (Sullivan et al., 2025), an attempt is made to 'dust off' these theories by demonstrating their ongoing relevance, not only in explaining the historical background of today's circumstances but also in serving as an interpretative key for the present. Specifically, the conceptual and methodological toolkits of these theories are put to work on carbon offset commodity chains to expose understudied forms of exploitation, value appropriation and – ultimately – wealth polarisation on a global scale.

Grounded in empirical fieldwork, chapter 5 engages with and contributes to political ecology debates on the social feasibility of climate policies by presenting a critical analysis of a specific project, the "Deiyiabena REDD+ Nükak Baká" carbon forestry project covering the territory of the Nükak, a semi-nomad indigenous community mostly residing within the boundaries of Guaviare, one of Colombia's Amazonian departments. This component of the dissertation is partly indebted to social anthropology, although the use of ethnographic methods does not imply a claim to the production of *an* ethnography of the partner community, nor it represents an intervention in established critical debates on anthropological methodologies. Rather, it stems from the premise that a "good interpretation of anything – a poem, a person, a history, a ritual, an institution, a society – takes us into the heart of that of which it is the interpretation" (Geertz, 1973:317), an endeavour that would have been hindered without a thorough ethnographic approach. Borrowing from Agrawal (2005) a stance that "takes as its concern the experiences of environmental changes and politics among those who are the subjects of scholarly investigations" (p. 23), this work sets out to partly fill the large gaps observed by many in the relevant academic literature (Milne and Mahanty, 2019; Bruna, 2024; Mukono, 2024) as regards the context-specific, granular implications of carbon projects, particularly among forest-dependent communities. Some authors also picked on the lack of "work that looks at both the accounting and value creation side of carbon offsetting projects, and the on-the-ground effects of these projects" (Frewer, 2021:1). It is precisely along these two lines of inquiry that this dissertation intends to tread.

Aims and social impact

In a world of skyrocketing inequality, social scientists are refining their tools to better understand the drivers of global disparities (examples of exhaustive recent studies include Nievas and Sodano, 2024, and Sullivan et al., 2025). The overarching goal of this work is to contribute to this understanding by

showing how global climate governance and local power imbalances coalesce through carbon offsetting to enable new forms of exploitation and appropriation, specifically at the expense of indigenous forest communities. Following the example of numerous dedicated scholars who have pursued this path with much more profound repercussions, this dissertation was carried out in the conviction that it is possible to conduct socially progressive research while preserving a reasonable degree of scientific integrity. Acknowledging that research is shaped by a political worldview is simply an acknowledgement that positivist social science is something of the past. As Borras and Franco (2023) point out in relation to research in the agrarian field, political rigour (i.e. offering a politically-informed analysis and taking a position on the political processes researched) is as essential as academic rigour for scientific work that "aspires to interpret the world *and* to change it into something better" (p. 1); although this admittedly "runs the risk of compromising the rigour of the academic dimension" (p. 77), it does not imply that socially progressive research, or even militant ethnography, equates to activism – a distinction effectively drawn by Pulido (2008).

This work has no intention to mirror the tunnel vision of the neoliberal climate governance paradigm in which, regardless of the myriad inputs and impacts that characterise the metabolism of human societies, "all production and activity can be reduced to the concentration and profitable exchange of the chemical element carbon" (Sullivan, 2012:201), the most amenable to calculation and commodification. Yet precisely because of the dominant paradigm's fixation with the carbon cycle it is necessary to keep questioning the mitigation narrative hinging on climate "indulgences". Crucially, the scientific objective of this dissertation is not to evaluate the biogeochemical effectiveness of carbon offsetting (this has been done in a wide range of studies, see chapter 1), but rather to call into question the social feasibility of carbon projects from a historical, environmental, and epistemic justice perspective (Fricker, 2007).

The feasibility of carbon offsetting is tackled from multiple angles. In synthesis, the dissertation focuses on the one hand on value appropriation through the global exchange of carbon credits, on the other on the attempts made to reconfigure the political subjectivity of indigenous peoples involved in nature-based offsetting to fit the role prescribed for them within the 'global environmental division of labour'. Consequently, I make two main arguments (giving rise to and stemming from a number of sub-arguments that, for the sake of brevity, are omitted here): first, I argue that carbon trading, conceived as a novel iteration of extractivism, enables massive value plunder on a global scale, continuing a history of appropriation carried out to the detriment of former colonies; second, I argue that nature-based offsetting enables 'subtle' green grabbing, i.e. the de facto dispossession of land and resources without the formal or physical grabbing of land.

For an academic work that takes seriously debates on material and immaterial colonial legacies (Quijano, 2007; Tuck and Yang, 2012; Rivera Cusicanqui, 2012), illuminating the neocolonial implications of climate policy is hardly enough. Climate research, scholars have argued, "needs to be integrated into

wider de-colonial projects as the transformative impacts of anthropogenic climate change are inadequately addressed within both colonial and post-colonial frames" (Howitt, 2020:1). Under this light, Latin America emerges as a highly relevant area of study for several interrelated reasons. First, if it is true that "European conquest of the Americas marked the beginning of what can now be identified as an environmental and civilizational crisis" (Pádua et al., 2024:48), Latin America is as a particularly salient case for examining the intersections of environmental change, socio-political dynamics, and the legacy of colonialism. Second, Latin America can be regarded as a principal site of 'collision' over nature-based climate policies, being the region where carbon forestry has arguably made the most pervasive inroads and, perhaps precisely for this reason, where it is facing the firmest resistance within certain segments of society. Indeed, it is in this region that alternative visions have been most vigorously put forward, both at institutional level (OTCA, 2023; MPC Indígena, 2025) and – more critically – from the grassroots and at the nexus of CSOs and militant academia (see chapter 6). In this respect, Colombia serves as a particularly informative case study because, as the empirical chapters will show, the roots of socio-environmental injustice related to the carbon economy are to be found not (or not solely) in direct colonial appropriation but rather in the colonial matrix embedded within the neoliberal global mitigation paradigm, which facilitates specific instances of green grabbing in the interests of global capital. Although not its primary objective due to space and scope considerations, this dissertation aims to visibilise these alternatives 'from the South' in contrast to mainstream models.

From a disciplinary perspective, assuming as a fact that "all geographies are racialised" (Kobayashi and Peak, 2000) and aware of the position of privilege of the researcher, this dissertation comes as a modest contribution to the agendas of de-centring, decolonising, deregionalising, and pluralising geography, development, and political ecology (Martin and Larsimont, 2016; De Leeuw and Hunt, 2018; Kothari et al., 2019; Naylor and Jazeel, 2025). As reader will realise, the outcomes of this work – particularly to decolonial ends – were affected by methodological precautions and limitations. Nonetheless, I hope that, by shedding new light on key issues around carbon forestry and incorporating indigenous perspectives, it can spur a constructive debate among scholars, activists, and practitioners, and offer a valuable contribution to the partner indigenous community. While immediate impacts were sought by supporting the daily needs of the Nükak community, more enduring effects were pursued by fostering opportunities for reflection on the carbon project and participants' position in its regards, an operation that Willis and Trondman (2000) define "procedural policy work". In sum, tangible impacts were pursued less through the dissertation itself, or the aseptic presentation of scientific findings, as much as through forms of 'giving back' – during and after fieldwork – that can only partly be laid out in an academic publication (see also chapter 2).

In parallel, I aim for the quantitative component to produce a meaningful impact: although quantitative research, as Pulido (2008) remarks, is "often devalued in theoretically driven fields, [it] can make a tremendous difference to a community struggle" (p. 355) as the most directly 'actionable' for

political aims. To be sure, I by no means claim my academic work to be contributing to social progress any more than the work of any other junior scholar. In this, I am inspired by the late Pepe Mujica's philosophy, which holds that "some work through thunder, others through drizzle" (El Mostrador, 2014). At times of war, conducted both as lethal military action and as a war on science, doing scholarly work can feel a helpless effort. However, one is partly comforted by the belief that "The work of the university is not peace but combat – intellectual combat and, in one form or another, social combat" (Wallerstein, 1969:8).

The dissertation is structured as follows: in the first chapter, the main conceptual frameworks mobilised in the dissertation are introduced and the global decarbonisation paradigm, with nature-carbon offsetting at its core, is laid out. Next, the methodological chapter fleshes out the methods adopted at the different stages of research and discusses the methodological as well as ethical and practical challenges encountered in the process. This is followed by the empirical chapters: while chapter 3 offers a quantitative assessment of value appropriation along carbon credit commodity chains, chapters 4 and 5 add qualitative empirical depth through a detailed account of a REDD+ project and triangulate some of the quantitative findings to substantiate the arguments sketched out in the theoretical sections. The final chapter 6 draws together the dissertation's various threads and explores insights for a more emancipatory, pluriversal way of thinking carbon forestry and environmental policy more broadly.

1. THE DECARBONISATION PARADIGM: KEY CONCEPTS AND GLOBAL LANDSCAPE

"To allow the market mechanism to be sole director of the fate of human beings and their natural environment would result in the demolition of society"

(K. Polanyi)

This is the main conceptual and contextual chapter of the dissertation. After spelling out the main conceptual frameworks mobilised throughout the dissertation, it presents the global carbon offsetting landscape, its genesis and (un)regulation, narrows down the analysis to nature-based schemes, and offers an overview of carbon offset commodity chains.

1.1. Conceptual frameworks

In this sub-chapter, the core conceptual frameworks underpinning this dissertation are introduced. Virtually all the concepts that characterise these frameworks are multifaceted and hotly contested in the academic literature. As a comprehensive intervention in these theoretical debates is beyond the scope of this work, these concepts are engaged from a specific angle, which makes terminological clarifications all the more necessary.

The following conceptual frameworks are outlined: neoliberal nature and the related climate governance paradigm; extractivism, with a focus on Latin America, the debates around the post-colonial, the decolonial, coloniality, and related concepts of relevant authors; the environmentality framework. While acknowledging the fine difference between conceptual frameworks, theoretical frameworks, and analytical frameworks as identified in the literature (Jabareen, 2009; Maxwell, 2012; Ngulube and Mathipa, 2015), the frameworks presented below inform both theoretical reflections and methodological choices, as well as data analysis.

<u>Neoliberal nature: Frontiers of capitalist expansion in the Anthropocene</u>

The common trait characterising the mainstream frameworks used to conceptualised and address the climate crisis is an understanding of nature based on capitalist rationality. From United Nations platforms and national environmental policies to major NGO campaigns, neoliberal economic

principles[9] have been applied to the management, governance, and valuation of ecosystems, as well as of environmental risks and harms. For all their differences, what they share is a depoliticised vision of nature as a set of resources that, properly commodified through neutral technocratic arrangements and managed – where necessary – through the enrolment of profit-maximising local populations, can be unproblematically and indefinitely used for the growth of the economy and – consequently, in this view – the well-being of humans (Bumpus and Liverman, 2008; Castree, 2008; Büscher et al., 2012).

For decades, scholars from different fields have drawn attention to the risks of an apolitical approach to the climate crisis (Swyngedouw, 2015; Taylor, 2015; McAfee, 2016). Arguably, the spectre of depoliticisation haunts all debates around the Anthropocene, a concept first coined by Paul Crutzen in the year 2000 (Crutzen and Stoermer, 2000), as the suffix "anthropo-" appears to blame each and every human with no historicisation nor distinction of ethnicity or class. Alternatively, or simply provocatively, critical scholars have proposed concepts such as "Capitalocene" (Moore, 2017), "Plantationocene", or "Chtulucene" (Haraway, 2016), seeking to single out specific processes or assemblages in place of an undifferentiated humanity. While all these terms have analytical value to them, writing off the concept of the Anthropocene in light of its *potential* apolitical use, or of its formal rejection by stratigraphers (Bourzac, 2025), might be both futile and ill-advised for several reasons: first, even if capitalism were to be superseded by an ecological sociopolitical system, humans and more-than-humans will still be living with its consequences beyond the "age of capital" (Capitalocene) or the "age of monocultures" (Plantationocene), which suggests the need for a geological term that can remain valid in the aftermath of capitalism and can be stretched to include *long-durée* views of humans' impact on the planet's ecosystems (Krall, 2023); second, regardless of critical stances, the Anthropocene has successfully spilled over into the popular debate and thus represents a valuable tool for struggle, a rallying cry of sorts, beyond the thick doors of academic conferences (Swindles et al., 2023); third, and relatedly, the prefix "Anthropo-" invites to consider humans in the proposed solutions, indeed it centres humans (and not technology) as the agent of change, including change for the better. After all, expecting scientific definitions to be political *per se*, or to convey an unmistakable message, if naïve at best. The climate breakdown does not affect "the climate", nor the planet, but humans, yet that has hardly been a barrier to the constructive political use of the "climate breakdown" framing. At the same time, hegemonic political forces have repeatedly proven able to coopt and repurpose even promising terms such as "sustainability" or "green". Ultimately, then, the point is not what a term *means etymologically* as much as how it is *mobilised politically*, as well as academically.

Seeing nature through a neoliberal lens means first and foremost subscribing to Cartesian divide by which nature, external to humans, is there to be apprehended, dominated, and exploited (Gibbs, 2010). As Nightingale et al. (2019) show, "the overemphasis on parsing *identifiable* and *external* climatic threats

[9] Neoliberalism is not an uncontested concept. Here, it is understood as an ideology and policy model characterised by free-market competition, minimal state intervention, and individual freedom as cornerstones of economic and social life.

[...] rooted in a conceptual separation of nature from society, limits our abilities to imagine other futures and perpetuates the status quo" (p. 2, see also Chan et al., 2025). At a time of climate crisis, the atmosphere becomes a discreet entity vested with the ability to perpetuate the current system with minor cosmetic changes, as well as – crucially – a new "outside of capitalism" (Luxemburg, 1951) to be conquered. From the perspective of capitalist actors in the 21st century, this is not only convenient, but a godsend: the commodification of the atmosphere (and – as we shall see – of ecosystems and social systems previously beyond the purview of capital), discursively constructed as tools for mitigation, are a new way to overcome the limits to accumulation made evident by the 2008 financial crisis and thus an opportunity for a further expansion of the system. Indeed, as Marx remarked in volume 2 of Capital, "the capitalist mode of production is conditioned by modes of production lying outside of its own stage of development" (Marx, 1992 [1885]:190), which are gradually transformed through the intervention of industrial capital. A second key feature of neoliberal climate governance is the staunch belief in technological solutions, typically associated with the ideology of "ecomodernism" (Asafu-Adjaye et al., 2015). Such an overreliance on technical fixes in isolation from social arrangements, fittingly defined as "contraption fallacy" (Corry, 2014), has been described as both unrealistic and undemocratic (Creutzig et al., 2021; Haikola et al., 2021; Malm and Carton, 2021; Hickel and Slamersak, 2022), as it forecloses grassroots debate and deliberation on issues that are portrayed as purely technical.

Functional to the 'technocratisation' of climate action, and amongst the distinctive markers of neoliberal depoliticisation, is the obsession for quantification. Once ecological values are transmuted into economic ones and the "externality" of pollution is included into the logframes of economic models, the right price signals – mainstream economic theory holds – will suffice to solve the problem. The issue with this view is that "[e]cologies may simply not be as disciplined as green markets assume them, and indeed require them" (Fairhead et al., 2012:254). Critical geographers have shown how ecologies are not amenable to objective individuation and abstraction (Castree, 2003; Bracking, 2015). Ecological economists, not to be mistaken with the more mainstream environmental economists (Villamayor-Tomas and Muradian, 2023), have stressed how the economy cannot be disembedded from society and from the environment society interacts with if not by means of hazardous abstractions, pointing to the need to consider economy as a subset of biology and therefore to acknowledge the limits to economic expansion. It follows that the focus is not on the economy as an abstract entity governed by supply and demand but rather on social metabolism, i.e. the biophysical flows of energy and materials that society extracts, transforms, and disposes of (Fischer-Kowalski and Haberl, 2015).

The main conundrum, then, lies precisely in the primacy attributed to "the economy" (as a separate dominion from humans and non-humans) over any other consideration. In the wake of failed climate policies and disappointing COP summits, scholars and activists have acknowledged that global climate governance is not about climate in the first place: "UN climate change negotiations are not 'environmental': they are about the economic future of nations" (Dimitrov, 2010:795). Landmark

agreements such as the 1997 Kyoto Protocol (Böhringer, 2003) and the 2015 Paris Agreement were largely ineffective in achieving their – as a matter of fact, modest[10] – ambitions not only due to shortcomings in the implementation of agreed policies, but also *because* of the very nature of the agreements, which – among other things – gave a legal standing to the greenhouse gas trade discourse and failed to impose binding climate targets. At more recent COP summits, such as Dubai 2023 and Baku 2024, the UN climate agenda lost any remaining veneer of ambiguity, nearly totally captured by petrostates and fossil interests (Noor, 2024).

From the vantage point of political ecology, an interdisciplinary field within social sciences "focusing on power relations as well as the coproduction of nature and society" (Benjaminsen and Svarstad, 2019), a key question to be answered about the hegemonic climate governance regime is *what* exactly is being governed and to whose benefit. As Millward-Hopkins et al. (2024) show, supposedly neutral projections like global climate mitigation scenarios perpetuate the large imbalances of the current economic system. Beyond the descriptive level of mitigation scenarios, however, deeply political processes are at play in designing decarbonisation processes. The various forms of Green New Deal inspired by green capitalism, argue Féliz and Melón (2023), "can only reinforce the commodified and unjust social reproduction patterns of dependent, racialized capitalism" (p. 8). This is because Green New Deals respond to the logic of the "decarbonisation consensus", defined as "a new global capitalist agreement that commits to shifting from a fossil-based energy matrix to a zero-carbon (or low-carbon) matrix based on 'renewable' energies, which condemns the peripheral countries to be sacrifice zones without changing the societal metabolic profile nor the predatory relationship with nature" (Bringel and Svampa, 2023). In this framing, the decarbonisation consensus follows and partly overlaps with the "Washington consensus" of the 1980s, hinging on extreme market fundamentalism, privatisation, and financial liberalisation, and the "commodity consensus" of the 1990s and early 2000s, "based on the large-scale exportation of raw materials [involving] a process of 'reprimarization' of [...] economies, emphasizing their reorientation toward mainly extractive or rent-based activities, with little added value" (Svampa, 2015:65)[11]. Thinking along the lines of these criticisms, it can be concluded that the UN-led climate governance regime is not supposed to govern the society-economy nexus in the interest of climatic stability and consequently human well-being, as much as to govern the 'green' transition in the interest of capitalist expansion. Under this light, the dominant climate governance paradigm emerges as a planetary-scale "environmental distribution conflict" (Scheidel et al., 2018) designed to benefit industrialised countries and global elites at the expense of the vast majority of humanity, for the most part living in formerly colonised regions (see chapter 3).

[10] Consider for example the exclusion of military emissions from carbon accounting (Michaelowa et al., 2022).
[11] For proposed alternatives to the decarbonisation consensus, particularly from the Global South, please refer to chapter 7.

Bumpus and Liverman (2008) brought attention, somewhat pioneeringly, to the geography of carbon offsetting, which will be analysed more closely in chapter 3. What is relevant here is their notion of "accumulation by decarbonisation", predicated – among other things – on the super-exploitation of workers in the Global South[12]: "Carbon reductions are like many other resources in that they [...] are often easier and cheaper in the developing world, where industrial processes are generally less efficient, forest offsets are more effective, opportunities for implementing "cleaner" energy systems may be less costly, and labor and land are generally less expensive" (ibid:133). In this framing, credits – be they from compliance or voluntary carbon markets – emerge as raw materials that are functional to the commodification of not-yet-capitalist life and to the further expansion the capitalist system. "There are trillions of dollars to be made out of hot air", affirmed an upset staff member at SBTi, an organisation providing guidance on corporate emissions mitigation (Bryan, 2024a). To the extent that, for many companies, emissions reduction has become a production stage of sorts, it can be seen as an essential input for the perpetuation of capitalist relations of production. That decarbonising is cheaper in the Global South, however, should not be naturalised as a mere fact, as we shall see in chapter 3.

Taking a critical stance towards neoliberal nature means almost inevitably wearing Marxist spectacles, in the sense of adopting a critical stance rooted in the Marxian theory of value and, more generally, in Marxist theory. While this dissertation is not meant to exhaustively engage Marxist critical scholarship, Marxist concepts will be mobilised in the next chapters – mediated by the notions of political ecology – to make sense of the localised manifestations and effects of climate policies. At first glance, this might be deemed inappropriate for an analysis of socio-environmental processes involving indigenous Latin American communities. However, this 'orthodox' position is disavowed by the numerous scholars from the Global South, including Latin American ones like Peruvian sociologist José Carlos Mariátegui and Bolivian sociologist René Zavaleta, who productively applied Marxist theory to their analysis of former colonies, calling for an expansion of Marxist frames rather than for their renunciation (Hesketh, 2023). Frantz Fanon himself wrote that "Marxist analysis should always be slightly stretched" (Fanon, 1965:40), i.e. not dismissed, when addressing the colonial issue. More recently, prominent cultural theorist Stuart Hall imbricated his analysis of racial capitalism with Marxist scholarship, suggesting its usefulness much beyond its more economistic tenets. As for the necessity of employing theories stemming from the Global South to analyse Southern problems, as Caribbean activist and intellectual Kwame Ture famously put it, because a European "astute observer" discovered gravity, it does not mean it does not apply in Timbuktu (Lalla, 2020). In this work, I invoke an expansion of Marxian frameworks to indigenous forest conservation in order to make sense of the production of carbon offsets in ways that are detailed in the next sub-chapter.

[12] For a clarification on the use of the concept of Global South, see chapter 2.4.

Desarrollo en carne viva[13]: Extractivism and neo-extractivism in Latin America

For all the talk and scholarship on extractivism, the term itself has not been univocally defined. For the purposes of this dissertation, which it constitutes a cornerstone of, two 'working definitions' are adopted (and mobilised mainly in chapters 1, 4, and 5): from a political economy standpoint, extractivism identifies those activities that "remove large quantities of natural resources that are not processed (or processed only to a limited degree), especially for export" (Acosta, 2013:62). From the more holistic perspective of political ecology, whose disciplinary history and empirical repertoire are profoundly imbricated with anti-extractivist struggles and reflections, it can be viewed as a system of production that disregards (or even impairs) social reproduction while depleting its biological basis; in other words, a form of capital accumulation with no regard for social reproduction. In historical terms, extractivism has been defined as "the modality through which capitalism is lived in the periphery" (Riofrancos, 2024). While not specifically mobilising this somewhat rhetorical – if effective – definition, the following chapters will illustrate how the capitalism-extractivism nexus still characterises the experience of modernity in the Global South.

As a key stage in the metabolism of the capitalist world-system, extractivism is inextricably linked to global dynamics of material demand, which steer the extraction – or, in the case of agro-extractivism, cultivation – of certain commodities instead of others. If the rising commodity prices of the early 2000s spurred an intensification in ore extraction and agribusiness (Brand et al., 2016), following the 2008 global financial crisis, as the Western world was going through an investment crunch, it was China's construction frenzy that flooded developing countries' markets with investments in exchange for raw materials (Gallagher, 2016), massively contributing to the above-mentioned commodity consensus. Almost simultaneously, the 'green' transition unleashed a global rush for minerals of previously minor importance such as cobalt and lithium, thereby exacerbating the related socio-environmental threats (Sonter et al., 2020). While not exclusive to former colonies, extractivism tends to be more prevalent in countries with a history of socio-economic subalternity. This configuration constitutes the foundation of dependency theory, whose main contributors include Ruy Mauro Marini, Theotônio Dos Santos, Vânia Bambirra, Fernando Henrique Cardoso, Ernesto Laclau, André Gunder Frank, Immanuel Wallerstein, and Samir Amin (Katz, 2022). This theory, which influenced and was influenced by the world-system theory (Wallerstein, 2004), posits that "the underdevelopment of countries in the South can be explained via their continued exploitation at the hands of the North, rather than only by way of internal policy failures" (Kufakurinani et al., 2017:vi). In other words, contra modernisation theory (Rostow, 1960), the argument is that capitalist development it is not a linear pathway that any country could pursue, but instead that the development of "core" countries *produced* the underdevelopment of "peripheral" ones in a dialectical

[13] This quote (translatable as "development in live flash") comes from the song "Latinoamérica" by Puerto Rican band Calle 13. The song denounces the destructive socio-environmental legacy of colonial extraction and post-colonial development, while celebrating the intangible cultural heritage and natural bountifulness of the continent.

relation of simultaneous co-production. Hence, the "history of central capitalism is, at the same time, history of peripheral capitalism" (Cardoso and Faletto, 1979:23)[14]. In the post-colonial era, dominant countries' development remains contingent on "relations of subordination [...] reproduced through an international division of labour" (Hesketh, 2025:1). While this framing is not devoid of weaknesses, especially in relation to the methodological nationalism and economic reductionism of some of its advocates (Grosfoguel, 2008), it teases out useful analytical categories and provides valuable insights into the global polarisation of wealth and power. This may be why dependency theory, and the related unequal exchange theory, have been experiencing a revival as a research programme (Kvangraven, 2020; Katz, 2022; Ricci, 2025). In Colombia, the impact of dependency theory transpires – among others – in the work of sociologist Orlando Fals Borda (1970), whose "*Ciencia propia y colonialismo intelectual*" remains a mainstay of the national intellectual production.

Particularly in Latin America, resource extraction "traces a long arc" (Riofrancos, 2020:4). Different scholars (Brand et al., 2016; Rivera Cusicanqui, 2018), albeit with slight chronological differences, coincide in identifying the following stages of extractivism, which broadly apply to the whole sub-continent:

- Colonial extractivism (sixteenth – eighteenth century): appropriation of metals and land, colonial system of domination, human slavery, nature as mere provider of materials
- Liberal extractivism (nineteenth – early twentieth century): political independence, foreign investment, free-trade policies, internal colonisation, 'oligarchisation', technological modernisation
- Fordist/populist extractivism (1940s – 1970s): State interventionism, developmentalism, import substitution, start of debt trap towards international institutions
- Neoliberal extractivism (1980s – 2000s): Structural 'adjustment', opening to foreign capital, market-oriented policies, privatisation, start of 'reprimarisation'

Since the early 2000s, many Latin American governments of different political inclinations have been "surfing the green capitalist wave" (Féliz and Melón, 2023:5). With a degree of approximation and arbitrariness, the start of this latest stage of extractivism may be located in 2003 with the election of Lula da Silva in Brazil and Néstor Kirchner in Argentina, followed by Evo Morales in Bolivia in 2005, Rafael Correa in Ecuador in 2007, and José Mujica in Uruguay in 2010, although some trace it back to the election of Hugo Chávez in Venezuela in 1998 (Enríquez, 2013). The leaders of this so-called "pink tide" harnessed the mounting discontent towards the neoliberal policies of their predecessors to usher in a new political era marked by a heavier state interventionism in resource exploration and extraction and a broad-based redistribution of the resulting rents (Kaup, 2010; Svampa, 2015). These governments, however, never put

[14] On the dependency research programme, see also seminal texts by Prebisch (1950) and Gunder Frank (1967). Amin perceived his own unequal exchange theory as a strand of dependency theory (Kufakurinani et al., 2017).

into question the extractive imperative and often underplayed its local impacts, an attitude that has led scholars to speak of neo-extractivism (Gudynas, 2010; Vergara-Camus and Kay, 2017).

With all the short-term benefits of this model in terms of social programmes, jumping on the bandwagon of state-led extractivism and normalising this fiscal formula, warns Gudynas (2010), can have perverse effects: first, it cements the country's dependence on extractivism; second, it entails a subordination to global markets, resulting in a "dirty competition among South American countries to attract foreign investment" (ibid:4) and, if we are to take seriously the mechanisms of unequal exchange (see chapter 3), pushing them further down the pit of ecological and economic degradation. Throughout this phase, Latin America confirmed its propensity to adapt to global accumulation cycles, tending "towards the acceptance of the place that this region occupies in the international division of labour, changing the role of the State from producer and regulator [...] to a guardian of the reproduction of capital" (Féliz and Melón, 2023:2). This is precisely the role taken up in Bolivia by Evo Morales, who, while embracing indigenous ecological principles and promoting national industrialisation on a rhetorical level, premised the country's developmental project on the exploitation and export of natural resources. In some respects, as the following chapters will illustrate, it has also been Colombia's approach, particularly as regards environmental policies. Elsewhere (Rizzi, 2022), I have defined this *caciquismo*[15]. The importance of local elites in the post-colonial architecture, or what Gunder Frank called "lumpenbourgeoisie" (Gunder Frank, 1973) will be detailed in chapter 3.

Post-colonial theory, decolonial practice, and coloniality

Over the last few decades, terms related to colonialism and its legacy (post-colonial, decolonial, coloniality, neocolonialism) have proliferated in the social science literature in the most diverse guises. Although these debates, even only within geography, are too vast and articulated to be exhaustively dissected here, a digression is in order to clarify how these terms are used in this work.

At its core, post-colonial theory attends to the representational politics at work in the production of spaces and hybrid identities. According to Jazeel (2019), it made its appearance in geography only in the 90s, after the field came to terms with its status as a spatial, quantitative discipline. Many post-colonial theorists have looked at how Europe constructed "the Orient" as a stereotyped – and inferior – Other to itself, how they built "imaginative geographies" (Said, 1978) that, resting on "authoritative modes of knowing the Other" (Prakash, 1995), enabled colonial rule. Given its concern for the relation between culture and power, post-colonial theory is eminently cultural and hence – some argue – less interested in changing the material reality than in analysing it and – at most – theoretically deconstructing it (Gregory, 2001). In other words, it lacks the political and normative thrust necessary to change the reality it helps

[15] Like *caciques* (indigenous chieftains), who acted as middlemen between *conquistadores* and local populations in exchange for protection and material privileges, Morales accepted the country's subalternity to global capital and refused to embrace a more empowering long-term vision. For further details, see Kern (1973) and Rizzi (2022).

analyse. As Jazeel (2019) asserts commenting on Homi Bhabha: "Given that his thesis asserts the *inherent* instabilities of colonial discourse, why bother being political?" (p. 134). While some authors have added nuance to this criticism and cast some light the ways in which geography has begun to respond to it (see McEwan, 2003), the predilection for discourse analysis is recognised even be those who seek to reaffirm post-colonial theory as an ethical enterprise (Quayson, 2000).

Conversely, for decolonial theory "deconstruction is part of a much larger intent" (Tuhiwai Smith, 2008:3). Even though decolonising education is among its tasks (Radcliffe, 2017), it emphasises the importance of practice, besides mere theory, and material struggles over discursive ones. It explicitly aims to turn the tables of privilege, proposing acts as material as giving back land (Tuck and Yang, 2012) and as unsettling as 'undisciplining' the racialised subjects of colonial governance (Collins, 2024). Decolonial scholarship is not simply a form of knowledge production that is less deferent to modernist, market-centred narratives and embraces plural worldviews, but one that promotes practice-based knowledge production and endeavours to turn research subjects into research actors. Within geography, decolonising the discipline "needs to be every geographer's preoccupation. [...] This needs to be something that economic geographers and population geographers, physical geographers as well are thinking about" (Naylor and Jazeel, 2025:248). A strong emphasis is laid on the production of knowledge in the Global South by scholars from the Global South, as one of the limitations of post-colonial scholarship is that it largely stems from within Western modernity and inevitably remains within the straitjacket of its canons (Mignolo, 2008).

This dissertation draws on both intellectual traditions. Elsewhere (Rizzi, 2025a), I have argued that even the literature that takes a critical view of carbon offsetting often lacks a decolonial approach to knowledge production. While I am very cautious to claim any noteworthy achievement in decolonising the discipline or the material reality of the field, this research was carried out with this aspiration in mind. On the one hand, there is an argument for inaction in the recognition that decolonisation should sprout from the agency of formerly colonised subjectivities and not from the sense of guilt of the descendants of colonisers (on this, see also chapter 2). On the other hand, it is clear that no material or cultural decolonisation will be possible unless those who tread a line of privilege come to terms with a past (and present) of social, environmental, and epistemic injustice and take it upon themselves to build their side of the 'bridge'. This also involves opposing all forms of neocolonialism, perhaps the most readily-defined among the concepts addressed in this sub-chapter: as the word suggests, it refers to the "*indirect* and subtle form of domination by political, economic, social, military or technical means" (AAPC, 1959:1, italics added; see also Nkrumah, 1965).

Related to the above theories, and central to the conceptual arsenal of this dissertation, is also the concept of coloniality, developed within what was later called the modernity/coloniality/decoloniality (MCD) research programme and largely in reaction to Western-centric post-colonial scholarship. MCD proponents assert that the colonisation of the Americas initiated colonial modern divisions of labour, the

racial categorisation of non-Europeans, and intersectional hierarchies of race, gender, class, and knowledge (Dussel, 2000; Quijano, 2007; Radcliffe, 2017). Over the years, the colonial structure of power became a structure of the mind, which to this day permeates human (and more-than-human) relations in former colonies. Indeed, the subjugation of the colonised was not only based on the repression of local bodies, traditions, and beliefs, but also on a mystified projection of European values and knowledge, which was necessary for a selective inclusion of some of the dominated: "Then European culture was made seductive: it gave access to power" (Quijano, 2007:169). In the 1980s, though not in directly relation to the coloniality debate, Samir Amin (1988) coined the term "eurocentrism", which effectively captures the gist of at least part of the theory of coloniality. As Europeans tightened their grip over the colonies through military means, the Western modernity/rationality complex was emerging, which was to establish itself as a universal paradigm of knowledge and knowledge production. Key principles of this complex are the hierarchisation of human and non-human beings and the conception of history "as a evolutionary continuum from the primitive to the civilized; from the traditional to the modern; from the savage to the rational; from pro-capitalism to capitalism" (Quijano, 2007:176). Along this axis, the colonised were lagging behind and in need of progress as conceived by the colonisers, since "for the West there are no other worlds, only unfinished fragments of itself" (Gutiérrez, 2021:57).

The MCD programme too, of course, has been criticised on several accounts, for example for its narrow understanding of the oppressive modern/colonial constructions of gender (Lugones, 2010) and some degree of disciplinary patrolling (Asher, 2013). With a more polemical slant, socially-engaged scholars and activists have criticised the theoreticians of coloniality for foregrounding the epistemic dimensions of decolonisation and obscuring the inheritances of material anticolonial practices (Temin, 2024). Among the most vocal critics of what could be called "ivory tower decolonisation" are Ramón Grosfoguel, who challenges the MCD intellectual production as a form of "epistemic extractivism" (Grosfoguel, 2016), and Bolivian sociologist Silvia Rivera Cusicanqui, who openly accuses "Mignolo and company" of engaging in intellectual imperialism from their comfortable tenured positions at Western universities and of proposing a "logocentric" version of decolonization (Rivera Cusicanqui, 2012).

Nevertheless, the MCD programme deserves credits for awarding Latin America a more prominent role in the global post-colonial debate, which until the 1990s had tended to overlook Latin American anti-colonial experiences and texts (Asher, 2013). In the region, coloniality is linked to the somewhat more materialist concept of "internal colonialism": first formalised by Mexican sociologist Pablo González Casanova referring his own country, it can be effectively condensed as "domination and exploitation of natives by natives" (González Casanova, 1965:27). Similarly to the coloniality theory, it posits that in Latin America's post-colonial societies, moulded by centuries of colonial rule, positions of domination were not redistributed among all but occupied by *criollos*, with no substantial changes in power structures. Since internal colonialism "limits social mobilization and maximum participation in the development process", it partly "explains the uneven development of underdeveloped countries" (1965:35).

In recent years, scholars have applied the concept of coloniality to environmental issues: understandably, the first connections in this regard emerged – to my knowledge – in Latin America, where this framing remains prominent (De la Hoz et al., 2024). Alimonda (2009), for example, refers to the coloniality of nature as "a founding dimension and a structural trait of practices and views over the American nature" (p. 62) and suggests a deeper understanding of environmental history as an inextricable entanglement of nature mediated by society and vice versa. More well-known in the English-speaking academic landscape is Sultana's (2022) fervent denunciation of the pervasiveness of climate coloniality, understood as a structure of power that reproduces colonial social hierarchies, delays climate action, and disproportionately affects the most vulnerable, leaving behind a trail of epistemic and material injustice along the fault lines of racial capitalism. Like other studies applying the coloniality framework to Colombian extraction frontiers (Acosta García and Fold, 2022), I will mobilise it to interpret the socio-environmental processes that take place upon carbon forestry frontiers in the Colombian Amazon as well as across the global carbon offsetting landscape.

To conclude this overview on post-colonial thought, particularly relevant to this dissertation are Marxist cultural theorist Stuart Hall's reflections on the articulation of different social formations, a concept widely debated by development theorists since the 1970s (Karayiannides, 2022; Hart, 2023; see also Arrighi, 1994). With Hall (1980), articulation can be understood as a socio-spatial conjuncture "in which precapitalist relations of production were subordinated and made functional to capitalist relations without being fully undermined or transcended in the course of a society's economic development" (Karayiannides, 2022:1277). While in some respects resonating with the Marxian idea of formal subsumption, Hall's notion attends to the enmeshment of race into capitalist modernity by underscoring the subsumption of *racialised* precapitalist structures under capitalist logics. Relevantly to this dissertation, Hall also intervened in the well-known Frank-Laclau-Puiggrós debate on Latin American "dual system" (Svampa, 2016), offering insights that will prove valuable when interpreting the co-existence and interaction of apparently different modes of production and worldviews upon carbon forestry frontiers. Since this dissertation does not draw in a systematic manner on Hall's theories, and in the interest of space, I will not address his vast intellectual production in any more depth (for more exhaustive analyses, see Henriques and Morley, 2017, and Hart, 2023). However chapter 5, which deals – among other things – with the penetration of 'climate capital' among indigenous communities, will make the relevance of these concepts obvious and give empirical validation to Hall's observation that a "combination of modes [of production] inserts economic agents drawn from different ethnic groups into sets of economic relations which, while articulated into a complex unity, need not be conceptualized as either necessarily the same [capitalist] or inevitably destined to become so" (Hall, 1980:321).

Imagined autonomy: Subject-making through environmentality

Since, to a degree, it depends on broad-based social acceptance, the neoliberal climate governance outlined above is not imposed authoritatively but relies on the selective enrolment, or "domestication" (Brock, 2018) of local populations, especially in regions with high biodiversity value. As a prism to analyse the ways in which local communities (particularly the indigenous community affected in the case study presented below) interiorise, negotiate, and resist the norms and institutions of the contemporary environmental paradigm, the environmentality[16] framework developed by Arun Agrawal (2005) is put to work in later chapters. Here, a sketch of its main tenets is drawn.

Drawing on nationalism theories (Anderson, 1983) and openly building on Michel Foucault's governmentality paradigm (Foucault, 2009), Agrawal attempts a "politics of the subject" to investigate how subjects are made historically, particularly in relation to environmental awareness and pro-environmental behaviour. By studying the behaviour of villagers in Kumaon (North India), he brings to light a shift from top-down environmental policies to hybrid modes of environmental governance, constituted by "interventions aiming at changes in environment-related incentives, knowledge, institutions, decision making, and behaviors [...] through which political actors influence environmental actions and outcomes" (Lemos and Agrawal, 2006:298). Agrawal's diachronic account shows how new environmental subjects, defined as "those for whom the environment constitutes a critical domain of thought and action" (Agrawal, 2005:16), emerge in relation to involvement in resource governance and changing calculations of self-interest, increasingly tied to the optimisation of environmental outcomes.

Like Foucault's biopolitics, environmentality's gaze is attentive to the ways in which diverse technologies of government are applied to secure the conduct of conduct, in this case within the environmental sphere of life and thought. One of the keys for a successful archaeology of environmental actors – Agrawal contends – is "considering both practice and imagination as critical" (ibid:170). In this sense, despite his interest in how knowledge, politics, institutions, and subjectivities "run through each other" (ibid:203), his argument has a materialist component to it as in Kumaon, "the government of nature led to the birth of *the environment*" (ibid:201, italics added).

With all its merits, Agrawal's framework presents a number of inconsistencies and blunt edges that make it only partly suitable for the purposes of this dissertation: first, to this author's knowledge Agrawal does not explicitly define the core concept of his theorisations – the environment – or appears to subscribe to its modern Western meaning as an independent entity, separate from humans and amenable to unproblematic measurement and use. This flaw dulls the framework's analytical sharpness for this study given the multiplicity of relational and spiritual meanings indigenous ontologies attach to ecosystems. Second – and relatedly – Agarawal's (perhaps deliberately) ambiguous assessment on the disciplining of rural communities associated with the decentralisation of environmental governance leaves the reader unsure as to whether this form of biopolitical power is to be welcomed as a means of

[16] The term itself was coined by Luke (1995). Agrawal, however, departs from Luke's framing of environmentality, which essentially refers to a supervision of environmental organisations by international networks (Agrawal, 2005:238).

empowerment or distrusted as a tool for social control, or as to where the author situates himself within this complex dialectic. For example, when reading that "imagined autonomy, stemming from precisely those practices of conservation encouraged by state officials, is crucial to the success of decentralized protection" (p. 197), one is left hovering between the success of environmental protection (a presumably positive outcome) and an autonomy that is merely imagined, that is, a deceitful instrumentalisation of the community for the enactment of exogenous aims. Furthermore, a degree of agnosticism emerges in regard to market-centred climate governance: should it be rejected as tainted with neoliberalism, as other scholars suggest (Fletcher, 2010), or simply judged based on purportedly neutral effectiveness parameters? The latter appears more likely as, in his book and other writings, Agrawal explicitly calls for a "greater role for community and market actors in forest governance [as] necessary to address future forest governance challenges" (Agrawal et al., 2008:1460), not matched by particularly critical takes on neoliberal rationality.

In analysing field data, then, the environmentality framework is mobilised in its productive attentiveness to situated phenomenologies, heeding to Agrawal's (2005) invitation to concern oneself with "the experiences of environmental changes and politics *among those who are the subjects of scholarly investigations*" (p. 23, italics added). Importantly, this work does not draw too deeply on the biopolitical roots of environmentality so as not to lose sight of its radical edge in the mist of diffused power. While one of the arguments (see chapters 3 and 4) is precisely that policies that come from afar work through local circumstances to produce outcomes that policymakers did not necessary envision, thus illustrating the dialectical nature of biopolitics' will to control, specific actors and grounded patterns are clearly identified that make power relations manifest.

In his book, Agrawal (2005) maintains that there is "little or no indication of *how* government shapes subjects" (p. 12). Arguably, this gap has not been filled through the multiplication of environmentality-like frameworks (see for example Fletcher, 2010), which can be credited for adding theoretical more than empirical depth. The case study presented in chapter 5 provides some situated insights on subject-making by elucidating some of the ways in which carbon actors as standard-bearers of environmentality – albeit in a much less refined and more abrupt way that the ones described by Agrawal – seek to mould the environmental identities of Amazonian indigenous communities in ways that nominally align with global emissions mitigation policies.

1.2. The global carbon offsetting landscape

"The solutions of the problems facing the world in the twenty-first century [...] must ask Marx's questions, even if they do not wish to accept his various disciples' answers"

(E. Hobsbawm)

This sub-chapter introduces the theoretical linchpins of the academic debate on carbon offsetting and critically engages with the relevant literature from adjacent disciplines. It starts by reviewing the establishment carbon trading and the (de)regulation carbon markets. Next, the complex theoretical question of the political economy of offsets is tackled. Indeed, treating them as a raw material through the lens of extractivism or as a commodity from the vantage point of Marxist theory takes us down quite different theoretical rabbit holes. This sub-chapter will seek – with no pretence of comprehensiveness – to venture into several of these in order to set certain boundaries this dissertation will move within.

Born to be free: The establishment and uneasy regulation of carbon markets

Selected milestones of carbon offsetting

- 1997 Kyoto Protocol
- 2005 EU ETS established
- 2005 REDD scheme introduced
- 2006 CDM and JI operational
- 2010 Cancun safeguards introduced
- 2015 Paris Agreement
- 2025 Art. 6 of Paris Agreement operational

At a 1994 conference in Costa Rica, not long after the 1992 Earth Summit in Rio and three years before COP3 in Kyoto, leading ecological economist Joan Martínez-Alier asked: "are there owners of the Earth's ability to recycle a good part of the CO2 pumped by humans into the atmosphere?" (Martínez-Alier, 1995:512). His question might have been rhetorical, but the reply of the high priests of global climate governance has been a resounding "yes". For three decades now, the idea that the emission of a certain amount of a greenhouse gas (typically one ton of CO_2 equivalent, see Lohmann, 2011) can be compensated (offset) in any geographical location by trading emissions with more virtuous polluters or investing in projects that avoid or capture an equal amount of emissions has been common wisdom in climate governance circles.

The establishment of carbon trading, and contextually carbon markets, followed a pathway typical of capitalist markets: property over the atmosphere as a social convention was created by states (or rather supranational organisations) by establishing legal certainty through "universally fungible greenhouse gas pollution rights backed by an implicit government guarantee" (Lohmann, 2010). In other words, the

atmosphere – or rather, a legible abstraction of it – was cordoned off by governments and climate bureaucrats for private actors to be able to capture a share of the value (Felli, 2014). In so doing, capital was created – literally – "out of thin air" (Gutiérrez, 2011).

As will be further elaborated below, the complicated chemistry of emissions makes them uncollaborative towards commodification: since the effects of pollution are distributed according to a non-linear, transboundary process, "the space of violation is separated from the space of its repercussion" (Lahoud, 2014:508). Yet, according to the carbon trading logic, if the space of violation can be circumscribed, the activity offsetting that violation can be spatially displaced. Regulators only need to make these spaces measurable (Castree, 2003) and sellable for market signals to fix the underlying issue. This way, "'climate benefit' units can be unproblematically separated out from the historical pathways and political and social movements involved in a transition away from fossil fuels" (Lohmann, 2010:238), conveniently ignoring the "degree to which any particular offset project helps entrench dependence on fossil fuels in both North and South – thus undermining climatic stability" (ibid:245).

The jargon of carbon markets:

- ***Carbon allowance**: Permit issued by a state authority that allows an entity to emit a certain amount of CO_2 or equivalent greenhouse gases.*
- ***Carbon offset**: Certificate representing an emission reduction or removal, traded through voluntary or regulated schemes.*
- ***Carbon/emission reduction**: Activity carried out to avoid or reduce future emissions.*
- ***Carbon capture**: Activity carried out to trap CO_2 at the point of emission.*
- ***Carbon removal**: Activity carried out to remove existing CO_2 from the atmosphere, typically through technological methods.*
- ***Carbon sequestration**: Activity carried out to capture and store CO_2 through technological or biological methods.*
- ***Carbon storage**: Long-term storage of CO_2.*

See also Bond (2011), Stephan and Lane (2015), Narassimhan et al. (2018), and Höglund (2024).

This process of arbitrary separation, also critically described as a "fetishisation of carbon" (Lyons and Westoby, 2014), was kicked off in 1997 with the signing of the Kyoto Agreement, in which the idea of trading carbon was first formalised on a US initiative (Lohmann, 2010). Initially sceptical of carbon markets and in favour of binding commitments, the European Union, "[f]aced with the prospect of destroying the Kyoto Protocol by obstructing a measure which it perceived [...] would persuade the USA to accept emissions targets" (Bailey, 2007:434), embraced carbon trading to the point that it was the first to establish its own Emissions Trading Scheme in 2005 (European Commission, n.d.). Paradoxically, the US never ratified the protocol, but the worldwide equivalence of carbon units had been legally legitimised.

The Kyoto Protocol introduced the so-called flexibility mechanisms (United Nations, 1997), a set of instruments allowing industrialised countries to meet their greenhouse gas emission reduction targets in a cost-effective way trading emissions among themselves ("Joint Implementation", JI) or by purchasing emission reductions associated with projects in the developing world ("Clean Development Mechanism",

CDM, see Bumpus and Liverman, 2008). By 2006, the CDM was up and running and countries started registering projects (UNFCCC, n.d.), although forest conservation projects were initially excluded (see below).

After the "Copenhagen disaster" (Dimitrov, 2010) of COP15 in 2009, when a negotiation breakdown led parties to a deep overhaul of climate ambitions, the incremental progress of COP meetings achieved a milestone in 2015 at COP21 in Paris. The Paris Agreement, adopted by 196 parties, is a non-binding international treaty aimed at limiting global warming to well below 2 degrees Celsius above pre-industrial levels and achieving climate neutrality by mid-century (United Nations, 2015). Amid resistance by fossil lobbies and negotiation delays, it took another decade for Article 6 of the agreement, regulating emissions trading among countries, to become operational (UNFCCC, 2024). Activities carried out under the underperforming CDM (Michaelowa et al., 2019), as well as some bilateral and voluntary offsetting schemes, are likely to flow into a novel mechanism (PACM) pursuant to Article 6 (UNFCCC, 2025a; UNFCCC, 2025b; Ginsberg-Keig, 2025) guided by a new regulatory framework (UNFCCC, 2023). The new mechanism is expected to streamline the project development and certification process and thus considerably boost the market, although industry observers have been sceptical (Carbon Market Watch and Clara, 2024) amidst unclarity on the integrity principles to be followed (Johnstone et al., 2025b; Swinfield and Toye Scott, 2025). The 'first cries' of the new mechanism have not been particularly encouraging (C. Lang, 2025a).

Let us take a step back, however, to trace the beginnings of extra-UN (voluntary) carbon trading. In the early 2000s, unimpressed by the slow pace and muddled outcomes of intergovernmental negotiations, but aware of the economic potential of carbon markets and especially of forest-based projects, some private actors sought to have carbon offsetting their own way. Aiming for a more flexible approach, one that – among other things – allowed for avoided-deforestation projects to be eligible, in 2007 they established a company called Verra (n.d.a) and the related Voluntary Carbon Standard (VCS), the first and still most widely-used private carbon standard, with its associated registry (Gourlay, 2025). Among the founders were the World Economic Forum, the Climate Group (an international alliance including BP, Starbucks, Johnson & Johnson, and Allianz), WBCSD (whose co-chair was Jorma Ollila, the then CEO of Shell), and IETA (a lobbying group for emissions trading with Deutsche Bank and German power utility RWE among its members, see Fischer and Knuth, 2023). This alliance marked the birth of voluntary carbon markets, which evolved as parallel, loosely regulated counterparts to Kyoto Protocol mechanisms and jurisdictional schemes (Bumpus et al., 2010). While over the years a degree of hybridisation could be observed, leading to some confusion among scholars and practitioners (Rizzi, 2025a), voluntary carbon markets (VCM) remain less regulated yet (or perhaps consequently) more dynamic than UN carbon mechanisms.

When capital is no longer content with plundering readily-available nature, Smith (2007) argues, it "moves to produce an inherently social nature as the basis of new sectors of production and

accumulation" (p. 33). Since its inception, as discussed above, carbon trading has been viewed as an opportunity for a further expansion of the capitalist system through the commodification and financiarisation of atmosphere and ecosystems. The word financiarisation, in this case, is not used simply as a common companion to commodification: Richard Sandor, a US economist and trader who was among the originators of interest rate derivatives in the 1970s (Lohmann, 2010:236), helped conceive the idea of pollution trading in the 1980s and is considered among the fathers of carbon markets (Cameron, 2007). Kenneth Newcombe, a former executive at the World Bank and a promoter of derivatives, helped set up the global carbon market before moving on to Goldman Sachs' carbon trading desk and carbon trading firms (Lohmann, 2010). In hindsight, his motives were rather questionable, as in June 2024 C-Quest Capital, the carbon trading company he helped establish, announced the uncovering of wrongdoing by its former CEO, resulting in the over-issuance of millions of credits (Greenfield, 2024).

In typical neoliberal fashion, the architects of the dominant climate governance regime display an obsession for measurability and for the 'technicratisation' of political problems that applies to carbon trading as well. As Colombian environmentalist von Hildebrand put it, referring to Amazonian flying rivers[17]: "They went after carbon because it was the only thing they could measure. They could not do it with flying rivers because how does one quantify clouds?" (Arbelaez, 2024). This reflects a broader tendency to carbon reductionism, that is, the reduction of the climate crisis to the problem of excess carbon, which conceals the "messy uniqueness" (Robertson, 2000) of earth's ecosystems and biophysical processes. As poignantly illustrated in Fig. 1 and Fig. 2, the concentration of carbon dioxide in the atmosphere is but one of the multifaceted effects of unbridled anthropogenic activity, whose severe impacts on biodiversity, water cycles, and many other vital biological processes are not directly to carbon emissions. Yet, those phenomena that are not amenable to measuring – or are associated to systemic activities that may not be put into question – go largely unnoticed in a depoliticised climate paradigm in which "it is carbon molecules (as emergent effects) that become the objects of governance, rather than high carbon emitters (root causes)" (Machen and Nost, 2021).

Below the international scale, carbon markets need to be articulated on a national level and transposed into specific norms and practices. This step has proven arduous, as differences in legal systems, political agendas, economic and industrial fabrics, and ability to impose binding restrictions such as carbon taxes produced a patchwork of rules and approaches. While an account of this diverse legal landscape is beyond the scope of this work (for more information, see Gold Standard, 2025a), the vague, changing, and non-binding nature of global agreements reached under the UNFCCC is liable to all kinds of distortions and unintended consequences. Colombia is an emblematic case in point (see chapter 4). Where lawmakers failed, in Colombia (Gaia Amazonas, 2024; Rutas del Conflicto and CLIP, 2025), as well as in Peru (Grattan, 2025), in Brazil (Ministério Público Federal no Pará, 2025), and elsewhere,

[17] Masses of water vapour, generated by the rainforest, which flow across the Amazon basin and bring rain to regions that would otherwise be considerably dryer.

communities have resorted to the judicial power to have their rights protected, although the jury is still out – in some cases, literally – on the consequences that these proceedings will have on the broader carbon trading paradigm.

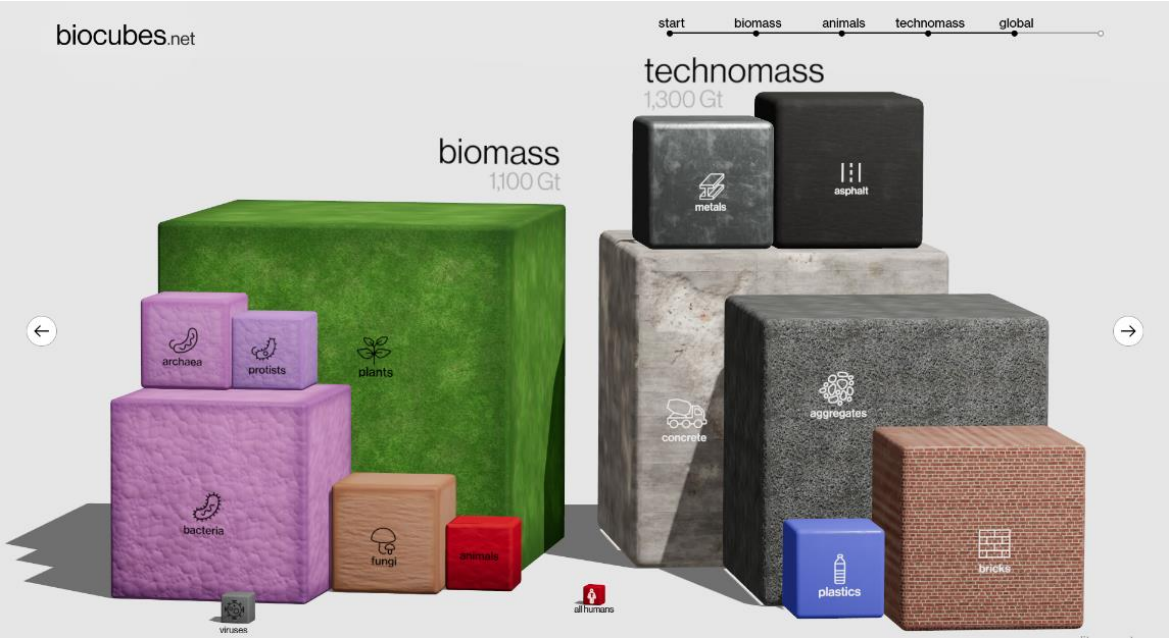


Figure 2: The "technomass" (the mass of all human-made structures) has overcome the aggregate weight of all the natural biomass on the planet. Source: https://biocubes.net/. Based on Elhacham et al. (2020).

The socio-political implications of carbon offsetting projects will be dealt with in considerable detail in the rest of the dissertation. As far as the biogeochemical effectiveness of carbon trading is concerned, it is by now fair to assert that – in the best-case scenario – they have offered a minor contribution to climate change mitigation. In the worst-case scenario, they have been a hurtful distraction, especially when it comes to nature-based 'solutions': according to several media investigations, the overwhelming majority of forest carbon offsets are worthless (Greenfield, 2023a; Fischer and Knuth, 2023; White, 2023). In the academic sphere, Haya et al. (2023), based on a large-scale study, warned that "only a very small fraction of credits likely represent real emissions reductions" (p. 8). On Nature, Probst et al. (2024) backed this argument by concluding that less than 16% of carbon crediting projects constitute real emission reductions. In early 2024, a 'carbon-offsetting-gate' caused a stir at SBTi as the UN-affiliated climate-certification organisation, reportedly under pressure by US climate advisers (Bryan, 2024a), announced plans to allow companies to meet their climate targets with offsets. Outraged over the disregard of their scientific recommendations, the staff asked SBTi's CEO and board members to resign (Greenfield and Harvey, 2024).

In light of this failure, social scientists have long questioned carbon markets and their policy persistence, with a particular focus on forest-based initiatives (Gutiérrez, 2011; Lund et al., 2017; Markusson et al., 2017; Asiyanbi and Lund, 2020; Santos Rocha da Silva and Correia, 2022; Fletcher, 2023; see also next sub-chapter). Some scholars have urged their institutions to remove carbon offsetting from

their net-zero plans (Dyke et al., 2024). Taking issue at greenhouse gas removal technologies with arguments that could largely apply to carbon offsetting, Markusson et al. (2018) speak of "mitigation deterrence", defined as "reduced or delayed mitigation resulting from the introduction or consideration of another climate intervention" (p. 1). The claim according to which companies that invest in carbon credits decarbonise faster (MSCI, 2024) has also been debunked (Cabello, 2025). The combination of these beliefs (confidence in techno-solutionism and self-absolving narrative about the good will of environmentally-aware companies) generates a vicious circle of environmentally harmful myths.

As the last few paragraphs have shown, evidence is mounting – and literature is growing, including from the social sciences – against the desirability and feasibility of carbon trading for environmental purposes. When considering the genesis of carbon markets and the offsetting discourse in its epistemic communities (Büscher, 2014), however, one is soon persuaded that the biogeochemical effectiveness of carbon trading may be beside the point. As others have asserted (Leonardi, 2012) and will be further elaborated in the next section, carbon markets work quite well by their own standards, in that they represent an (at least potentially) lucrative business opportunity for climate-related firms and speculators (Sullivan, 2012; McAfee, 2016) and an achievement in itself for hardened climate bureaucrats. After COP29 in Baku, a leading UK negotiator on Article 6 was quoted affirming: "Not that those characteristics [the details of the agreement] matter – almost a decade on from Paris, it is the outcome which counts" (Manuell et al., 2024).

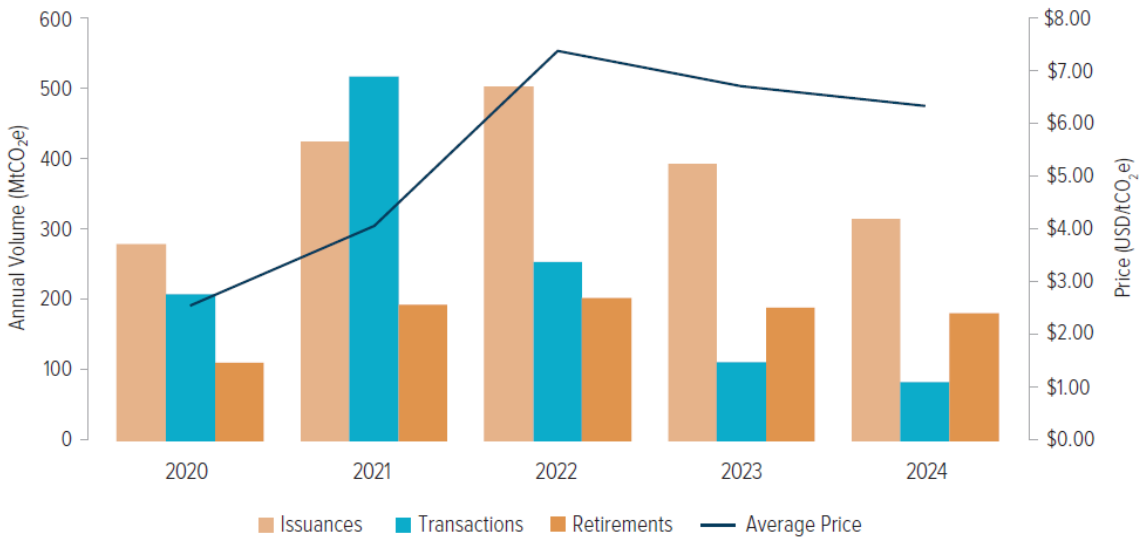


Figure 3: Overview of VCM issuances, transactions, retirements, and average price, 2024-2024. Source: Forest Trends' Ecosystem Marketplace (2025).

Voluntary carbon market investments boomed in 2021, with reportedly 42 billion USD spent on the development of almost 12,000 projects (Gourlay, 2024). According to a UN-affiliated organisation, global carbon markets surpassed 850 billion USD in total trading activity in 2024 (Tupsee et al., 2024), whereas

other estimates suggest it exceeded 900 billion USD in 2022 (Verma and Chestney, 2023). On voluntary carbon markets, in 2024 retirements (credits sold to the final user) reached between 176-182 million across voluntary offsetting methods (Sylvera, 2025a; Forest Trends' Ecosystem Marketplace, 2025), or over 200 million and over 6,500 buyers according to an estimate claiming the highest comprehensiveness (AlliedOffsets, 2025). Whichever the most accurate figures, and despite market value plateauing in 2024 after the 'roaring' early 2020s (AlliedOffsets, 2025, see also Fig. 3), possibly due to academic criticism and bad press, capital *is* circulating through carbon markets, and might pick up speed again with Article 6 trades and revamped VCM methodologies (Verra, 2024; Lezak et al., 2026). In the first semester of 2025, retirements reportedly bounced back to hit the all-time high for a half-year with 95 million credits (Sylvera, 2025b), and a major standard announced that 2024 was a record year, with 621 new projects registered and hence ready to issue new credits (Gold Standard, 2025b). What *exactly* are the units that convey this value, though? The next section is devoted to the political economy of carbon offsets.

What is an offset? The production of the carbon commodity

The debate on the 'essence' of the CO_2 traded on carbon markets, emerged in the early 2000s in the wake of the "new carbon economy" (Corbera and Brown, 2010), cuts across multiple disciplines, from political economy to STS, from geography to sociology. Arguably, there is no widespread consensus on what scholars are talking about when they evoke the carbon offsets. At stake is not merely the legal standing of carbon as a socionatural relational process (Bumpus, 2011) or the social construction of carbon markets (Callon, 2009), as much as offsets' status from a political economy and political ecology perspective, or, to put it otherwise, how to make sense of the "subsumption of carbon sequestration to capital" (Carton and Andersson, 2017:833).

On the most essential level, a carbon offset (also called carbon credit) represents one ton of CO_2-equivalent that has been reduced (i.e. not emitted) or captured through technological methods (Lohmann, 2011). Offsets are typically validated by national or international certifiers and traded on voluntary carbon markets. They should not be mistaken with allowances, a term used for units traded among entities subject to a compulsory compliance scheme (for example, the EU ETS; see also box on the jargon of carbon markets above)[18]. While the amount of CO_2-equivalent is fixed, the price of carbon units, be they offsets or allowances, can vary substantially (for more information on carbon credit commodity chains, see chapter 3).

An analysis of the theoretically-inclined literature on carbon markets reveals a stronger interest in the first few years after their inception (see for example Callon, 2009; MacKenzie, 2009; Lohmann, 2010; Bumpus et al., 2010; Bumpus, 2011), which suggests that scholars have later tended to take them for granted. Goodman and Boyd (2011) describe the "carbon-ification" of the social and political sphere, yet

[18] On compliance carbon markets, see also McAfee (2016). For a critical take on the Californian ETS, see Tigue (2022).

they fail to define the socionatural arrangement they – rightly – claim has taken over so many aspects of our life. In their seminal paper, Fairhead et al. (2012) inscribe carbon markets within the "economy of repair" of sustainability, positing that the "damage inflicted by economic growth [...] creates the basis for the new growth economy of repair" (p.242). Leonardi (2017) goes a step further by affirming that "carbon markets, in order to be offered as their own remedy, must always fail *to a certain extent*" (p. 79). This is part of what he defines as "carbon trading dogma", which, consistent with Borup et al.'s (2006) and Fletcher's (2023) framing as "economy of expectations", entails the "political belief that climate change, although a market failure, can be viably solved only by further marketization" (Leonardi 2017:62). In synthesis, then, what keeps carbon markets floating is not only the fantasy of future success[19], but also the built-in deficiencies that guarantee future demand for carbon reductions.

From a Marxist perspective, scholars have proposed different theorisations of carbon offsets, although the rather siloed nature of this debate makes it more akin to a sequence of loosely related contributions than to a constructive scientific conversation. The debate has pivoted around the question whether offsets may be ascribed to the category of commodities or instead to that of financial derivatives, or "meta-commodities" (Bumpus and Liverman, 2008; Holmes, 2010; Lohmann, 2010; Leonardi, 2012). Leonardi (2017) expands on previous scholarship (Bumpus and Liverman, 2008; Descheneau and Paterson, 2011) to identify carbon commodities' use value in information, one that is indistinguishable from their exchange value. Conversely, Lansing (2011) discusses the discursive construction of carbon value. His otherwise informative analysis is not convincing on at least two aspects: first, he argues that "a carbon offset's use value is not found in its qualitative characteristics, but [...] in the quantitative representations of its spaces", yet his account of the arbitrary selection of fallow fields in Costa Rica seems to indicate precisely that certain fields were selected due to their specific, temporary form of land use, i.e. their qualitative features, over any quantitative consideration. In fact, the quantification of carbon sinks in relation to their social use is an inevitable step common to all offsets (Gutiérrez, 2011). Second, Lansing's (2011) argument that it is through additionality calculations that "the *salto mortale* of exchange can be completed" (p. 746) clashes with Karatani's (2003) observation – cited shortly before – according to whom "A certain thing—no matter how much labor time is required to make it—has no value if not sold" (p. 8, see also Marx, 1973 [1939]). In other words, no matter how much socially-necessary labour time is

[19] Estimates on the future value of carbon markets vary wildly: according to AlliedOffsets, the VCM could hit 27 billion USD by 2035 (Root, 2024), whereas according to a policy brief by the Latin American and Caribbean Development Bank high-integrity markets could surpass 50 billion USD by 2030 (Montalvo Santamaría et al., 2023). A report by Bloomberg projected carbon markets at 1 trillion USD by 2037, double the value of the global beef market (BloombergNEF, 2023), whereas some financial pundits estimate that, if we got the financialisation of nature right, 1 trillion USD per year could be mobilised for carbon markets by 2050 (C. Lang, 2025b). More conservative estimates expect the market to approach 3 billion USD in 2032 (Shevgan, 2025), however finding a reliable middle ground in the thicket of estimates is nearly impossible: one single province in Pakistan claimed that its carbon stock could generate revenues for 4 billion USD and create over 50,000 jobs (Mehsud, 2025) and a study claimed that nature-based projects from Peru alone could yield almost 80 million credits by 2065 (Guerrero, 2025).

invested into making (or demonstrating the use value of) an offset – its value will be realised only when it is actually sold (or retired, in carbon market parlance). Either way, such an overcomplication of Marxian theory does not help solve the carbon conundrum at the point of production.

A certain degree of consensus can be observed around the classification of carbon credits as fictitious commodities (Harvey, 2006; Lohmann, 2010). Pellizzoni (2011) argues that offsets, a "black box" for a certain global warming potential, are not fictitious commodities because "There is nothing fictitious in [them]" (p. 799). Here, the author seems to assume that fictitious commodities are not commodities, yet Polanyi (2001 [1944]) clearly states that in the capitalist system land, labour, and money are traded *as if they were* real commodities: as an attribution, "fictitious" does not negate their status as commodities for market participants, but merely hints to the social resistance to their full subsumption into capitalist production (Prudham, 2013). Other scholars (Felli, 2014; Andreucci et al., 2017; Schwartzman, 2022) have argued that emission trading is not about commodities as much as about rent. While they are certainly right to point out that offsets cannot be treated like any other commodity unless it is clear what labour went into their production process, they too betray a rather siloed approach in that they fail to recognise that not all offsets are the same. For the purposes of this dissertation, which focuses on nature-based offsetting, credits are considered a commodity, albeit a peculiar one that sits only uncomfortably beside the "fictitious" attribute.

Of course, I am not the first to elaborate on the subject. Numerous scholars (Greco, 2015; Günel, 2016; Robertson et al., 2023) discussed the commodification of carbon dioxide, including from the perspective of the actors of carbon businesses (Twyman et al., 2015), and many more discussed offsetting while uncritically adopting offset's status as a commodity. Most of them, however, failed to ask key questions as to the type of commodity and the labour involved. This is also because, as Huber (2016) remarks, few of the critiques of nature commodification are anchored in a coherent value theory. In the next few paragraphs, I shall try to provide some tentative answers, not for the sake of theoretical sophistry as much as in the interest of conceptual clarity. Given the unclarity that dominates the literature, one more work throwing around the commodity concept as a vague signifier is surely not needed.

Given that buyers have at most a digital certificate to show for them, offsets can hardly be regarded as goods. Therefore, carbon credits must fall within the category of service-commodities. Far from simplifying the matter, this inference complicates it from a theoretical angle, as Karl Marx did not devote much space nor his most refined theorisations to service-commodities. Indeed, while he noted the existence of commodity-producing services, he regarded them as being "of microscopic significance when compared with the mass of capitalist production" and concludes that they "may be entirely neglected [as] wage-labour that is not at the same time productive labour" (Marx, 1992 [1867]:1045). His conceptualisation of services, that briefly surfaces in "Grundrisse" (Marx, 1973 [1939]) and volume 2 of "Capital" (Marx, 1992 [1885]), is rather vague and ultimately unsatisfactory for analytical purposes. For instance, discussing transport and storage services, he affirms that "locomotion", or "journeying"

(depending on the English translation), "the spatial movement of the means of transport, is precisely the production process accomplished by the transport industry" (Marx, 1992 [1885]:135). Another well-known example of a service is "if I give money to a doctor to patch up my health" (Marx, 1973 [1939]:465).

Somewhat surprisingly, successive Marxist literature has not done much to exhaustively fill this gap. Interventions in this regard were made by Poulantzas (1975, part 3), Savran and Tonak (1999), Harvie (2005), Tregenna (2011), and Moraitis and Copley (2016), among others. In the Marxian classification of economic activities, Savran and Tonak (1999) and Tregenna (2011) concur, the key lies in "the relationship of an activity to the production, realisation and appropriation of surplus-value" (p. 291). In other words, if a service is carried out by an employee selling their labour within a capitalist firm[20], "activities that are commonly regarded as services [...] can also be the basis of the extraction of surplus-value and, therefore, of the existence of productive labour" (Savran and Tonak, 1999:135). The discriminating factor to sanction the commodity status of carbon offsets, then, is whether labour goes into their production. With a remark that could easily be extended to carbon offsetting, Apostolopoulou (2020) asserts that "[i]n the biodiversity offsetting literature, this issue has been largely ignored making it impossible, at least until now, to evaluate whether, and at what extent, labor is spent in offset creation" (p. 127).

Based on a growing literature and empirical findings, different hypotheses can be proposed on the labour involved in carbon offset production. Bumpus (2011) was perhaps the first to reflect on the materiality of offsets, discussing the problematic commodification of carbon by drawing on Bakker's (2004) "cooperative commodities". His otherwise compelling theorisation, centred on technology-based offsets, comes up against its limits when confronted with nature-based offsets. Indeed, his observation that "carbon offsets create a commodity and value out of a piece of nature—carbon dioxide in the atmosphere—that, if achieved properly, does not exist" (p. 616) is incompatible with nature-based offsets, which are linked – although through a financial abstraction – to very much existing carbon stored in plants. In an insightful but not uncontradictory paper, Felli (2014) argues that emission rights "do not crystallise socially-necessary labour time" (p. 268), while Leonardi (2017) rebuts his conviction that "(cognitive) labour – and its exploitation – is actually prominent in the production of carbon commodities" (p. 72). Apostolopoulou (2020) challenges the view according to which value originates from the performative action of measurement and calculation of biodiversity units by arguing that "this approach implies that capitalism can create value from the act of measuring nature (which means create value from nothing) leaving almost no space for a critical engagement with the historical-material reality" (p. 128).

Elsewhere (Rizzi, 2025a; Rizzi, 2025b), building on Frewer (2021) and others, I argued that the nature-based carbon commodity is co-constituted by at least three components: first, a bounded ecosystem, typically a rainforest with a relatively low population density, which reduces urbanisation pressure and allows large areas to be allocated to carbon storage; second, a low opportunity cost for forest

[20] As the role of public-sector employees in productive labour is irrelevant to this dissertation, I refrain from discussing it. For theoretical insights in this regard, see Savran and Tonak (1999).

communities to switch or give up their forest uses, which, especially at times of low carbon prices, guarantees the economic viability of projects; third, the so-called "Project Design Document" (PDD) that, through technical calculations and projections, conjures up the prospect of future deforestation, thereby substantiating the compensation. While these features do little to answer the above question in Marxian terms, they provide some first hints by bringing the historical-material reality, namely forest communities, into the picture. Consistently, Milne (2012), echoed by others (Setyowati, 2020; Hjort, 2021), underlines the "peculiar and ephemeral nature of forest carbon [...] as a commodity [in which] what is being embodied, valued, and transacted is *behaviour change*" (Milne, 2012:704). Behaviour change, however, which in the context of carbon forestry typically translates into *avoiding* certain behaviours (such as forest harvesting), remains a rather ephemeral framing for the labour that constitutes the exchange value of carbon credits.

Interestingly to our purposes, Marx appears to identify the value of goods storage in its ability to preserve value that would otherwise diminish (Tregenna, 2011:292). In a sense, preserving the value of a stock (understood as the ability of plants to store carbon) is the business carbon forestry projects are in. Who is doing the conservation work in REDD+ projects, then? Frewer (2021), somewhat consistent with Leonardi's (2017), contends that most of the labour "occurs in the offices of NGOs and government departments, in the office of carbon brokers, verifiers and advertisers" (Frewer, 2021:2). This, however, is only part of the truth. A shift in the understanding of forests marks a turning point in this reflection: as research in biology, ethnobotany, palaeoanthropology, and related disciplines has proven (Roosevelt, 2013; Levis et al., 2017), in the history of humankind rainforests were never a 'natural' place but rather an anthropic one, moulded throughout pre-history by the humans and more-than-humans that lived in it. For millennia, indigenous peoples have been preserving and 'cultivating' tropical ecosystems, albeit in ways that the Western gaze would not immediately identify as cultivation, for the purposes of subsistence and social reproduction (see also chapter 6). Transforming nature is the quintessence of labour: "Labour is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature" (Marx, 1992 [1867]:283). From this angle, while indigenous conservation might not qualify as socially necessary labour time in a strict Marxian sense, paraphrasing Frederick Engels one could argue that today humans are not only squanderers of solar energy, but also, through carbon trading, squanderers of past (unrecognised) labour[21]. While indigenous communities certainly have not had commodity production in mind, the type of activity performed is not decisive as "[t]he same kind of labour may be *productive* or *unproductive*" (Marx, 1963:401). By harvesting past conservation labour, neoliberal mitigation schemes turn unproductive labour (for capital) into productive labour. After all, this is nothing new in the history of the Americas: in the sixteenth century, Spanish mine owner and chronicler Luis Capoche observed that "the

[21] Engels maintained that workers burning coal, wood, etc. are squanderers of "past solar heat" (Engels, 1968 [1882]).

poor *indio* is a coin with which one can get whatever one needs, as with gold and silver, and much better" (Capoche, 1969 [1585]). In view of this, contra Büscher (2013), conserved nature, at least when it comes to rainforests, is not "fictitious capital" – a notion that, as Büscher himself notes, is understood by Marx and Marxists (Harvey, 2006) to refer essentially to *money* in circulation – but rather a commodity produced by labour that is *turned* productive *ex post facto* through commodification. Hence, the value in forest-based offsets does not reside – or not only – in "information" (Leonardi, 2017) as much as in concrete conservation labour crystallised into a certificate.

Following the same thread, I argue that the value appropriation through carbon credits is not limited to past labour, but, given the decades-long conservation commitments involved (see chapter 5), extends to future labour. Here, I am drawing on Marxist scholars who emphasised the power of capital, especially through debt, to command future revenues and consequently future labour (Harvey, 2006; Graeber, 2011). If debt is a claim on future labour, it follows that a claim on future conservation labour is a form of debt. This means that, rather than paying off their historical socio-ecological debt to indigenous communities and the Global South more generally (Hickel, 2020b), wealthy countries are in fact luring communities into a subtle modern form of indentured labour. Should they refuse to perform if, they can be sure to be denied the (supposed or real) benefits from mitigation finance and villainised as a threat to nature. What is more, this debt may not be merely metaphoric: typically, carbon forestry contracts are private-law agreements that include liability clauses. Should an indigenous community make a project collapse, even for reasons it deems just, the developer might take the case to a court, a field of struggle where businesspeople are bound to be better equipped than indigenous leaders. Indeed, an ongoing litigation linked to the project analysed in the case study is bound to spark social conflict among the community involved (see chapter 5).

Under this light, then, besides the labour performed by NGO workers and government officials, offsets harvest the millennial conservation labour of forest communities and claim their future conservation labour. This way, Amazonian social formations – to draw on Marxian terminology – straddle a watershed between the formal subsumption and the real subsumption of forest-management practices[22]. Indeed, environmental derivative markets may well generate fictitious capital but, as Bryant (2017) observes, "climate fictions do not necessarily make capital circulating in carbon markets fictitious" (p. 4) since, as Smith (2007) reminds us, this process of abstraction "is integral to socializing the real subsumption of nature" (p. 31). While this framing might be daring from a purely theoretical standpoint, it implies a key consideration: if we accept that the Amazon is not 'just there' but it was produced, then the past, present, and future labour of forest communities cannot be disregarded.

[22] Marx made a distinction between the formal subsumption (the appropriation of previously existing productive processes by capital, whereby workers maintain some immediate creative control over the labour process) and the real subsumption of labour (the direct intervention of capitalist agents in the organisation of labour, whereby workers become cogs in the machinery of modern industry, see also Smith, 2007).

Understanding forest offsets as a peculiar service-commodity rather than as a form of rent, or merely as a virtual financial product, allows us to ward off this socio-environmental injustice.

This section has unpacked the units that convey the value associated with carbon offsets by uncovering the material processes involved in their production. The next section will seek to trace the chains and networks that allow for the circulation of that value.

Where is the market? The carbon credit commodity chain

"Like other global commodities, the trade of forest carbon rests upon transactions that involve a range of actors and institutions [...] extending from a specific locality to international buyers" (Mahanty et al. 2015:177). In light of observations such as this, and given that carbon markets reached a global value of over 900 billion USD in 2022 (Verma and Chestney, 2023), with voluntary carbon markets attracting 1.3-1.9 billion USD in 2022 (South Pole, 2023; Forest Trends' Ecosystem Marketplace, 2025[23]) and 800-535 million USD in 2024 (Manuell, 2025; Forest Trends' Ecosystem Marketplace, 2025), it would be fair to expect a thorough analysis of the carbon commodity chain in the literature, moving from localised projects up to global value chains. Yet, as Mahanty et al. (2015) recognise, "[i]nformation limitations and uncertainties associated with [forest carbon markets] make it difficult to undertake detailed quantitative analysis of inputs, outputs, prices and value addition, which often feature in commodity chain or 'filière' studies" (p. 178). Indeed, while these and other authors (see also Milne and Mahanty, 2019) have sought to venture into the carbon commodity chain, their accounts say more about the bureaucratic production of carbon than they do about global carbon value chains. This subchapter will seek to dispel some of the mist that appears to engulf the carbon commodity chain[24] in the academic literature. Here too, while some of the arguments apply to all carbon reduction initiatives, the focus will be on nature-based offsets.

A vast majority of case-study-based publications on carbon forestry are not straightforward about projects' institutional setup, contextual features, and supply chain linkages. Such generalised unclarity can be partly attributed to the fact that, as Hunsberger et al. (2017) remark, "REDD+ opens a complex governance space involving international, national and local institutions" (p. 6), in addition to the methodological challenge of "tracking and tracing the institutions, actors, and networks that connect 'global' environmental politics to particular 'local' outcomes" (Newell and Bumpus, 2012:50). An intricate maze that not every study ventures into, all the more as industry stakeholders tend to morph faster than research can keep track of (see ICVCM, 2023; Verra, 2023). One more explanation is that, especially since VCM registries, in anticipation of Article 6 activities, started developing frameworks to help integrate private emissions reduction efforts into governmental climate goals (see for example Verra, 2025), the

[23] Market volume estimates vary depending – among other things – on the focus on trades or retirements.

[24] While I acknowledge the enriching perspectives offered by the global production networks literature (Coe et al., 2008), I am not fully convinced of the distinctiveness value of the GPN framework and believe the commodity chain/value chain framing can do justice to carbon offset circulation for the purposes of this dissertation. For a historical perspective on global commodity frontiers and commodity chains, see Beckert et al. (2021).

distinction between 'independent' projects and projects 'nested' into compliance schemes may be rather blurred (Wunder et al., 2020). Such an inviting laxity for profiteers and 'greenwashers' may be one of the reasons why "REDD+ projects have produced the biggest share of credits in the VCM, representing 74% of the global voluntary market" (Granziera et al., 2022:14)[25]. What is more, funding channels are often unclear at the project planning stage and not transparent during implementation (Bayrak and Marafa, 2016; Wunder et al., 2020), which makes it prohibitive for researchers to paint a robust picture. Furthermore, the geography literature tends to focus on country-level and global climate governance, rather than taking on the 'grounded', often ethnographic view of political ecology (Milne et al. 2019). On the other hand, localised studies assessing a project's impact on land use and livelihoods often leave markets unattended: "Scholarship on REDD+ appears to assume some kind of a market" (Chhatre et al., 2012:657). As a result, carbon projects appear either as 'black boxes' in carbon market-wide studies or, conversely, as if taking place in a vacuum. The evanescence of these connections "enables a self-referential space where members of epistemic communities cite and reinforce each other's interpretation" (Büscher, 2014:87). In other words, the more connections along the chain are lost, the easier it is to sell empty 'success', or what Cavanagh and Benjaminsen (2014) record as "triple win solutions" for climate, biodiversity, and development.

On a practical level, REDD+ projects, as well as afforestation/reforestation projects, are developed by a company ("project developer") that conceives and structures the initiative through the "Project Design Document", a file detailing the aims and scope of the project in terms of emissions reductions and the actions that will be carried out to achieve them, in addition to social benefits and safeguards. Projects are typically developed in partnership with rural communities who are supposedly both the initiators ("project owners") and the main beneficiaries. In practice, this is hardly the case (see the empirical chapters that follow). Part of the reason is that, in many cases, there are scarce benefits to begin with, as carbon offsetting markets have been struggling to entice investors. In early 2025, the UN special rapporteur on climate change declared: "After 30 years, evidence that carbon markets are contributing to mitigation or helping mobilize finance is just not there" (Lakhani, 2025).

The planning stage should involve extensive information campaigns among the communities involved with a view to obtaining their free and informed consent. This step, in itself hardly sufficient for communities to be genuinely involved (Ilich Bacca et al., 2022), is often used to rubber-stamp the community's approval. Even so, the performance of such a process is not to be taken for granted (Gaia Amazonas, 2024; Ngari, 2025; C. Lang, 2025c). This is followed by validation by a third-party entity that, however, is paid by the developer, and has therefore all the interest to turn a blind eye to project flaws (Giles and Coglianese, 2025)[26]. Finally, the project is certified and listed (issued) on a national or

[25] Estimates vary, but different sources tend to agree on the prevalence of forestry credits in the VCM (see also AlliedOffsets, 2025).

[26] For a detailed overview of the functioning of REDD+, see also Jagger et al. (2010), Mustalahti et al. (2012), and Granziera et al. (2022).

international registry. Although credit issuance should constitute the end of the life of a credit on the local stage (except for the ongoing verification for the permanence criterion), research on the ground reveals other local stakeholders, including criminal ones, that often go unnoticed in theoretical accounts and conjectures on carbon offsetting (see chapter 4.3).

Offset registries can be national or international in scope. However, carbon commodity chains present a level of porosity, with mutual feedbacks between international standards and national schemes (see the example of Colombia in chapter 3). Most times, the first offset buyers are not interested in directly retiring them, but in selling them on for a fee to retail clients (individuals or companies) or as a form of financial speculation. These first buyers fall within the category of carbon brokers, although this category covers a whole range of different companies that may go by different names, such as "climate solutions company" (personal communication with a carbon market professional, 2022). With Article 6 trades entering the picture, more large-scale bilateral trades between countries or regions can be expected[27], with UN and national supervisory bodies taking on part of the intermediation process (Lezak et al., 2026).

As noted above, the concept of fictitious commodity is often associated with carbon offsets. Given the abstract, immaterial imaginaries associated with the word fictitious, and the virtual nature of credits themselves on carbon markets, it is fitting to clear the field from the impression that an immaterial (service) commodity does have material effects. This is the task of next sub-chapter.

1.3. A nature-based solution called REDD+: What nature and what solution?

This sub-chapter closes up on the analysis on a specific carbon offsetting policy, namely REDD+, and introduces arguments that will be empirically substantiated in the empirical chapters. First, the framing of nature-based carbon offsets as "virtual" or "abstract" commodities is questioned. Second, and consequently, these offsets are exposed as a form of neocolonial extractivism. Third, I seek to show how nature-based offsetting enables a form of (subtle) green grabbing.

Hardly virtual: Nature-based offsets

The carbon offsetting landscape described in chapter 1.2 is further complicated by the huge diversity of offsetting methods (a "variety of involution", following Gutiérrez, 2011) and becomes particularly blurred when considering nature-based 'solutions' like REDD+, the object of this dissertation's case study. The REDD (Reducing Emissions from Deforestation and Forest Degradation) scheme was first proposed in 2005 by a coalition of developing countries at COP11 in Montreal and enshrined in the 2007 Bali Action Plan, with the "+" in REDD+ referring to sustainable forest management

[27] Chile and Switzerland recently unveiled Latin America's first Art. 6 project (Ministerio del Medio Ambiente, 2025).

and enhancement of forest carbon stocks in addition to 'simple' deforestation reduction. COP16 in Cancún marked a milestone with the introduction of the "Cancún Safeguards" on the social impact of REDD+ projects (Chhatre et al., 2012; Haya et al., 2023). The biological rationale for the scheme is that, since 22% of greenhouse gas emissions originate from agriculture, forestry, and land use change (IPCC, 2023), reducing deforestation and forest degradation could play a major role in climate change mitigation (Lewis et al., 2019). REDD+ projects may address both planned and unplanned deforestation and degradation (Haya et al. 2023), the common denominator being the *avoidance* of future carbon emissions. While REDD+ itself has experienced a decline, forestry methods remain among the most popular offsetting methodologies worldwide (Forest Trends' Ecosystem Marketplace, 2025; see also Kronk, 2025). A key aspect to keep in mind is that REDD+ projects issue carbon credits to voluntary or (increasingly) jurisdictional carbon markets (Nature 4 Climate, 2024), which can be claimed by buyers towards their emissions goals. Hence, REDD+ projects are not ordinary conservation projects, nor payments for ecosystem services (although they are partly modelled on the latter, see McAfee, 2012), but fall within the category of nature-based carbon offsetting schemes.

In this respect, an important distinction to be made is between "jurisdictional" carbon forestry projects (where jurisdiction refers to an administrative unit, typically a country or a State), sometimes linked to so-called "compliance" or "regulatory" schemes, and individual projects funded through voluntary carbon markets (Garcia et al., 2021). While the boundaries between the two are increasingly blurred (Sok and Horn, 2025), this is no trivial distinction, as credits generated through jurisdictional projects are typically (co-)developed (or at least monitored) by national or regional authorities, may flow into nationally determined contributions or be exchanged through Article 6 mechanisms (although some see REDD+ as incompatible with Article 6, see Mulder, 2024). These credits, sometimes called J-REDD, are more likely to fetch a price premium (Gourlay, 2024). Conversely, project-based credits are typically sold to private entities for the purposes of companies' net-zero claims, imply a feebler institutional scrutiny and are therefore more prone to additionality and leakage issues (Bumpus, 2011; Irawan et al., 2019; Bayrak and Marafa, 2016). Bearing witness to the co-evolution of voluntary and compliance credits, in some countries projects ostensibly developed under an 'umbrella' jurisdictional scheme in preparation for Article 6 trading are in fact purely VCM-based (one example being Colombia, see Carbon Market Watch, 2021), which will constitute a challenge when transitioning to a centralised mechanism.

Over the years, scholars and activists have repeatedly warned about the social and environmental risks of accepting forest-based initiatives for mitigation purposes. Scientific research, compounded by media coverage, civil society activism, and independent consulting, has focused on the biogeochemical (in)effectivess of REDD+ and similar schemes, primarily due to inflated deforestation baselines and unsupported assumptions (Tienhaara, 2012; Bryant et al., 2015; McAfee, 2016; Haya et al., 2023; Lakhani, 2023; Borjigin-Wang et al., 2024; NewClimate Institute, 2024; West et al., 2024; West et al., 2025; Rose and Tofighi-Niaki, 2025, Romm et al., 2025), while also uncovering its harms in terms of socio-

environmental injustice (The Munden Project, 2011; McAfee, 2016; Sarmiento Barletti and Larson, 2017; Otis, 2023; World Rainforest Movement, 2023; Hooft van Huysduynen and Juffermans, 2024; Osborne et al., 2024; ActionAid, 2025). Net-zero claims, according to an extensive study led by a team of physicists, cannot rely on passive CO_2 uptake, including through nature-based methods (Allen et al., 2024). In a stocktaking study, Brockhaus et al. (2025) found that REDD-induced reforms "have had little visible or lasting effect on keeping forests standing [and on the] recognition of Indigenous Peoples' and local communities' concerns"[28].

Despite widespread criticism and scientific debunking, the ball has kept rolling. Disavowing a long-standing scepticism towards carbon forestry in mitigation governance (UNDP, 2009; Angelsen, 2017), Article 5 of the Paris Agreement opened the door to the use of forestry activities, including marked-based ones, towards the production of carbon offsets to be traded on an international carbon market regulated by Article 6 (Rainforest Coalition, n.d.). According to Greenpeace (2023), Article 6.8 (on non-market approaches) is the only appropriate mechanism for land-based actions (see also Young, 2024). Nevertheless, independent standards such as ART TREES have provided parameters for the measurement, monitoring, and verification of carbon-forestry projects for trading under Article 6.2 (ART, 2021). In late 2024, the Integrity Council for the Voluntary Carbon Market (ICVCM), an industry body set up to establish and maintain global standards for integrity in the VCM, approved three REDD+ methodologies, leading to the resignation of two members of the ICVCM's Expert Panel (C. Lang, 2024b). In its 2026-2030 strategy, the UN-REDD programme vowed its support for national and subnational jurisdictions to access REDD+ finance under all rubrics of Article 6 (UN-REDD, 2024). In mid-2025, one more bulwark fell as European Union countries decided to allow for imported carbon credits towards its 2040 emissions reduction targets (Krukowska, 2025).

As opposed to technology-based offsetting methods (for example, renewable energy production or industrial process optimisation), in REDD+ the "carbon that would have been emitted if it had not been displaced by the project activity" (Bumpus, 2011:616) is not an imaginary unit of carbon that would have been emitted from a hypothetical fossil fuel, but rather a unit that can be physically traced to a more or less specific landscape area (Lansing, 2011) and that, while stored, can be measured with increasing precision (Calders et al., 2020) and would be released if that area were deforested. This representational and physical act of separation, which Castree (2003) defines "individuation", points to the fact that not all carbon commodities are the same. Sometimes, REDD+ is combined with afforestation and reforestation measures (ARR), although there is no clear-cut distinction between these methods (Jagger et al., 2010).

[28] For further assessments of REDD+ outcomes, see Bayrak and Marafa (2016) and Milne et al. (2019). For an extensive overview of the critical literature on REDD+, see Rizzi (2025a).

The four key criteria of offsetting projects

In order to be validated and certified, REDD+ projects have to meet (at least on paper) the following criteria:

- ***Real:*** *The project has to be put in place through verifiable actions.*
- ***Measurable:*** *The project's mitigation outcomes have to be quantifiable. Given the different technological options (Stanley, 2024), this criterion is less straightforward than would be expected.*
- ***Additional****: The GHG mitigation brought about by the project would not have occurred without the project and the associated funding (Broekhoff et al., 2019). This is arguably the most controversial criterion, as it takes a gamble (or a certain degree of clairvoyance), vetted by certifiers and accepted by buyers. Scholars have also raised the problem of strategic enrolment (see Garcia and Sanford, 2024).*
- ***Permanent:*** *The permanence of emissions reductions has to be guaranteed (in REDD+ contracts, typically for at least 30 years). Problematic in itself, this criterion is further endangered by the increase in global warming-related wildfires and extreme events (Hodgson, 2022; Abatzoglou et al., 2025).*

At a closer look, differences stand out even within nature-based offsetting methods (Johnstone, 2024). Huff (2021), for instance, investigates the making of a blue carbon offsetting project in Kenya. While her connection between the Marxian commodity fetish and Polanyian fictitious commodities is questionable[29], she rightly claims that "producing carbon offsets involves fundamentally different technologies and techniques than conventional ways of extracting economic value from nature" (Huff, 2021:2219) and points to a dual (conventionally extractive and virtual) pathway of accumulation. Not losing sight of the physical dimension of nature-based carbon offsets is crucial as "value relations in carbon markets are intimately connected to the appropriation of nature" (Bryant, 2017:5) in fossil industries, which carbon trading is the flipside yet an integral part of. From a somewhat accumulation-agnostic standpoint, Bryant diagnoses a 'dysfunctional' accumulation of capital through carbon markets, as states have failed to institute strong markets by "overallocating allowances and insufficiently limiting international offset credits" (ibid:11).

Under this light, Leonardi's (2017) definition of carbon commodities as a "second order abstraction" (p. 75), as well as Huff's (2021) and much scholarship's (see also Bryant, 2017) insistence on the virtual essence of carbon offsetting, if justified within their lines of argument, can be problematic: in fact, nature-based credits present an unneglectable material and ecological dimension which, in many respects, is not unlike that of more tangible resources. Although there is no transference of property of the

[29] Polanyi clarified that "the fetish character of the value of commodities […] has nothing in common with the fictitious commodities", see Polanyi (2001 [1944]:76).

actual CO_2, nor of the biological unit it relates to, as we shall see in the next chapters a strong link exists between the offset commodity and both its biological 'precursor' (a tree, a portion of peatland, etc.) and its effects on the ground, including the long-term physical effort required to 'extract' it (conservation) and the territorial 'disciplining' processes (forest access and use) it entails. Along these lines, Milne (2012) emphasises that forest carbon production is grounded in struggles over land, whereas Cavanagh and Benjaminsen (2014) and Bracking (2015) bring attention to the material, violent effects of nature-based accumulation strategies. Surely, the populations inhabiting forest carbon-rich regions do not see much of a difference between carbon extractivism and past extractive ventures. Indeed, indigenous communities often perceive the inescapable materiality of these new, ephemeral commodity frontiers as carbon is 'materialised' for them by intermediaries: "What kind of pipes or other things do we need to collect the carbon? [...] do we need to collect it in plastic bags?", asks a Papua New Guinean landowner cited by Leggett and Lovell (2011:11), a question that popped up during the fieldwork for this dissertation as well (see below). Leggett and Lovell (2011), Setyowati (2020) and Gutiérrez-Escobar et al. (2025), in papers spanning over 15 years, refer that villagers believe they are selling the wind. The 'abstraction', to them, may rather lie in the fact that certain carbon forestry projects tackle inexistent deforestation practices (or greatly aggrandise their impact) in order to justify a conservation intervention (see also chapter 3.2).

The 'physical' dimension of the carbon commodity is not lost on governments either, which see carbon as a resource beyond its fictitious 'life' in global circuits of capital and move to claim control of forest carbon stocks ("carbon tenure") as strategic sovereign assets even in areas where land tenure is formally devolved to indigenous communities (Carbon Brief, 2022). Indeed, to rural communities forest-based offsetting comes as a mixed blessing: while it can be conductive to (and positively influenced by) equitable forest governance (Larson and Petkova, 2011), it can also favour (re-)centralisation (Phelps et al., 2010; Milne et al. 2019; Mensah Kumeh et al., 2025). From the standpoint of climate policymakers, as Ulloa (2013) notes, territories are simultaneously visible, in that they are within the purview of carbon markets, and invisible, in that indigenous realities are flattened. More often than not, their visibility is not a testament to their genuine involvement in decision-making but purely tokenistic, as "Indigenous Peoples are held up as embodying alternatives to capitalist modernity, yet disproportionately suffer the environmental harms of capitalist development" (Anthias and Asher, 2024:2).

The carbon dioxide traded on carbon markets may be the immaterial representation of an "economy of appearances" (Tsing, 2000), yet credit issuance involves artefacts including various documents (Nel, 2017) and relies on recurring acts of performative materiality (Lansing, 2011; Cavanagh and Benjaminsen, 2014; Bracking, 2015; Leonardi, 2017). More importantly, as discussed throughout this and the previous section, forestry credits cannot be analysed without accounting for the past, ongoing, and future conservation work of forest communities, as well as for the social impacts that befall them. These, as the next section will seek to show, are akin to those witnessed in past extractive waves.

Nature-based offsetting as neocolonial extractivism

When observing the spreading of carbon offsetting from a geographical perspective, a spatial pattern seems to emerge: the regions where new "commodity frontiers" (Moore, 2000) are being opened, typically rural or suburban areas across the global South, are often the very regions swept by past waves of extractivism (chiefly fossil fuels and minerals) or more recent waves of 'green' extractivism (especially lithium and cobalt), where green refers not to sustainable extractive practices, but to the purposing of these minerals for 'green' energy sources[30].

The call to expand the traditional boundaries of the concept of extractivism is not new: Gago and Mezzadra (2017) argued for an inclusion of extractivism's organic relation to finance, whereas North American indigenous intellectual Leanne Betasamosake Simpson denounced the "epistemic extractivism" of scientists or environmentalists from the global North (Grosfoguel, 2016). Le Billon (2021), prompted by cases of violence and dispossession, exposed striking affinities between resource extraction on the one hand and offsetting and conservation on the other, resulting in the production of spaces of "double exception" in the name of the incontestable imperative of growth.

Sticking to Acosta's definition of extractivism introduced above (see chapter 1.1), in this dissertation, particularly for the purposes of quantitative conclusions, I understand carbon credits as peculiar unprocessed resources that are produced in large quantities primarily for export. While the attribute "unprocessed" may sound counterintuitive in this context, I frame their unprocessed nature in the sense that they bear a low added value at the point of export. Indeed, as will be illustrated in chapter 3, most of the value extracted from the socio-ecological process underpinning credit issuance is captured along opaque carbon commodity chains. What is more, the labour that goes into offsets, generally unskilled from the perspective of modern capital, often warrants the extraction and export of more unprocessed resources (e.g. crude oil) by validating the net-zero narratives of fossil companies. To add insult to injury, the emission reductions might never actually take place (or not be additional, which for mitigation purposes makes little difference), yet indigenous livelihoods are altered.

While many scholars, activists, and even politicians (Ministerio de Relaciones Exteriores, 2021) have framed carbon markets as "carbon colonialism" (Bachram, 2004; Bumpus and Liverman, 2010; Parsons, 2023; Lord and Sareen, 2025), few have explicitly framed them as extractivism (exceptions include Brightman, 2019, Nicholson, 2021, and Bruna, 2022). The implications of this terminological misstep can be far-reaching: only by recognising carbon as a commodity that is 'extracted' and 'exported' from areas that are particularly rich in this resource is it possible to encompass the full scale of "accumulation by decarbonisation" (Bumpus and Liverman, 2008) and its neocolonial undertones, as the cosmetic decarbonisation enabling the reproduction of the hegemonic socio-economic model at a time

[30] For a more exhaustive analysis of the geographies of carbon extractivism, see chapter 3.

of climate crisis is heavily 'subsidised' by carbon offsetting schemes. If we are to understand the modern iterations of unequal exchange, carbon extractivism cannot be left out of the picture.

This is rendered obvious by the carbon frenzy of the last 20 years, coming in the footsteps of previous extractive waves (and only partly dampened by the public blemishes discussed above). As happened multiple times in the past, wealthy countries are suddenly interested in working with countries that are deemed rich in a certain 'thing'. As with other forms of extractivism, certain areas are naturally better endowed with the sought-after resource – in this case, the socio-natural environments conceived of as forests. Regions that are rich in vegetation and biodiversity and present a relatively low population density are thus construed as 'rich in carbon (offsets)' based on pre-existing material conditions. Paraphrasing Zimmermann's (1993) "resources are not: they become" (bringing attention to how resources are socially made) and Karl Marx, we could say: "Men [sic] make their own resources, but they do not make them just as they please; they do not make them under circumstances chosen by themselves, but under circumstances directly encountered, given and transmitted from the past"[31].

In summary, then, Bridge's (2009) observation that resources are made when they "simultaneously 'fit' existing socio-technical arrangements and solve certain problems" (p. 1220) is perhaps the most enlightening. Carbon, like so many other natural resources, has been there since long before the dawn of human civilisation, and has long been commodified in the form of timber, fossil fuels, gems, soil, and other materials, yet only over the last two decades has humanity found a problem to which carbon (abstracted as measurable units) is the solution. The solution – *bien entendu* – devised by the globally hegemonic market forces for the "*vertical integration of nature* into capital" (Smith, 2007:33), or the colonisation, as Luxemburg (1951) would have it, of a new 'outside' of capital. Following Collins (2024), mitigation capital is penetrating a new 'outside' of capital not only in a figurative sense, i.e. by commodifying past 'unproductive' labour (see previous sub-chapter), but also in a very material one: areas that used to be places of refuge for groups fleeing exploitation "are again providing refuge, but this time explicitly to the wider international community" (p. 11), i.e., for international capital, and are being fenced off to this end.

On paper, both academia and practitioners have recognised that "natural climate solutions can only be effective if they respond to the needs of the rural and indigenous people who manage ecosystems for their livelihoods" (Fleischman et al., 2020). The "Cancun safeguards", adopted at COP16, as well as multiple tools and methodologies developed by market actors (ART, 2023), are a testament to this acknowledgment. Still, "safeguards are most likely to fail to protect the rights of Indigenous peoples and local communities precisely in the contexts in which risks are greatest and protections are most needed" (Haya et al., 2023), a finding a host of academic scholarship (see for example Shankland and Hasenclever, 2011; Awono et al., 2014; Airey and Krause, 2017; Milne and Mahanty, 2019; and Andoke Andoke et al.,

[31] Original quote: "Men make their own history, but they do not make it just as they please; they do not make it under circumstances chosen by themselves, but under circumstances directly encountered, given and transmitted from the past" (Marx, 1972 [1852]:8).

2023) and investigative journalism (Greenfield, 2023b) have corroborated. Even the offsetting-critical literature, with the above-mentioned exceptions, often comes up short in this regard. The very fact that the social effects of carbon forestry are conventionally called *co*-benefits (Chhatre et al., 2012) or *additional* benefits (Lederer, 2012) is problematic, as it implies that the only indispensable benefit consists in emissions mitigation (in other words, serving the purposes of Global North donors and credit buyers) even if this means entrenching structural inequalities (Chomba et al., 2016). Bayrak and Marafa (2016) refer of "two schools of thoughts on REDD+ and livelihoods: The "pro-poor" school and the "do-no-harm" school" (p. 8). As to why a community should let its own territory be used by external actors developing a project in the name of a scheme devised in the air-conditioned rooms of climate negotiations – provided that no harm is caused! – no justification is provided. Indigenous communities – goes the climate regime motto – are part of the solution. The solution to someone else's problem, that is. Or rather, to a problem they did nothing to cause. Along the rugged pathway to decarbonisation, their subsistence and cultural practices take the backseat, as communities are dispossessed of their rightful emission budget (Bruna, 2022) for few wealthy fellow-humans to be able to keep polluting, in turn affecting the very ecosystems they ostensibly rely on for mitigation. Here is a system of production, that of carbon credits, that ignores the social reproduction of the communities underpinning it (see definitions of extractivism in chapter 1.1).

For all the similarities with other forms of extractivism, carbon offsetting presents a number of differences: first, nature-based carbon projects are less capital-intensive than 'traditional' extractive projects such as mining or fossil fuel extraction (Tienhaara, 2012). This means that speculation in carbon is open even to minor 'soldiers of fortune' of capitalism, also called "carbon cowboys" (Aguilar- Støen, 2017). On a deeper level, the low barriers to entry that characterise the carbon business are conductive to new forms of internal colonialism (González Casanova, 1965) typically taking the shape of makeshift urban firms buying up rights to pollute (Bruna, 2022) from rural communities. Analytically, this responds to Franco and Borras' (2019) invitation to include domestic corporate actors in the study of green grabbing. Second, carbon offsetting cannot move into illegality like, for example, gold extraction – there is no such thing as informal conservation. There have been, however, cases in which illegal actors got involved in the conservation business (see chapter 4.3), which cast an even grimmer shade over the social impacts of offsetting projects. This circumstance would suggest considering a moratorium on carbon forestry, at least in unstable regions (see chapter 6.1).

When wondering about the agenda undergirding carbon trading, the loose coalitions supporting or rejecting nature-based offsetting are revealing: besides the climate bureaucrats who came up with the idea in the first place and industry actors with not-so-vested interests such as developers and registries[32], staunch believers in forest-based solutions for emissions mitigations include the World Bank (2021), international business groups (George, 2024; IETA, 2024; WBCSD, 2024), finance firms (Mombak, 2022),

[32] Among the most prominent registries are Verra (n.d.a) and South Pole (n.d.).

and insurance companies (Aviva, 2025). Statements in explicit support of REDD+ have been issued, among others, by the Integrity Council for the Voluntary Carbon Market (ICVCM, 2024), a market self-governance body made up mostly of stakeholders with a commercial background in carbon markets (Gijzel and Sys, 2024), and by the Green Climate Fund (2024). Conversely, among the most critical voices heard on carbon trading, with specific references to nature-based methodologies, are academics (see chapter 1), international civil society organisations (C. Lang, 2024c), industry watchdogs (Carbon Market Watch, 2021; Rose and Tofighi-Niaki, 2025), Global South alliances (Power Shift Africa, 2025), and even religious organisations (CIDSE, 2025).

A more nuanced response has been observed among indigenous associations, especially in Latin America. While the UN Special Rapporteur on the Rights of Indigenous Peoples, Guatemalan Francisco Calí Tzay, called for a moratorium on carbon markets as a solution to preventing abuses of indigenous rights (Amnesty International, 2024) and indigenous organisations at COPs and elsewhere have called for a dismantling of the REDD+ mechanism and similar schemes (Global Forest Coalition, 2024; Indigenous Environmental Network, 2024; World Rainforest Movement, 2024; Brown, 2025; Forest Peoples Programme, 2025a), national indigenous associations and other international coalitions of indigenous groups have not voiced outright opposition to nature-based projects; in fact, some have taken a clear stance in support of REDD+ (FSC-IF, 2023). Others, while fiercely critical of the way carbon markets have unfolded so far, called for an overhaul of the system, not for scrapping it altogether (Estrada, 2023; C. Lang, 2023). A coalition of Peruvian indigenous associations has even taken the initiative by proposing their own "Indigenous Jurisdictional REDD+" program (AIDESEP, 2025). UN officials themselves appear conflicted, as they decry businesses' reliance on VCM credits while expressing support for "government-regulated" carbon markets (Bryan, 2024b). The fieldwork for this dissertation (see chapters 4 and 5) confirmed the impression that, whatever the stance, confusion reigns among stakeholders. While opacity is to an extent ingrained in carbon markets, it certainly does not help finding common ground among diverging positions, thereby hindering a potentially constructive political debate.

Much of the extractivism literature has shown how extractive activities are often preceded by various forms of land grabbing, including green grabbing (Fairhead et al., 2012). Somewhat counterintuitively, in forest-based offsetting the green grabbing occurs simultaneously – in fact, through – the production of offsets. The next section describes how this unfolds.

Nature-based offsetting as (subtle) green grabbing

Strictly related to the extractive dimension of carbon offsets is the issue of sovereignty over the CO_2 that is 'extracted' (i.e. crystallised in carbon credits), the ecosystems that store, it and the land these ecosystems cover. This section highlights the green grabbing processes potentially involved in carbon forestry as a prelude to their concrete unfolding in chapter 5.

When thinking of land grabbing, the first image that typically comes to mind is one of illegal, para-legal, or violent acquisition of land by corporate actors for extractive, often environmentally destructive purposes. Over a decade ago, however, the "green grabbing" framework (Fairhead et al., 2012) called attention to the emerging phenomenon of land appropriation on the back of UN-sanctioned environmental agendas, mostly in the Global South. The risk, they warned, was one of "colonial and neocolonial resource alienation in the name of the environment" (p. 237) through schemes ostensibly aimed at ecosystem and biodiversity conservation, carbon sequestration and offsetting, biofuels, and ecotourism. Building on this, Franco and Borras (2019) warned that even the mere *prospect* of climate-related projects may trigger large-scale land speculation, pointing to the risk that "climate change politics may or can displace or dispossess more people from their land than actual climate change" (p. 193), whereas Xu et al. (2025) cautioned that even non-operational land deals can produce successful land grabs. In an analysis of Chinese rural communities, Xu (2018) signalled cases of "intimate land grabbing", whereby small-scale but socially detrimental land grabs come at the hands of local villagers, with no large-scale corporate appropriation nor colonial dynamics involved. So far, avoided-deforestation schemes have not been a prominent driver of formal or violent land grabs[33] as much as 'shadow' ones, which I have defined as *subtle* green grabbing. This section introduces this particular form of green grabbing.

The drive to making forests legible, Scott (1998) reminds us, goes back at least to eighteenth century "fiscal forestry", an effort by modern States to systematise forests as stocks of lumber and firewood. In contemporary forest management, Leach and Fairhead (2002) note, "different local users, timber companies, ecotourists and those promoting global biodiversity conservation all have different perspectives on what a desirable forest would be like" (p. 155). Technological conservation, Gabrys et al. (2022) maintain building on Peluso and Vandergeest (2001), lays an ontological claim on nature as it "produces hegemonic views of what forests are" (p. 64). Upon carbon commodity frontiers, a desirable forest is one that is 'untouched', but at the same time has been vulnerated in the past, or whose carbon-storing plants are under some sort of (real or alleged) threat. The multifarious significance of a network of socio-ecological forces is thereby singularised into "a field of discrete ecosystem objects amenable to governance" (Robertson et al., 2023), thus "dismembering an exceptionally complex and poorly understood set of relations and processes in order to isolate a single element of instrumental value" (Scott, 1998:21).

This selective mechanism of regulation "through which actions in the forest can be calculated and manipulated and their legibility and visibility increased for outside observers" (Agrawal, 2005:16) does not

[33] Some papers, news reports and policy documents evoke the risk of carbon-forestry-related green grabs (Osborne, 2013; Eilenberg, 2015; Hartlief and Cabello, 2025), yet evidence remains scarce (Cavanagh and Benjaminsen, 2014; Rainforest Foundation UK, 2025) or pending judgement (Forest Peoples Programme, 2025b). According to Dooley et al. (2022), carbon removal might be responsible for land grabbing on a colossal scale (1.2 billion ha globally). However, their projections are based on mitigation pledges and therefore have more to do with governments' unrealistic claims than with existing grabs.

only imply the effacing of indigenous worldviews, but also the suppression of material practices, of entire "cosmopolitical worlds that make a plurality of contributions to forest dwellers' ways of life" (Gabrys et al., 2022:70), as forest-dependent communities are often blamed for deforestation and degradation or excluded from the socio-economic benefits on other grounds (Santos Rocha da Silva and Correia, 2022). The enrolment of indigenous communities, the introduction of financial tools into conservation, and the consequent monetisation of socio-ecological relations that were previously outside the purview of the state enables "new kinds of accumulation and enclosure on the part of incoming commercial actors" (Millner, 2020:3, see also Sullivan, 2012). This key observation will be developed in the empirical chapters.

Much of the literature on nature-based offsetting has been reproducing the industry's tropes in a somewhat acritical fashion: the essence of REDD+, explain Larson et al. (2013), is "to reward those who maintain or enhance the carbon sequestration of forests and compensate them for lost opportunities" (p. 679). What these accounts miss is that many forest communities are not merely swapping an economic activity for another, but potentially giving up on traditional practices and knowledge in favour of the new monetised forest economy. How much is an ancestral practice worth on the compensation market? If, as Larson et al. (2013) seem to conclude, an effective REDD+ requires the commitment of state institutions and the involvement of civil society organisations (CSOs), what is the need for external project developers and carbon brokers to chime in and privatise forest conservation? Even very informative works on the political economy of offsetting fall into economistic reductionism. Consider for example the debate between Angelsen et al. (2017) and Fletcher et al. (2017): the bone of contention is essentially what 'price is right' for REDD+ to compensate the opportunity cost (and – Fletcher argues – something more) of rational stakeholders. More often than scholars seem to recognise, however, deforestation is driven by factors that reach beyond the economic calculus and even beyond the control of formal landowners, including territorial disputes (Botero, 2024b) and entrenched 'cultural' extractive habits (Collins, 2024). Ignoring these circumstances makes for cleaner but less realistic theorisations on the social feasibility and desirability of carbon forestry.

In real-existing REDD+, since the project design stage, communities are disciplined into understanding and preserving the environment in its modern Western sense (Leggett and Lovell, 2011; Franco and Borras, 2019; Setyowati, 2020; Santos Rocha da Silva and Correia, 2022), thereby foregoing their own forests uses and spiritual connections, on top of their emission rights (Bruna, 2022). In some cases, they are contractually bound to reduce their activities by a fixed percentual amount, in others they are generally advised not to cut trees or hunt certain animal species (see chapter 5). Arguably, not being able to freely dispose of a resource is tantamount to not possessing it: scholars have highlighted an all-too-common gap between legal tenure and resource control in indigenous territories (Anthias, 2021), underscoring the relevance of access – rather than property. Chhatre et al. (2012) as well as Pasgaard and Chea (2013) brought attention to tenure as the ability to appropriate resources and benefit from them (a "bundle of powers" according to Ribot and Peluso, 2003). It follows that, even though formal property

relations remain untouched and some community members might reap monetary gains, through carbon forestry contracts land is being effectively grabbed from indigenous communities. Here lies the subtlety of REDD-driven green grabbing: contrary to what may happen in cases of land grabbing for mining, or even for nature-based removals (Nicholson, 2021; Grain, 2024), in REDD+ schemes project developers cannot succeed by driving indigenous communities off their land or buying it off – they need to establish an alliance with (some of) them, if only on paper, and ensure their *visible* participation, as they are identified as both the problem (as deforestation drivers) and the solution (as forest stewards) to the problem. Such marketing acrobatics will be clearly exemplified in chapter 5.

As Aguilar-Støen (2015) and others have noted, the possibilities to participate in REDD+ preparations and eventually in the distribution of benefits are imbued with power. In the political ecology of REDD+ negotiations, indigenous communities are seldom in a position of power (although some are trying to subvert this, see chapter 6.2). This is no coincidence: indigenous peoples were never supposed to be consulted on the underlying logic of REDD+, a top-down scheme devised at UN level, but are merely involved in their implementation. Despite the soothing language of neoliberal conservation organisations, as shown above (Bayrak and Marafa, 2016) indigenous communities were never meant to be the primary beneficiaries of these policies, whose existential goal is global emissions mitigation. In this sense, REDD+ follows the footsteps of neoliberal development interventions aimed at opening up new markets rather than directly improving the well-being of local populations (Büscher et al., 2021; Watts and Peet, 2004). As Fletcher (2010) observes, "neoliberal governmentality would likely place less emphasis on nurturing and sustaining life directly than on supporting economic growth, [...] neoliberalism's 'one true and fundamental social policy'" (p. 175).

The North Star of economic growth, mostly enjoyed in the Global North (Connell, 2014), pushes both mitigation and local empowerment down the list of priorities. By blaming deforestation on the wrong actors and shifting the attention away from the real culprits (or rather, the underlying systemic processes that drive environmental degradation), carbon developers do not only empty offsets of their theoretical mitigation function, but also deepen the commodification of previously non-commodified socio-environmental relations. This commodification, in turn, opens the floodgates for further commodification in a vicious circle that will be better explored in chapter 4.3. For now, it is important to point out that Global South communities do not necessarily oppose carbon offsetting. Faced with an inevitably contradictory local reality, scholars – especially from the Global North – ought to avoid the temptation to adopt a patronising approach and tell indigenous communities what policy best fits their interests. Indeed, the sympathetic approach of some communities towards carbon forestry might be partly induced by the fact that, for all the academic and non-academic criticism on the social impact of carbon offsetting (see above), so far scholars have provided little evidence of the concrete material and financial mechanisms through which carbon markets entrench inequalities on different scales. As Moros et al. (2020) observe, that academics endorse a critical discourse says more about their acquaintance with conceptual debates

than it does about the existence of 'hard' evidence, which is often scant. Building up evidence, particularly quantitative, is key to turning an ethical problem of environmental and historical justice into a quantifiable economic problem – arguably an effective way to gain clout in policymaking. Chapter 3 will seek to do exactly that from a global perspective, whereas chapters 4 and 5, heeding to Fairhead et al.'s (2012) call not to lose sight of the "empirical particularities of diverse cases" (p. 241), will engage these contradictions through a local prism. Before moving on to the empirical part of the dissertation, however, the next chapter offers an extensive account of the methodologies adopted and the challenges encountered.

2. METHODOLOGY

This chapter offers a detailed account of the methodological approaches that guided this dissertation. After introducing the research questions and strategy, I will tease out the methods adopted at the various stages of the research project, clarify the rationale that guided the selection of the case study, and outline the limitations inherent in the chosen methodology and case study. Finally, I shall try to convey the complexity of the socioenvironmental context of the field location and pinpoint the challenges encountered in the attempt to carry out "intensive research" (Sayer, 2010).

Like most academic endeavours, this research project was born of intellectual curiosity and disquietude with a social phenomenon, or rather a combination of social phenomena interlocking at a specific conjuncture. Namely, what motivated this study was a critical approach to so-called climate 'solutions', their global repercussions and localised effects from a perspective of (historical) socio-environmental justice. While the track record of climate policies in terms of environmental and social benefits instils a certain degree of scepticism in the critical scholar's approach, as discussed above the existing literature does not provide as much case-study-based evidence as the flurry of critical theorisations seems to presuppose. The importance of empirical evidence, even on an apparently microscopic scale, in challenging and refining theoretical paradigms has been stressed by scholars in disciplines adjacent to geography such as history, in relation to microhistory (Ginzburg, 2015), and anthropology, in relation to "thick description" (Geertz, 1973)[34]. Hence, I set out to test my hypotheses and help fill the existing knowledge gaps with an open-minded scientific approach. To this end, I opted for a case-study design with ethnographic methods (Bryman, 2015) with a view to gaining in-depth understanding of the interlocking and potentially contradictory effects of a carbon forestry project among a specific community and – importantly – about their views on the matter. Additionally, in order to provide a quantitative contribution, I explored global carbon commodity chains building on previous scholarship on unequal exchange. While the latter contribution may well be easier to mobilise for policy purposes, it is the qualitative part that demanded the majority of the work and reflections and to which most of this chapter is devoted.

Looking at a very specific iteration of a certain social phenomenon raises questions as to external validity and replicability. Burawoy (1998), echoed by Lund (2014), takes issue with reliability and replicability in social science research, and especially with excessive deference to research questions, by contending that researchers begin with one set of questions and end with very different ones contingent on positionality and field circumstances. Scholars have proposed different parameters for assessing the validity and reliability of qualitative research, such as credibility, transferability, dependability, and confirmability (Chilisa, 2019:213), as well as plausibility. Others, from anthropological perspectives that,

[34] These disciplines are part of the multidisciplinary doctoral programme this dissertation is a product of.

mutatis mutandis, can be applied to ethnography more generally, explicitly deny that ethnographic research should employ hard evidence as a measure of validity because of the "relational nature of anthropological knowledge and [because] so much evidence in anthropology is circumstantial or inferential, and relates to sensations, silences, deceptions, and moods" (Hastrup, 2004:461).

Based on this premise, this study set out to tackle the following research questions, presented here in a broadly 'telescopic' order from the macro-scale to the micro-scale. Some of them are primarily quantitative, others mainly qualitative, however it should be noted that the research process did not adhere to this rigid distinction:

- How do carbon markets compare to other extractive commodity markets? Are there geographical overlaps between traditionally extractivist regions and regions of carbon extractivism?
- Where is the value of carbon credits produced and where is it captured along offset commodity chains? Is it possible to quantify value appropriation along offset commodity chains?
- How is the commodification of carbon articulated across scales and what performances of articulation are required to (metaphorically) inject carbon from Amazonian social formations into global circuits of capital?
- What is the community's perception of and involvement in carbon offsetting and the specific carbon forestry project? On what grounds is an agreement made between the indigenous community and the carbon project developer?
- What are the project's impacts (both potential and already materialised) on local socio-environmental relations and livelihoods? How do these compare to the impacts of 'traditional' extractivism?

2.1. Research strategy and methodology

The research strategy applied for the purposes of this dissertation differed starkly depending on the different research questions as well as on the social environment and aims of each interaction. Overall, the study applied a mixed-method design, heavily reliant on primary research, with a loosely sequential question design: while the quantitative and qualitative questions are partly independent from one another, they follow an inter-scalar direction from a macro-perspective (global credit commodity flows) to a micro-perspective (localised social effects). Admittedly, combining the quantitative component with the ethnographic one was a substantial challenge at the research design stage, however these dimensions proved complementary in that they enable an exhaustive picture to be drawn – to the extent allowed by the transparency of carbon markets – of the g-local dimensions of carbon forestry, from

global value appropriation to localised dispossession and disciplining. I deemed it important to retain this 'double lens' as it enabled me to attend to overarching global dynamics while mitigating the risk of overlooking the micropolitics and embodied experiences precipitated by global policies.

Since the empirical part focused on processes of socioenvironmental change and the impact of climate policies among indigenous people, it primarily relied on qualitative methods informed by a constructivist epistemology (Bryman, 2015) and by an inductive-deductive research philosophy (Willis and Trondman, 2000:12). Underpinning the whole project was a decolonial approach (Sultana, 2019; Thambinathan and Kinsella, 2021) that attends to cognitive and epistemic justice (De Sousa Santos, 2011; Mabele et al., 2023), with a particular emphasis on reflexivity and participatory research (Hume and Mulcock, 2004). With this, as discussed at length below, I do not wish to make grand claims about the achievements of my doctoral project, but merely to underscore the ambition that motivated the empirical work and the ultimate horizon it has reached for.

During the first stage, and for all quantitative components more generally, a more positivist epistemological approach was adopted, for example when investigating the business rationale and monetary expectations surrounding forest management schemes, or when quantifying global value drain (chapter 3), all the while preserving a critical development studies approach to data analysis. The interaction with partner NGOs and communities in the field was a more demanding task. A multilayered case like that of the Nükak REDD+ project triggers a multitude of reflections. A few days in the field sufficed me to establish that I first and foremost needed to ask myself the question: "of what is this a case?" (Lund, 2014). Trying to go beyond Lund's conclusion that "it depends" while accepting his premise that social inquiry is always situated and never totally objective, in this dissertation I will try to argue that the case I observed is one of neocolonial appropriation, subtle dispossession, and, on a more conceptual level, epistemic injustice and (attempted) reconfiguration of indigenous subjectivities. While these generic conclusions resemble those that have been or could be drawn from other REDD+ cases, under many aspects the Nükak case is an extreme one (see chapter 2.3), which was reflected in how the field partly upended prior theoretical assumptions. By the beginning of my fieldwork, of course I had already spent quite some time reflecting upon my role and agenda, however *a priori* reflections on positionality can never fully prepare the researcher for the day-by-day visceral experience of the ethnographic inquiry. This is not to suggest that field preparation is a futile effort, but to acknowledge that reflexivity is an on-the-go activity that should partly be left for the inevitable moments of dullness that await the researcher in the field.

As the social effects of carbon offsetting were (and remain) understudied, the fieldwork hinged on ethnographic methods (Willis and Trondman, 2000) aimed at collecting observational, qualitative, and (to a lesser extent) quantitative data. This reflects the view according to which it is hardly possible to draw a sharp line between quantitative and qualitative methods in social science research (Hentschel, 1998), as the data may be constituted by a mix of socio-economic factors, insights on power relations,

environmental perceptions, political claims, beliefs, identities, as well as objective and subjective well-being indicators. Investigating communities' understanding of the climate crisis, carbon offsetting, of CO_2 and of its valorisation required an ontologically 'open' approach. If carbon markets are little understood in Western financial circles (where they were concocted), Amazonian communities were unlikely to display a better grasp of what carbon trading is – or why it exists at all. As was expounded elsewhere in this dissertation, indigenous communities tend to situate the value(s) of nature along very different ontological axes from most Westerners, a divide partly rooted in the incompatibility between the relational understanding of knowledge that characterises indigenous thought and the standing of knowledge as an individual achievement typical of dominant research paradigms (Wilson, 2008; Altink et al., 2022). This divide notwithstanding, some indigenous groups, in Colombia and elsewhere, are willing to sell 'their' carbon, which prompts the queries motivating the fieldwork. My methodological approach to the ethnographic component, then, may be ascribed to the category of what Chilisa (2019) defines "integrative/adaptation approach". Within this framework, "indigenous-centered conceptual frameworks serve as critical tools to provide insights into a researcher's beliefs about the research process, the research goals, its methodology, and interpretation of its findings" (p. 30), with the goal of building a bridge between the researcher's onto-epistemological stance and the community's knowledge system.

2.2. Deskwork methods

The desk research for this dissertation moved in three parallel (though at times adjacent) directions: the first was for the purposes of an argumentative literature review that constitutes the bulk of chapter 1; the second was for the quantitative 'branch' of the research project, which flowed mainly into chapter 3[35]; the third was for field preparation, so that empirical observation could be triangulated with document analysis to build robust conclusions. While the first was based mostly on secondary research, the second and third almost exclusively rested on primary research.

The secondary data and literature presented throughout the dissertation are the product of a targeted review, whereby targeted refers not only to the bodies of literature, but also to the authors: since the geographical focus of this work is Latin America, and one of its theoretical pillars is decolonial theory, an effort was made to reference Latin American (or at least Global South) scholars – whenever appropriate – favouring them over scholars from the 'big five' countries of social sciences (Grosfoguel, 2012). An affirmative action of sorts. Most literature and data on the mitigation scheme analysed (REDD+), however, is published in English, which makes English the dominant source language for this work. English is also

[35] This chapter was developed in parallel with Rizzi and Krause (2025) and largely overlaps with the paper in form and content.

the language used in this text, although selected words or sentences are quoted in Spanish as well so that readers versed in Spanish may be able to better appreciate their connotation. In a limited number of cases, Nükak words are used (and explained). For the most part, the literature is presented in the form of a narrative literature review, which offers "exploratory evaluation of the literature or a subset of literature in a particular area" (Sovacool et al., 2018). While narrative reviews take on a less comprehensive approach than systematic reviews and are therefore less replicable, they allow for a more in-depth qualitative analysis.

The quantitative research proceeds through a three-tier hypothesis. First, I establish the carbon credit trade balance between Global North and Global South countries (Annex 1 and non-Annex 1 of the Kyoto Protocol, respectively[36]) on global voluntary carbon markets (VCM) between 2020 and 2023. Second, I investigate whether the trade in carbon credits constitutes an instance of unequal economic exchange as conceptualised by Amin (1976, see also chapter 3.1) and focus on Colombia as a case study. Third, I address value leakage along the carbon commodity chain through qualitative and quantitative data. Due to its multi-scalar scope, the quantitative study draws on different complementary sources: data on the global flow of carbon credits were provided by AlliedOffsets, a data collector on carbon credit registries (AlliedOffsets, n.d.), and cross-checked with openly accessible databases and reports. It is important to emphasise that the available VCM data only provide partial insights into the global trade in offsets due to at least two reasons: first, VCM data do not necessarily capture bilateral or multilateral trade between countries with compliance schemes in place, nor internal trade in countries that enforce a carbon tax. Second, the lack of transparency that still dominates the offsetting landscape, compounded by the disorienting dynamism of the industry, means that some projects remain off the radar even for the most exhaustive registries. In several cases, while offset transactions may be registered in the database, their final purchaser is not registered. These transactions were omitted from credits flow calculations (but are summarised in Table 1). In some cases, transactions are registered but the credit price is not disclosed.

For hypothesis 2, following Hickel et al. (2021), I adapt Köhler's (1998) method to quantify economically unequal exchange through carbon credits, both on a global level and specifically for Colombia. Köhler (1998) maintained that, in a world economy in which the value of money is non-homogeneous, "the exchange rate system is one of the mechanisms by which high-wage countries extract value from low-wage countries" (p. 145). Consequently, Köhler used the distortion factor between market exchange rates and purchasing power parity (PPP) to quantify value extraction from the global periphery. The resulting "Exchange Rate Deviation Index" (ERDI) is a proxy for how much higher the revenues of subaltern countries would be if valued in Northern prices. By no coincidence, wealthy countries' ERDI

[36] Since Taiwan does not appear in UNFCCC lists (neither among Annex 1 nor among non-Annex 1 parties), for consistency all trades involving Taiwan were ignored. This omission was deemed acceptable as over the four years analysed Taiwan has bought just over 1 million and issued less than 2 million credits (approximately 0.2% of the global total).

tends to be close to 1, whereas former colonies' ERDI is considerably higher (currently nearly 5 between Annex 1 and non-Annex 1 countries). Hickel et al. (2021) introduce a number of caveats aimed at refining their estimates as they look at all commodities and the entirety of global trade. Since the focus here is on one commodity and the North-to-South trade in offsets is scarce, more basic formulas based on net offset flows are applied to compute trade volumes. While I acknowledge some merit to methodological approaches adopted elsewhere (see Dorninger, 2024), the chosen method is arguably the most suitable for the purposes of this dissertation.

The rationale for choosing Colombia as a case study for carbon trading is outlined elsewhere in the dissertation, particularly in chapter 2. The relevance of Köhler's method – and the unequal exchange framework – to the region is further corroborated by studies such as Chaves (2005), who discusses the bearing of unequal exchange on Latin America, and Infante-Amate et al. (2020), who estimate over one century of physical and monetary trade in 16 Latin American economies. To operationalise Köhler's method, I use up-to-date World Bank data (World Bank, n.d.a). The calculations are repeated for different scenarios (high-income vs. small- & medium-income countries, and a scenario adjusted for top carbon emitters) to establish a sensitivity range and reduce researcher bias. For the same reason, I run the same calculations with a simpler proxy based on average offset prices, a simplification allowed by the fact that – unlike most ERDI-based calculations – only one commodity is involved. Köhler's method was taken as a reference because it yields the most conservative results. The specific calculations carried out for each hypothesis are detailed in chapter 3.

The choice of the 2020-2023 time span is based on the following considerations: the most recent full years on record at the time of writing, these four years constitute a fairly representative sample, as they make up "49 percent of the total VCM value reported to EM since [...] 2005" (Forest Trends' Ecosystem Marketplace, 2024). Moreover, they offer an exhaustive cross-section in the history of carbon markets as they capture both boom years (20-21) and bust years (22-23). Depending on the unfathomable future of the offsetting paradigm, they could represent a fraction of what carbon markets will amount to (see footnote 19) or the last few flares of a dwindling industry. For hypothesis 3, I adopt a more speculative approach to understand value leakage along the carbon credit commodity chain. Although this part of the carbon trading paradigm is largely 'under the radar', I draw on literature and anecdotal evidence, including from my own fieldwork and fieldwork carried out by the co-author of Rizzi and Krause (2025), that suggests further appropriation through brokerage activities by national and international actors.

Finally, the qualitative approaches adopted in the field are articulated below (chapter 2.4). The field preparation stage included informal online conversations with academics and NGO workers, as well as semi-structured interviews with carbon market practitioners and representatives of national indigenous organisations. All were duly informed about my position and about the topic of my PhD research project and gave their informed consent to the interview.

2.3. Choice of case study and research timeframe

This project adopted a purposive selection of field location based – among others – on the following factors: the area had to host an understudied REDD+ project involving one or more local communities, preferably in a country where a language familiar to the researcher was spoken. While the focus was on potentially problematic cases, the purposive selection did not specifically target cases of full-blown social conflict as that would have implied seeking bias confirmation.

After initial conversations with fellow academics, NGOs, and potential research partners, as a first step the choice was narrowed down to Colombia, which was (and remains) one of the countries in which carbon forestry has taken the strongest foothold amidst a loosely regulated carbon market landscape. Colombia was a reasonable choice not only in light of the wide range of carbon projects to sample from, but also because, due to its history of indigenous struggles and robust land tenure laws (see Lederer, 2012; Milne et al., 2019), it has been at the forefront of the politicisation of REDD+ and similar conservation policies.

Eventually, after closer conversations with Colombian scholars and CSO workers, the choice fell on the Nükak REDD+ project in the Guaviare department[37]. In many ways, the Nükak case was paradigmatic (if such thing as a negative paradigm exists), or what has been defined a "crucial case" (Koivu and Hinze, 2017), due to a number of reasons, including (not by order of importance): the sheer size of the territory owned by the Nükak (almost 1 million hectares), quite large even by the standards of Colombian *resguardos*[38] and above the average of REDD+ projects; despite this, the lack of territorial control and the presence of a dual authority; the many interlocking interests surrounding the project; the high vulnerability of the indigenous community; the epistemic distance between the worldview of the Nükak, who have entered into permanent contact with the Colombian national society[39] only 40 years ago, and the socio-technical rationality underlying the carbon trading configuration, a distance reflected in the ways the Nükak conceive and make use of the forest versus the conception of the forest as an apprehensible carbon stock. Importantly, my Colombian colleagues insisted that no critical social science inquiry (as it turned out, no research whatsoever) was being carried out on the project, despite its very problematic outwards appearance.

From a slightly different perspective, the Nükak REDD+ project appeared as a rulebook case of "adverse selection", defined by Garcia and Sanford (2024) as "a setting where one party in a transaction

[37] For more information on the department, its geography and history, see chapter 5.

[38] A *resguardo* is a recognised territorial unit, dating back to colonial times, which awards collective land ownership over a certain area of territory to a specific indigenous community. In the case of the Nükak, their *resguardo* should not be mistaken with the Nükak Natural Reserve, a territory to the South of the Inírida river (see Fig. 4 and Fig. 22) that, while taking the name "Nükak" due to historical reasons, is not titled to the community.

[39] While "national society" is certainly a questionable identifier for the non-Nükak part of the Colombian society (the Nükak could be considered to be a 'nation' in their own right), it is used throughout the dissertation for lack of a better term.

can use private information to gain additional benefits, making the transaction less desirable for the uninformed party" (p. 2). In other words, the case appeared to tick all the boxes of everything that can be wrong with REDD+. Of course, my choice was not made out of a morbid interest in 'tragedy research'. Rather, it responded to the scientific rationale of choosing a significant case, capable of yielding comprehensive insights into the broader dynamics under investigation, and to the ethical rationale of taking critical inquiry where it could be most impactful for the communities and CSOs involved. It should also be noted that these circumstances were only partly known to me in advance, although mostly known to the Colombian scholars who suggested this as a possible case study and who, due to different reasons, were reluctant to investigate the matter themselves. It is also worth clarifying that, although probing the presence and impacts of carbon-forestry-related conflicts was an integral part of the study design, the choice of field locations complied with governmental and expert guidance; at all moments, logistic feasibility and safety considerations, for me and for research partners, took the foreground.

The fieldwork for this dissertation took place between the first and second year of PhD, between October 2023 and June 2024. An extended investigation allows a researcher to "move beyond *social processes to delineate the social forces* that impress themselves on the ethnographic locale" (Burawoy, 1998:15) – a particularly enticing prospect to a political ecologist as well as to the attentive geographer, as social forces typically impress themselves – in more or less subtle ways – on the landscape as well. After an initial scoping trip, a longer research stay was arranged for a total of approximately seven months. This was preceded by remote primary research (see above). Once in Colombia, on the side of field stays in Guaviare I attended conferences and workshops that helped shape my views and conclusions. Namely, I actively took part in the 17th Biennial Conference of the International Society for Ecological Economics (October 2023, Santa Marta), in the International Conference on Global Land Grabbing (March 2024, Bogotá), and in a workshop organised within the "Counting Carbon: The shaping of low-carbon landscapes and environmental justice in Colombia" project at the Javeriana University (June 2024, Bogotá). As already indicated in the introduction, the participation in conferences and workshops led to the publishing of six scientific papers and book chapters during my doctoral pathway, most in relation to carbon offsetting. In this dissertation, I draw on (and in part literally reproduce) the following papers: Rizzi (2025a), Rizzi (2025b), and Rizzi and Krause (2025).

2.4. Fieldwork methods

Mixed methods

The complexity of the field context imposed a multiplicity of methods. Fieldwork in Colombia was divided into two stages (approximately 2 months and 5 months respectively), which I shall term the 'urban' phase and the 'rural' phase, whereby these terms are used merely for differentiation purposes and bear

no relation to the long-standing urban-rural debate in geography. In fact, some indigenous representatives were met in a rather formal context, whereas quite some time was spent with project developers in the depths of the forest. Again, drawing a sharp line between field, non-field, and different field contexts is an inevitably arbitrary and ultimately pointless exercise.

The urban phase, mostly spent in Bogotá, was instrumental to getting acquainted with organisations and individuals that could secure safe access to field locations and provide insights that were essential to inform the rural phase and subsequent theoretical reflections. Bogotá also offered the opportunity to visit relevant ministries and to attend conferences and workshops at several universities (see above). The methods used in this phase are readily described. Individual or small-group meetings were scheduled with scholars, NGO workers, and indigenous representatives based in the city, sometimes held in informal environments, other times – for example – at an organisation's offices. In formal encounters, semi-structured interviews were administered. Contacts were sought with authorities (particularly the Ministry of the Environment), although my inquiries mostly went unanswered or were answered with standardised texts. In my interpretation, confirmed by Colombian insiders, this was not only due to the (justifiably) low accountability felt by ministry officials towards a foreign PhD researcher, but also due to the fact that the ministry did not have a definite stance on carbon offsetting nor a clear idea on what was to be done to address the issues arising from it. Subsequent cabinet reshuffles involving – among others – the Ministry of the Environment (Torrado, 2025a) did little to unblock this situation.

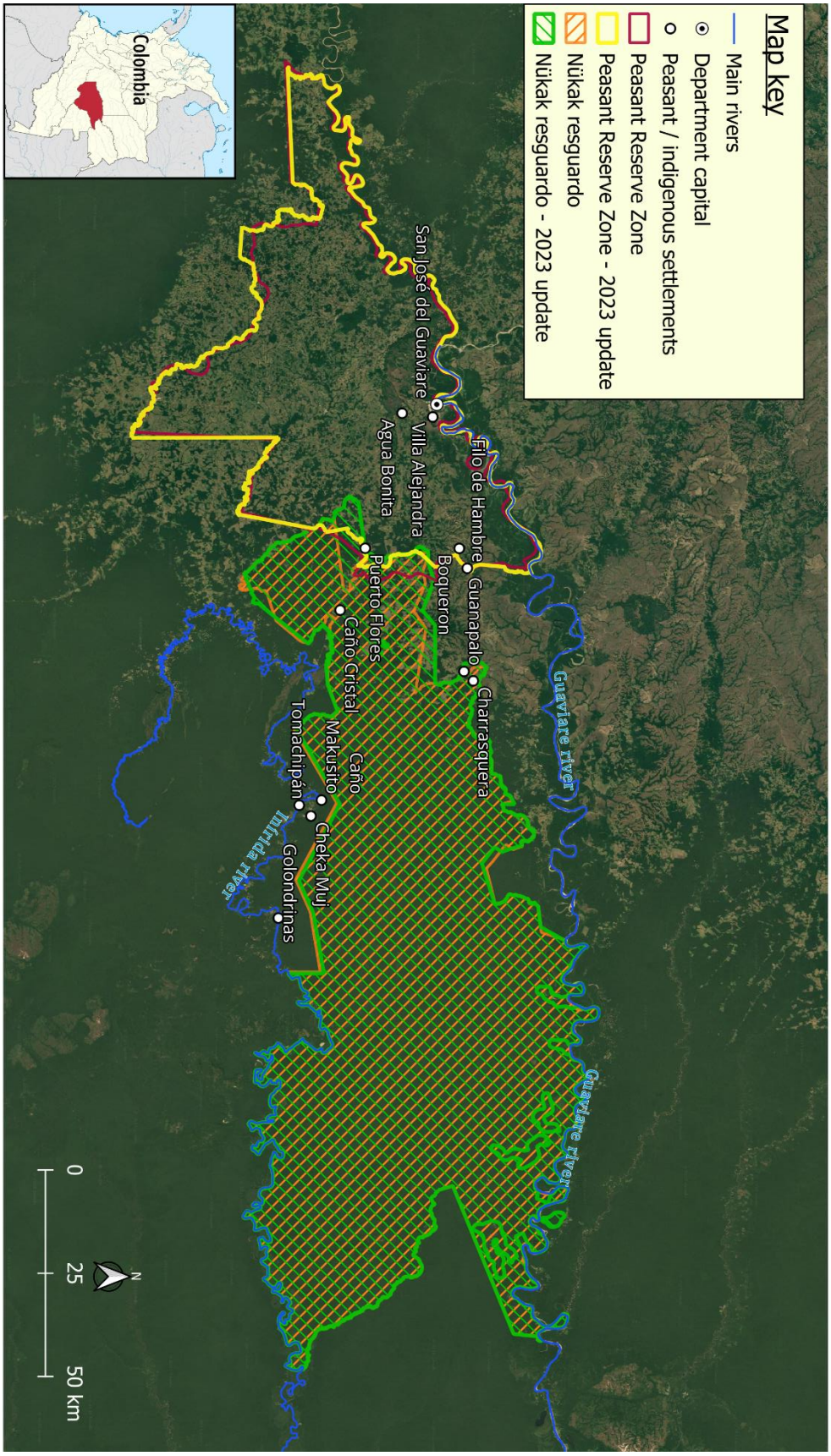


Figure 4: Fieldwork map. In this map, field sites in Guaviare are indicated. Except for the departmental capital San José, these are all peasant and/or Nükak settlements that were visited during fieldwork. The map highlights cartographic changes of the Nükak resguardo *(right) and Peasant Reserve Zone (left) before and after a recent update. Among peasants and indigenous people uncertainty still prevails, with significant repercussions especially near borders. Own elaboration based on data provided by field informants.*

The 'rural' phase was – predictably – the most challenging. A further methodological bifurcation took place: on the one hand, the views of NGO/CSO workers, government agency employees, and REDD+ practitioners were collected through semi-structured interviews or, with those who so preferred, informal *tinto*[40] conversations (see Appendix 1). On the other hand, for the views of the Nükak to emerge in a culture-sensitive and, to the extent possible, non-extractive way, some degree of creativity and adaptability was required. While the initial – and perhaps too ambitious – idea was to carry out immersive participant ethnography, field circumstances suggested a redirection towards what has been defined "project ethnography" (Mosse, 2006). This methodological approach proved useful to delve beneath official project documentation, expose misalignments between stated goals and practical realities, and highlight the tensions arising during the project planning, design, and implementation stages. This shift entailed a certain separation of field and desk, although a consistent attempt was made to eschew a Malinowskian pretence of objectivity and distance (see Gupta and Ferguson, 1997). Rather than on a presumed identification with the community, the emphasis was on the dialogic condition of ethnography, which "engages the perspectives of the observer (etic) with those of the local people (emic)" (Nunan et al., 2023:177). Not only is this advisable from an ethical standpoint, but it can also be methodologically fruitful (Temper and Del Bene, 2016; Sultana, 2023) and resonates with what anthropologists working in fragile settings have argued: "It may be precisely by giving up the scientific detective's urge to know 'everything' that we gain access to those very partial vistas that our informants may desire or think to share with us" (Malkki, 1995:51).

The following methods were employed to engage the community in ways that were culture-sensitive and scientifically sound:

1) Unplanned encounters with community members in town: as Nükak groups from all settlements occasionally visit San José del Guaviare, I often came across them in the street or in the places where they use to set up makeshift camps. After we got acquainted, they actively approached me in the street or asked to visit their camp. Food and other essentials were shared (the proximity of grocery stores and shops of all kinds meant specific requests could be fulfilled, for example formula milk for babies), conversations were held on their reasons for visiting and other generic or specific topics. Among other things, these occasional encounters revealed to me the spontaneous friendliness of the Nükak and their astonishing visual (and not only visual) memory, as they effortless remembered my name and affiliation (not to my university as much as to local NGOs or scholars) even months after the briefest of encounters.
2) Settlement visits: settlements near San José del Guaviare were visited, typically alone and unannounced (but not uninvited, see below). Food was shared and conversations were held to elicit topic of their concern and their views on those topics. Methodologically, I regard these

[40] This is the most widely used terms in Colombia for a cup of black coffee.

settings as 'pseudo-focus groups', as community members were not summoned to discuss a specific subject but these spontaneous group conversations had analogous effects. These encounters were usually marked by a blend of curiosity and indifference. Some community members, often elderly women or children, would share stories or discuss every-day matters, show me pet monkeys or coatis, and invite me to talk more about myself, whereas young men tended to be more reserved and wary of the outsider.

3) Hunting-gathering rounds: one day, as I was visiting a settlement along the *trocha ganadera* (see below), most settlement members suddenly shot off towards the forest and invited me to join what I then realised being a half-day trip to gather fruits and other materials in the forest. While I had wished to join such trips, I was reluctant to ask communities to plan one around my needs. When it happened spontaneously, I was both taken aback and delighted. Similar situations occurred during the river trip and, in simpler fashion, even in San José del Guaviare. During the mango harvesting season, for example, it is common to see Nükak children climb up huge mango trees towering over San José's main square and 'bombard' fellow harvesters (as well as bystanders) with freshly-picked fruits. All these were invaluable opportunities for me to acquire first-hand knowledge, through observational methods and occasional interactions in the logic of "showing and telling" (Strang, 2000), on the Nükak's traditional modes of social production and reproduction.
4) *Olla comunitaria*: On one occasion, a communal meal was organised in the largest Nükak settlement with the help of two collaborators. This did not merely involve the sharing of packaged food, but the supply of all the ingredients for a *sancocho* (a traditional Latin American stew) and the setting up of collective activities and moments of exchange (pseudo-focus groups). This offered a particularly valuable opportunity for observation and conversation in a space strongly defined by women's voices and agency. Moreover, it allowed me to engage with community members, especially elders, who do not travel to town or attend formal gatherings very often. Unfortunately, it was not possible to repeat this experience due to time constraints and logistical limitations: other groups invited me to organise a similar gathering at their settlement, which, however, was not accessible due to FARC-imposed mobility restrictions.
5) Participative mapping: during the communal meal, while some of the women were cooking lunch, I seized the opportunity to entertain the community with what could be described as a 'countermapping' exercise (Peluso, 1995). After a round of introductions, I provided a large sheet of paper and markers and asked whoever felt like it to represent their territory. Several young boys volunteered, but many others contributed with suggestions. It so happened that one of the settlement elders, together with elders from other settlements, had just come back from a helicopter flyover of the *resguardo* funded by a foreign development agency, and had plenty of fresh insights combined with previous knowledge about the depths of Nükak territory (today's

elders were born when the Nükak were still in voluntary isolation and thus know like the back of their hand areas that have never been accessed by Western cartographers). While the materials offered imposed a Cartesian representation on a flat surface that – to an extent – precluded the representation of any "entity that occupies a space that Euclidian coordinates cannot encompass" (De la Cadena and Escobar, 2023:32), the "counter" in countermapping is justified by the fact that the decisions on what to draw and how to draw it were theirs, with no suggestions on my part[41]. In this sense, it was a map 'from below'. It was probably due to their assumptions on my expectations that they came up with a fairly 'Western-style' map (a flat territory bounded by rivers and interspersed with villages), although it is what they filled it with that caught my eye. Particularly, community members displayed a keen awareness of deforestation hotspots, normalised peasant settlements within the *resguardo* (reflecting a dialectical, not necessarily antagonistic relationship), and gave visual prominence to certain plants and waterways (see Fig. 5).

6) River field trip: once I had established connections with several community members and with REDD+ promoters, I accepted an invitation to join a fortnight-long trip along the Inírida river. This journey, officially organised by Medusa, included stops at most Nükak settlements in the South (Golondrinas, Cheka Muj, Caño Makusito, Costeñita, Caño Cristal, Puerto Flores) and had several objectives (see below). It allowed me to interact with dozens of Nükak families who rarely visit San José del Guaviare and to witness their way of living in settlements far removed from urban areas. Since it was organised by Medusa-GreenVenture (see below), I could gather a wealth of information on my research topic without explicitly inquiring about it. I learned a great deal about the Nükak's daily life in close contact with the river (to them both a boundary and a means of communication), about their nomadic lifestyle (one settlement was totally deserted upon our arrival, as the community had presumably left for a hunting or fishing round days before), and about their social reproduction patterns more generally. Additionally, the trip provided a chance to share some food and essentials with remote communities I could not have accessed on my own (see point 4 above).

In methodological terms, on all these occasions a mix of methods was employed with a prevalence of participant, structured observation and interviewee-driven conversations, mostly held in Spanish (most young Nükak and several of the elderly speak Spanish, to different degrees of proficiency). For points 2 and 4 particularly, focus groups of sorts were set up, although this should be imagined as rather loose and spontaneous, with participants chiming in and dropping out at all times. For point 3, 'walking interviews' and 'walking observation' were largely employed. The ethnographic literature

[41] For a countermapping exercise that does more justice to ontological plurality, see the conceptual map in Fig. 21. While I was not directly involved in producing the artefact, I assisted the artist with contacts and theoretical inputs.

describes various approaches to this set of methods (Lee and Ingold, 2006; Leggett and Lovell, 2011; O'Neill and Roberts, 2020), which is arguably particularly crucial when dealing with a semi-nomad community for whom mobility is a key identitarian component. Structured interviews were not deemed an appropriate tool, although at times field conversations or narrative interviews (Bryman, 2015; Harris, 2022) are hardly distinguishable from a semi-structured interview. More generally, one-to-one interviews were avoided not only because they did not reflect the communal nature of Nükak problem-solving methods, but also due to potential issues with perceived expertise (Harris, 2022) and gender biases (Fontana and Frey, 2005; Chilisa, 2019).

Concerning the above list, a few remarks are in order: first, showing up unannounced at Nükak settlements was not only based on logistic considerations, but also on a deliberate strategy. As semi-nomads, the Nükak often leave for spontaneous hunting-gathering rounds, or simply hit the town for a stroll, and one can never be too sure about when they will be back. When asked, they would typically suggest showing up at any time. Especially in certain settlements, the Nükak were quite excited by visits, which they took as a relief from a perceived feeling of boredom and abandonment. While some of them appeared uninterested (especially young men), others were very curious to acquire new information and eager to share their own stories and knowledge. Almost invariably, someone asked when I/we would visit next. When environmental issues were not spontaneously brought up, I sometimes sought to shift the conversation in that direction, although never straight to the REDD+ project. Surprisingly, the project and its developers were typically among the very first things mentioned by community members themselves.

This further justified the above-mentioned "project ethnography" approach, which also entailed being involved as an observer in company activities. On those occasions, I was adamant to offer my own modest contribution, not to the company's success as much as in making sure that their work was sensitive to the needs of the community. For example, I offered my material help to the drafting and scientific feedback on the content of the Nükak internal regulation (see chapter 5). While I failed to influence it in a way that I would have deemed satisfactory (not least because of the total control exercised by GreenVenture's manager over the whole process), I have reason to believe that without my observations the end result would have been even further from ideal.

On occasion, especially in interactions with GreenVenture-Medusa and particularly during the river trip, I resorted to "investigative ethnography" (Ballvé, 2020). This "marriage of methods and [...] epistemological presuppositions" (ibid:238), implemented within the wider project ethnography framework, served a threefold purpose: first, ensuring access to "spaces produced by violent forms of capital accumulation" (ibid:238); second, eliciting all too valuable information for a comprehensive political ecology of the case; third, taking up a methodological stance that aligned with an ethnography of public policies and their localised actors (Mosse, 2006). Despite my critical outlook, an effort was made at all times to uphold a scientifically sound and impartial approach. This is both for ethical and methodological reasons: the former because even "moral judgements have to be *grounded* in evidence"

(Gledhill, 2000:219) and it would be wrong to assume that carbon businesspeople are mere profiteers necessarily and deliberately causing social harm. The latter because "for an ethnographer, the narratives and the bias itself are revealing 'data'" (Ballvé, 2020:244). This approach is reflected in the discussion of findings below: while the project confirmed (in fact, went beyond) some of my most nefarious hypotheses, the reality-check imposed to my theoretical ruminations dulled my conclusions on certain aspects.

The first stage of field research (October-December) was followed by a stock-taking and reflective phase 'out of the field' (although this binary has been questioned, see Gupta and Ferguson, 1997 and Hyndman, 2001), whereas the second stage (February-June) was followed by an analysis of the findings, to be triangulated with the insights from deskwork and initial interviews. In case of inconsistencies or inconclusive evidence, follow-up interviews – where possible – were conducted.

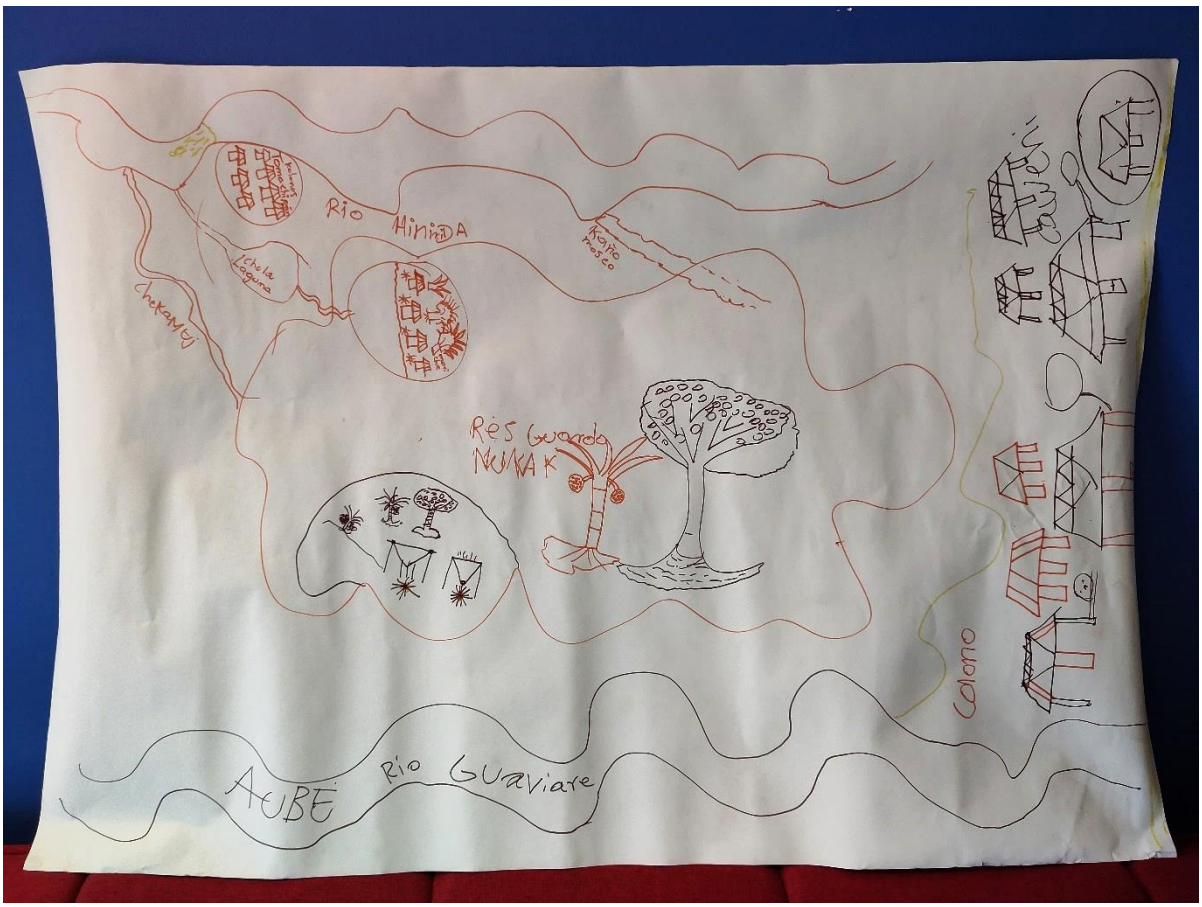


Figure 5: Map of the Nükak resguardo *drawn by the inhabitants of the Agua Bonita settlement. This is the visual result of the 'countermapping' exercise carried out with some community members. A number of things are worth highlighting: first, the* resguardo *was represented 'upside down', along the North-South axis, compared to Western cartographic conventions. Second, peasant settlers were accurately represented in certain areas, especially to the right (West) and at the top-left side (South-East). Third, selected plants and waterways were given special relevance (photo by the author, 2024).*



Figure 6: The Inírida river (photo taken by the author during a field trip, 2024).



Figure 7: Map of the Nükak resguardo *drawn by the inhabitants of the Golondrinas settlement (photo by the author, 2024).*

Prior informed consent, research co-designing, sharing methods

This research was not guided by a 'do-no-harm' logic (balancing the need to produce academic knowledge with a minimisation of the harm caused to research partners), but rather by an ambition to support the partner community in its aims in relation to forest management and livelihood improvement while preserving methodological integrity for the benefit of the academic (and hopefully public) debate on the policies under review.

Consistent with this ambition, since the first (unplanned) contacts proper precautions were taken to avoid any undesired impact on the community. In practice, this initially translated into utter inaction. My anxiety about causing involuntary harm, combined with my reluctance to reveal my critical take on carbon forestry (carbon actors had been described to me by local NGO workers as unapologetically vicious and highly dangerous) meant I had to wait for 'gatekeeper' NGOs to grant me an audience and hopefully introduce me to the community through their own ongoing projects. Mislead by the initial enthusiasm and helpfulness displayed by some NGO workers and public officials, it took me a while to realise that that was a dead alley, be it because of lack of interest (or my inability to lay out my project in a compelling way), genuine concern for the safety of everyone involved, or merely a form of professional self-preservation (more on this below). Later, as I realised that my interpretation of the precaution principle was probably too extreme and that Nükak communities were glad to make new 'unstructured' acquaintances, my strategy shifted: I started entertaining friendly conversations with the groups I met and offering help with daily chores, which led to regular exchanges and invitations to local settlements. While I had been given some hints and contacts by scholars or NGO workers and I typically cited them while introducing myself, I never needed a formal introduction by an NGO or even by the Nükak leader, hence I was never associated with any of them. I typically introduced myself as a foreign student with an interest in Nükak culture and in their relationship with the environment (the best possible 'intercultural' translation I could come up with of an Italian PhD student focusing on the political ecology of carbon offsetting, an affiliation that made no sense at all to them), and I was generally seen as such, at times – from what I could gather – with some degree of justifiable suspicion. The disjunction from the agendas of NGOs and institutions enabled me to address virtually any topic openly and to inquire about the communities' concerns even before evoking environmental issues, although these were often brought up before I could do it.

Since written informed consent forms were generally not an option, I sought an oral approval to this effect by assuring my interlocutors that everything they said would remain confidential and often reminding myself that consent is iterative and cyclical, not a single event (Thambinathan and Kinsella, 2021). Since the Nükak, as a field informant put it, are about "camaraderie and trust" (Interview Marco, 2024) more than written agreements, the confidentiality of interactions was mostly implicit, although I am unable to tell to what extent I was trusted with sincere opinions and truthful information. Where possible, I was planning to connect with communities through – among others – sharing sessions (Chilisa, 2019) on

personal and professional experiences community members might relate to. For example, given that my research is ultimately about forest conservation, I prepared visual and narrative material on the history of forests in my home region. However, in most cases a chance to share these materials did not arise, or other sharing exercises (e.g. participative mapping) were preferred.

Informed consent took rather different forms when dealing with the people involved in the REDD+ project, to whom after a while I decided to get acquainted. To my surprise, they were extremely communicative and open about the project and their own background. I reciprocated by thoroughly presenting my PhD research (the only omission being my critical approach), sharing all the information they requested, and trying to have an unbiased disposition towards the project. In other words, I resolved not to let my critical lens get in the way of an objective – to the extent possible – analysis of the carbon forestry scheme and of an understanding of the needs and aims of the company.

Data sampling, collection, and presentation

Since field methods and approaches are extensively discussed above, this section contains a brief schematic overview of data sampling, collection, analysis, and presentation methods.

Data sampling

- Mix of purposive and opportunistic sampling (Bryman, 2015) of research locations
- Mix of purposive, snowball, and opportunistic sampling (Angelsen et al., 2011; Bryman, 2015; Bailey, 1994) of interviewees and research partners

As regards direct interviews, informant sampling was primarily based on their relevance to my research topics. Institutions, NGOs, scholars, and other experts were chosen who had some connections to and knowledge about either the socio-environmental landscape of Guaviare or about the Nükak, or both. Typically, one interview would suggest several other potential informants. As regards group conversations with the Nükak, location and informant selection was opportunistic in that conversations were mostly held on a spontaneous basis, with no interviewee screening, during settlement visits (some of which were part of a pre-planned trip whose route I had little influence on). This was not a constraint as much as a lucky occurrence, as it was my methodological choice not to discuss the topic merely with community leaders and gatekeepers but also to random community members, including women, youth, and elders.

Data collection

Collection instruments:

- Secondary research: Scientific literature, institutional reports, NGO reports, grey literature
- Primary research:

- Unpublished carbon markets data sets
- Semi-structured interviews (not pre-coded), remote and in person
- Informal conversations and narrative interviews, remote and in person
- Pseudo-focus groups
- Participative methods (see above)
- Audio recorder or notepad, mobile phone camera

Overall, approximately 40 interviews (formal and informal) were conducted, about 60 people were involved in what I call pseudo-focus groups, and about 300 people were engaged to different degrees during settlement visits (see Appendix 1). The latter figure includes all community members who took part in communal activities or conversations, although of course I did not have a direct or prolonged interaction with all of them.

Data analysis and presentation

- The "Atlas.ti" software was used for qualitative data coding and analysis
- All research partner names cited in the text are pseudonyms. For each direct quote, a pseudonym and the year are indicated in brackets
- The names of the companies involved in the project are pseudonyms (this does not apply to local and national institutions, including indigenous organisations)
- Whenever personal details (age, affiliations, etc.) and other sensitive information were collected, these are not disclosed and are presented, if at all, in a generic or aggregated form
- Any information with no explicit source is to be understood as personal communication derived from the interviews listed in the Appendix
- References marked as "De-identified" refer to online sources whose full title and/or hyperlink would make anonymised company/individuals identifiable
- References marked as "Confidential" refer to documents that are in possession of the researcher but cannot be shared in order to protect the identity of the individuals/companies involved. Some of them are not strictly confidential (for example pronouncements by the indigenous community's council) but are generally unpublished or inaccessible online
- All interviews and texts in Spanish were translated by the author

It should be noted that findings and findings discussion are not presented separately, but rather sequentially and partly merged in chapters 3, 4, and 5. This choice, which applies both to the quantitative and to the qualitative data, was deemed more effective in order to better weave the empirical evidence (including interview quotes) together with theoretical reflections.

Unfortunately, two informants died in (unrelated) tragic circumstances before the end of my fieldwork. In the interest of anonymity, and since I was not particularly close to them on a personal level, I shall refrain from rhetorical tributes, but I wish to acknowledge their contribution in the hope that this piece of research will be a modest contribution to the social struggles that were close to their hearts.

Terminological notes

The most essential terminological clarification for the purposes of this dissertation concerns the term "indigenous". On an analytical level, categories such as "indigeneity" are arguably a slippery slope. To most indigenous people, indigeneity is an embodied praxis, not an analytical descriptor[42]. As Radcliffe (2015) puts it, "indigeneity is to Indigenous peoples as cartography is to the earth's surface" (p. 2), an etic representation with no direct relevance to the represented entity. Like maps, the concept of indigeneity is "produced by particular people and institutions at particular times in power-drenched ways" (ibid:2) and presents the outcomes of specific historical processes as immanent facts. Social science scholarship (particularly in anthropology) has long shown how, in fact, indigenous peoples were often construed by colonisers, and how perpetuating such boundaries may mean excluding vulnerable communities only because they do not qualify as ancestral inhabitants of an area (Gledhill, 2000; Simpson, 2007; Anthias and Asher, 2024). In the case of Colombia, nevertheless, indigenous peoples pertain to legally codified and relatively well-defined social groups who openly and formally self-identify as indigenous, which makes it reasonable to employ this word without major ethical or methodological concerns, all the while without disregarding Radcliffe's (2015) call for "a critical geography of indigeneity, a reorientation of Indigenous geographies towards thinking through how indigeneity is made" (p. 7), especially in the context of environmental subject-making.

As such, indigeneity was not an a-priori requisite for research partners: for example, a non-Nükak inhabitant of a Nükak settlement would not have been excluded from the sample. Field circumstances, however, made it clear that the main divide of analytical interest, particularly in terms of power relations, was between Nükak and non-Nükak, rather than between indigenous and non-indigenous people. Indeed, boundaries are blurred in situations in which indigenous people seek to take advantage other indigenous people who, however, are assisted by groups including non-indigenous people. Following Marxist traditions that ground the understanding of race and nature in their relation to capitalism, I was interested in how indigenous identities and ontologies are simultaneously mobilised and effaced and how indigenous land rights become an "ethno-environmental fix" (Anthias and Radcliffe, 2015) when multicultural indigenous territories are construed in relation to neoliberal expansion in the Global South. Consequently, in my analysis I departed from a binary between what has been called a "victimary paradigm" (De Luna, 2011) on the one hand, a tokenistic 'visibilisation' of selected individuals and

[42] As of 2018, in Colombia 4.4% of the population self-identified as indigenous (DANE, 2019).

communities, and an essentialist representation of indigenous people as innate conservationists on the other. Both paradigms have often used indigeneity as "a mere foil for critiques of modernity" (Anthias and Asher, 2024) particularly in response to concerns over nature conservation, a domain deemed a prerogative of indigenous knowledge, thereby obscuring subalternity to structural processes of neoliberal commodification while facilitating subtle dispossession. Instead, in this dissertation communities are viewed as political *actors* that are dialectically – if haphazardly – integrated in a capitalistic whole, not necessarily seeking to reject of flee capitalism as much as attempting to come to terms with it (Ulloa, 2004; Watson and Arce, 2024). Consistent with this view and in light of the obstacles to genuinely co-designed research, an attempt was made to 'let the subaltern speak' (Spivak, 1994) and make the Nükak's views and agency emerge in a context in which, however one may look at it, they are often subject to attempts of manipulation by external and institutional actors. As Anthias and Asher (2024) note, "[r]ather than refusing to represent the subaltern, [Spivak] calls for a mode of analysis that makes visible the subaltern's discursive and material relationality to capitalism, the state, nationalism, and environmental dispossession" (p. 7). To be sure, this dissertation does not claim to speak *for* the Nükak, nor to exhaustively capture their perceptions - even though many community members were directly engaged (see above). Nonetheless, subsequent chapters (especially chapter 5) shed some light on the localised workings and inherent contradictions of carbon forestry and its relation to wider processes of capitalist environmental governance. Not only is such an approach in line with the dependency tradition (see chapter 1), but it also heeds to Nightingale et al. (2019) call to defy the many "concealments" of climate research, specifically the tendency to "avoid the thorny maze of ontological inconsistencies to find convenient frameworks that can more easily accommodate current thinking" (p. 4).

The second terminological clarification concerns the very term Nükak. Its use as a synonym for 'people' or 'community' may at times appear to establish a racial divide between the Nükak and the wider Colombian society. Of course, no racial divide is implied. For clarity of argument, however, it was deemed important to distinguish in every instance 'white' Colombians, foreigners, or other indigenous communities from members of the Nükak community. The collective noun is used not to conflate Nükak subjectivities into an indistinct crowd but in order not to make specific individuals identifiable. A choice had to be made also on the spelling of the community's denomination: in the most exhaustive linguistics study on the community so far, Mahecha (2024) uses the spelling "Nɨkak"; however, for the sake of readability, and because most official and unofficial documents use the spelling "Nükak", in this dissertation the latter is consistently employed.

Finally, a brief clarification on the concept of "Global South". Coined by an activist critical of global domination by wealthy countries (Oglesby, 1969), it slowly made its way into academic circles through the work of – among others – scholars from the South like Walter Mignolo (Levander and Mignolo, 2011) and Vijay Prashad (2013), or committed to the emancipation of former colonies such as Boaventura de Sousa Santos (2011). Today, it is hotly contested by scholars and practitioners (Haug et al., 2021; Zaragocin,

2023; Mampilly, 2025) as it is viewed by some as the heir of "third world", an outdated term taken to have a pejorative connotation because the third world naturally comes after the first (the West) and the second (the Socialist block) in a sequence perceived as fixedly hierarchical (its perception was much more nuanced and articulated among the African and Asian leaders and intellectuals who employed it around the time of the 1955 Bandung Conference, see Fanon, 1965, and Nkrumah, 1968). These quibbles notwithstanding, the term has been taken up by numerous grassroots movements and political figures from the Global South (Martins, 2025), who presumably recognise that the locution itself does not bear any intrinsically negative connotation (South is no better or worse than any other cardinal point) and that, whichever their origin and use, terms *can* be resignified and repurposed through struggle. I take the adoption of the term by Southern activists as the ultimate endorsement for it to be used in academic writing, not as a purely geographical signifier as much as a political-historical "system of representation" (Hall, 1997) that can be deconstructed, as well as "a metaphor for the human suffering caused by capitalism and colonialism at the global level and for the resistance to overcome or minimise it" (De Sousa Santos, 2011:35). In less lyrical terms, for the purposes of this work Global South indicates those regions whose countries mostly display a medium-to-low HDI (UNDP, 2022) and that are to a large extent "subject to the forces of global neoliberalism, rather than enacting [them]" (Eriksen, 2015), although the latter definition could almost as easily apply to the many sacrifice zones in the Global North. Admittedly, the North-South subdivision "owes much to the original desire to divide the world into digestible blocks" (Mampilly, 2025), yet grouping world regions for analytical purposes is not inherently discriminatory, as long as these blocks are not seen as hierarchical, monolithic, and unchanging.

To conclude, one last note: words like "interviewee", "informant", and "stakeholder" are occasionally employed throughout the text. Butt (2022) maintains that "[t]o label them 'research subjects,' 'interviewees,' 'stakeholders,' or other apolitical terms [is] to deny their lived realities" (p. 5). I find this argument rather weak: using such placeholders to anonymise people does not in itself depoliticise them or deny their lived experiences, nor does using their proper name magically turn them into political agents. It is arguably in the statements and actions that emerge, and in how these are analysed, that (de-)politicisation takes shape.

2.5. Limitations

This research project came up against a number of (expected as well as unexpected) limitations. They are addressed in this sub-chapter through a schematic overview of methodological limitations followed by a discussion of context-related hurdles.

Methodological and practical limitations

- Quantitative categorisations: Quantitative calculations (chapter 4) are influenced by the categories adopted. I am aware that the classification based on Annex 1 to the Kyoto Protocol does not accurately capture the Global North vs. Global South divide, nor do I believe such a rigid core/periphery binary to faithfully reflect the current multipolar reality. However, this classification remains analytically valuable as it roughly maps onto the geography and historical legacies of colonialism. The estimates should be interpreted as conservative as some non-Annex 1 countries (e.g., South Korea, Saudi Arabia, UAE, and Israel) are high-income countries and in some respects can be considered part of the Global North.
- Thematic limitations: While, as critical social scientists, it is impossible not to acknowledge the intersectionality of anti-capitalist, decolonial, anti-patriarchal struggles, I recognise that in this dissertation some analytical categories are under-emphasised for reasons of space, time, and sharpness of analysis. Additionally, issues around land, environment, and violence in Colombia, a key background for this dissertation's case study, are too complex and thorny for this work to do justice to all of them. Hence, the dissertation offers a simplified account (mainly in chapter 4) of contextual and historical issues that are not strictly related to the topic at hand. This is partly compensated by a wealth of references.
- Research co-design and participation: The field research was not as immersive as I would have wished due to the logistic and ethical hurdles discussed elsewhere (see particularly the next sub-chapter and chapter 6). Flexibility and improvisation skills did allow for some degree of "thick description" (Geertz, 1973), yet it was less consistent and thorough than initially hoped for. This was partly compensated by readings and conversations with people who are very close to Nükak communities, most notably Dr. Dany Mahecha and Dr. Carlos Franky (they were the first anthropologists to have a close relationship with them as they literally stripped themselves naked to join the Nükak in the forest in the 1990s), although these exchanges cannot possibly make up for direct in-depth interactions. In my research design, I planned to integrate indigenous methodologies as articulated by – among others – Tuhiwai Smith (2008) and Chilisa (2019). However, indigenous methodologies are mainly thought for indigenous researchers or non-indigenous researchers who are deeply embedded in indigenous communities, whereas this research was eventually done in conversation with an indigenous community *about* a project it was involved with, with the aim to investigate their view on carbon forestry. Because of this, and because of the practical and ethical hurdles outlined in this chapter, this scholarship influenced but did not substantially shape my fieldwork.
- Time limitations: While the time allocated to this study is not particularly short by current academic standards, certain issues remain outstanding and my collaborations with certain groups and individuals were cut short, which prevented us from reaching the level of mutual understanding required for more impactful outcomes. While I have been endeavouring to preserve these relations at a distance, both to ensure that my findings are up to date and in order to give something back to the partner community, this endeavour has proven challenging.

- Representativity and replicability: While this study yielded valuable insights about a carbon forestry project and its impact on local communities, not all findings can be generalised across the country, Latin America, or worldwide. Many more studies of this kind will be required to this end, although the 'situational' strategies employed make my methods only loosely replicable (on replicability, see also the introduction to this chapter and the next sub-chapter). Initially, for the sake of external validity, the research design envisioned a comparative element as a safeguard against a context-specific bias, but time and logistic considerations advised against this option. Additionally, the substantial social, geographical, and cultural differences between the communities involved in REDD+ projects would suggest caution in drawing any conclusions from such a comparison. Hence, intensive (ethnographic) research (Sayer, 2010) with one community was prioritised over 'community-hopping'.

Research in scarred environments: The long shadow of conflict

Among the obstacles I was faced with during fieldwork, the obstructiveness of gatekeepers stands out. Though expected, the barriers put up by some NGOs and other potential mediators, including those ostensibly willing to help, were higher than anticipated. After long reflections and moments of despair, I realised it was a finding in itself: in a region long marred by conflict, at times extremely deadly, no one was willing to take chances to help a foreign researcher pry into a project in which well-connected people had considerable vested interests: "I try to get involved as little as possible in carbon credits because it is dangerous. I would rather sit down and talk to the guerrillas than to talk to these people, because they are corrupt and corruption kills more than [the FARC]" (Interview Sonia, 2024), a knowledgeable informant confessed. In other words, the reticence of locals was partly the result of a long wave of conflict and violence, fuelling a vicious circle that stifles critical voices and favours new waves of violent appropriation. This is the main reason that led other scholars to exclude REDD+ projects in Guaviare from their research (Schmid and Castro Osorio, 2025).

After a while, I realised that concerns over violent retaliations were not the only explanation, as they were often paired with disinterest, professional gatekeeping, or reluctance to let strangers in on the organisation's inner workings: "All institutions shield themselves so that their incompetence is not exposed" (Interview Sonia, 2024). In some cases, local organisations' main goal appeared to be their outward-looking legitimation for the purposes of attracting funding rather than pooling all efforts for the cause allegedly pursued. While it is hard to estimate which of these elements prevailed, they were all contributing factors. Sadly, they did not only hamper my scientific productivity (a minor fault), but also constituted a hurdle in my attempts to give something back to the Nükak community and to the Colombian academic and activist community. For example, one ENGO I proactively contacted and visited to offer insights from my fieldwork systematically ignored my reiterated offers for inputs and failed to share their own progress and publications, though – paradoxically – asserting that my research in an understudied region was of special interest to them.

Countless shades of green: Intransparency and incoherence on carbon markets

Besides the poor collaborative spirit of some Colombian interlocutors, one obstacle cutting across this research, though affecting most severely its quantitative component, is the lack of transparency that dominates carbon markets in terms of project development costs, revenue sharing mechanisms, standards applied, trade volumes and prices, the identity of final and intermediary buyers, and all other aspects of the supply chain. Within the Latin American carbon industry, this lack of transparency is compounded by considerable regulatory differences among departments and countries, which stands in the way of an exhaustive region-wide overview as well as of any comparative study. For this reason, as well as not to overextend its scope, this dissertation does not venture into a comparative analysis of carbon offsetting in different regions. However, those who are familiar with carbon forestry in other contexts will be able to appreciate similarities and differences against the backdrop of the Colombian forest carbon landscape and hopefully draw valuable insights to inform their own research goals, strategies, and methods.

Since no fully exhaustive VCM database exists, the global picture laid out is inevitably partial and temporary. Moreover, data pulls are constantly being updated, which means that any calculation is a snapshot of a moment in time (in the case of the quantifications in chapter 3, late 2024) and that all calculations, while replicable on a purely methodological level, may not be fully verifiable once data sets are updated. National compliance (i.e., mandatory) carbon schemes are not considered as they are national by definition, whereas global compliance schemes (CDM) are considered but not included in the main findings as the CDM was a mixed success and is to be replaced by a novel instrument under Article 6 (UNFCCC, 2025b). Furthermore, the "issue-to-retirement" credit flow provided by our data set is blind to intermediate trades (estimated to be around 3 per each credit, see AlliedOffsets, 2023)

As far as Colombia is concerned, particularly since the launch of the Vision Amazonia program (Carbon Market Watch, 2021) scholars have been criticising the unregulated negotiations between carbon project developers and local communities (Aguilar-Støen, 2017). These projects often result in low financial benefits for landowners, corruption of local officials, social conflicts over the distribution of funds, and a general lack of understanding of contract terms (Krause, 2020; Vergara, 2022). My own research in Colombia corroborates this lack of transparency. Most indigenous communities have signed or been offered carbon offsetting projects by national or international developers, but are legally or informally prohibited from revealing contractual terms. In most cases, as discussed elsewhere in the dissertation, the terms are obscure to community members themselves.

To conclude, the exhaustiveness of the findings outlined throughout the dissertation is hampered by this dearth of information. As long as the call for transparency coming from both scholars and (some) practitioners remains unheeded, any assessment will require a certain degree of guesswork and is likely to underestimate the impacts (be they positive or negative) of carbon trading.

2.6. Ethical considerations / reflexivity

Reflexions on positionality

Reflexive science, in Burawoy's (1998) definition, is "the Siamese twin of positive science", one that valorises "intervention, process, structuration, and theory reconstruction" (p. 4) over replicability and representativeness. Following this logic, this section offers a retrospective account of the ways in which the ethnographic research for this dissertation, its assumptions and methods were iteratively structured, de-structured, and restructured in the field.

Reflexivity, here, is not understood as a '24/7' activity, as much as a response to an ethical, intellectual, or practical blockage. While Laura Pulido's (2008) invitation to live "a life or reflection" (p. 362) can be embraced as an overarching mindset, this research project's approach to reflexivity resonates rather with the Zapatistas' notable motto "*caminar preguntando"*, reflecting a theory of change based on dialogue, reflection, and collective action. This approach fundamentally rejects the conception of the researcher as an expert with predefined solutions, emphasising instead that the path forward is traced heuristically along the way through constant consultation and self-reflection. An effort was also made to take seriously Tariq Jazeel's injunction that "postcolonial geography should be conceived as methodology, not theory per se" (Jazeel, 2019:3), meaning that anything *post*-colonial should not be understood as an established, top-down body of theory, but rather as a way to engage with difference and "intervene in the (re)production of place rather than just interpret it" (Jazeel, 2019:212). Much beyond abandoning the positivist cartographer's illusion of objective geography, it involves dwelling in geographies of responsibility, interrogating one's position and purpose at each step of the way, and embracing the dedicated researcher's opportunity to have a socio-political impact, all the while without overstepping the responsibilities granted by the communities involved.

Throughout the process, not only the researcher's positionality, but also the positionality of institutional collaborators, gatekeepers, and other intermediaries in relation to the indigenous community was taken into account, particularly when these interlocutors were "speaking for" the Nükak. To bridge the positionality gap with these different 'stakeholders', insights from Gramscian political ecology were deployed: this involves "adopting Gramsci's approach to science, which 'situates scientific practices on the same plane as all other acts involving knowledge'" (Rice et al., 2015:255). I am highly aware of the ethical and methodological dilemmas posed by the details revealed in the next chapters, not only towards the Nükak but also towards other parties involved. Indeed, some of the information and arguments presented below may be perceived as 'unfair' (Mosse, 2006) to certain organisations or individuals, as their actions or behaviours are analysed from critical political ecology perspectives. However, it is important to clarify that the perspectives shared by interviewees constitute research findings in their own

right and are intended to reflect their views, rather than to serve as legal evidence. As a partial safeguard, all individuals and some companies are pseudonymised, however a total anonymisation would have been both impossible and undesirable: the former because, given the specificity of the case, talking about the Nükak REDD+ project without implicating – if implicitly – the few entities involved would have meant de-identifying the community to the point of defining it "an indigenous community from the Global South" with no social or geographical contextualisation, hence taking the study to the point of irrelevance; the latter because, precisely for ethical reasons, totally de-identifying the parties involved (thus including the indigenous community) would have meant treating their socio-environmental predicaments merely as a sample for academic speculations and not as an embodied, ongoing experience of injustice, thereby depriving my research of its ethical thrust to "intervene in the (re)production of place" (Jazeel, 2019:212)[43].

Chasing the horizon: Participatory and decolonial research

"[I]t is surely difficult to discuss *research methodology* and *indigenous peoples* together, in the same breath, without having an analysis of imperialism, without understanding the complex ways in which the pursuit of knowledge is deeply embedded in the multiple layers of imperial and colonial practice" (Tuhiwai Smith, 2008:2). This quote by Linda Tuhiwai Smith on the problematic positionality inherent in academic research casts serious doubts on the potential for emancipatory research, all the more within neoliberal Western academia. This includes participatory methods in social sciences, which have been described as a "new tyranny" (Cooke and Kothari, 2001). Indeed, at first glance these considerations can have paralysing effects on any research conducted from the perspective of a white male scholar from the Global North. Does it follow, then, that social science research should take place in uncommunicated chambers, the indigenous and the non-indigenous, with no dialogue whatsoever? Hardly a more desirable prospect, I would contend. The political task of ethnography, propose Gupta and Ferguson (1997), lies not in "sharing knowledge with those who lack it, but [in] *forging links between different knowledges* that are possible from different locations and tracing lines of possible alliance" (p. 39, italics added).

Questioning the paralysis of what we could call 'hyper-reflexive' research does not imply rejecting the fact that research is embedded in a (post-)colonial setting and is informed by assumptions about reality and knowledge rooted in the paradigms of Western modernity. Rather, it entails embracing the impossibility of fully decolonial research and yet uncomfortably working one's way through its crevices to try and subvert the very mechanisms by which research often proves its "absolute worthlessness to [...] the indigenous world, and absolute usefulness to those who wielded it" (Tuhiwai Smith, 2008:3). From this standpoint, doing decolonial research means treading a tentative path towards a horizon that can never be reached, which the socially-committed scholar should strive to reach nonetheless. Visually, this dilemma can be conceived of as finding the optimal – if never ideal nor stable – point along a gradient

[43] For compelling reflections on activist research and militant ethnography, see among others Scheper-Hughes (1995) and Pulido (2008).

ranging from the maximum impact (i.e. aiming for the maximum impact at the risk of imposing the researcher's values, epistemology and agenda, with unpredictable effects on the local socio-political landscape) to utter isolation (i.e. incommunicability and invisibilisation of social issues out of concern for potential negative impacts) as graphically illustrated in Fig. 8.

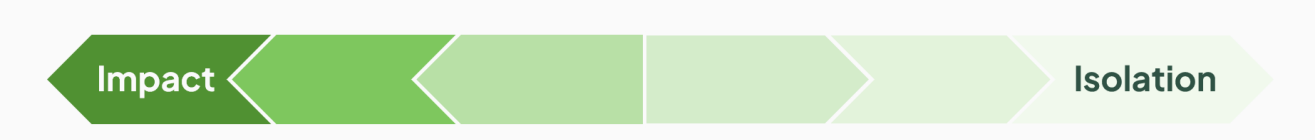


Figure 8: The dilemma of fieldwork, a possible visualisation (elaboration by the author).

At the outset of this chapter, I stated my ambition to make the views of the Nükak emerge in a culture-sensitive and, to the extent possible, non-extractive way. This is not to imply that I sacrificed ethical safeguards on the altar of scientific productivity. It is rather an acknowledgement of the inevitability of impact in any human interaction, for research or otherwise, which becomes a matter of particular concern when dealing with vulnerable social groups. I believe blanketly describing my positionality in terms of a position of power over a subaltern community ends up victimising the community itself and flattening the perspective in unhelpful ways. Rather, I favour a dialectical view in which the researcher's position is constantly negotiated on a terrain on which local actors, including vulnerable ones, often have the 'higher ground' in terms of situated knowledge and socio-political networks. Concretely, this was exemplified when roaming through the forest with the Nükak without an awareness of our location nor of how to survive if left to my own devices, or negotiating access to certain areas, contacts, notions, or resources that were beyond the reach of the researcher but readily accessible for them. All this, of course, has not meant losing sight of my ultimate privilege as a relatively wealthy white scholar who will at all times have a chance to leave the intricacies of the field for a relatively safe haven in the Global North.

With this in mind, this dissertation seeks to question contemporary forms of (green) colonialism and epistemicide, those "creeping policies that intruded into every aspect of our lives, legitimated by research, informed more often by ideology" (Tuhiwai Smith, 2008:3), by starting a conversation with the targets of these inter-scalar policies whose effects cut across geographies, forms of knowing, and embodied experiences. Global mitigation schemes are a paradigmatic example of how policies are discussed in the absence of the affected communities. This dissertation is, on the one hand, a modest (and – admittedly – partly failed) effort to bring one indigenous community into the conversation through ethnographic methods. On the other, it is an attempt to contest that policy on theoretical, as well as empirical and quantitative grounds. In planning this multi-pronged approach, I was reminded of Marx's assertion that "sense perception must be the basis of all science" (Marx, 2007 [1844]:111). To question the effectiveness and desirability of climate policies, the social scientist cannot test them in a lab nor merely through a thought experiment: only by investigating them empirically and assessing them along a

dialectical axis of theory and praxis can the immanent contradictions of capitalist climate 'solutions' be exposed. Moreover, cross-scalar policies cannot possibly be pulled down through siloed criticism and localised action: if these policies are – as this dissertation contends – neocolonial, a dialogue between those directly affected and those that can (ideally) have an impact in the social and institutional debate in the 'belly of the beast' (the Global North) is of utmost importance.

In the case of the participatory research on the Nükak REDD+ project, even considering potential unintended effects caused by the power imbalance between researcher and community, the hyper-precautionary alternative (talking about the Nükak without talking *to* the Nükak) would have been not only ethically questionable but also, from a methodological viewpoint, downright bad research. Nevertheless, I acknowledge my research was not as participatory as I aspired it to be due to the following reasons: first, mobility limitations owing to safety concerns (guerrilla-controlled territories) and logistical obstacles prevented me from visiting certain settlements and carrying out in-depth ethnographic research to the degree I would have wished. Second, obstinate gatekeeping by some local actors (see above) foreclosed opportunities that could have been close at hand. With this, I am not referring to an excusable precautionary principle or time constraints on their part, but to assumptions on my positionality and a competitive rather than collaborative spirit. Third, at times community members themselves appeared uninterested in socio-environmental issues and carbon offsetting, mostly likely due to my inability to establish a common ground for understanding. Whatever the cause, this meant that my ambition to co-design research remained such – an ambition. Last but not least, the epistemological distance between myself and – to various degrees – community members made it impossible to be on equal footings on all the aspects I intended to investigate. Even in the absence of the first three limitations listed here, this is arguably the most encumbering hurdle in the way of fully participatory research, entailing that some questions be unanswerable regardless of the methods employed and a potentially long-term immersive stay (which – incidentally – would have involved timescales much beyond those of a PhD programme). While I did try to make fast headway by learning some Nükak language and getting acquainted with the culture before getting to the field, the difficulties in mastering a language so different from familiar ones made me doubt I could ever reach a level of proficiency sufficient to carry out meaningful conversations[44]. Unfortunately, the few non-Nükak individuals who could help in this process were among my most secretive and unresponsive interlocutors in the field.

In this chapter, I have offered a detailed account of the research methodology applied both for desk research and field research, and fleshed out the limitations and considerations that determined my research activity. While a relatively brief dissertation chapter cannot possibly do justice to the whirlpool of discoveries, struggles, achievements, dullness, 'aha' moments and mixed feelings that characterise

[44] I finally capitulated on my language project when I grasped the diachronic pliability of Nükak dialects through an anecdote a Nükak woman shared with me: when people die, the Nükak typically refrain from mentioning that person for a while out of respect for the mourners. One day, a woman carrying a name similar to the word 'language' (*nauyi*) died in a settlement. From that moment on, the groups from that area changed their word for language.

the research process, I hope this overview was exhaustive enough to act as a prism of sorts for reading the empirical chapters that follow under the appropriate light.

3. THE GLOBAL CARBON VALUE DRAIN

"The international division of labour, as it emerged along with capitalism, resembled the distribution of function between a horseman and a horse"

(E. Galeano)

Before the preceding methodological chapter, chapter 1 has shed some light on the production of carbon offsets, on the global offsetting landscape and on carbon credit value chains, with a specific focus on forest-based credits. By taking a historical political economy perspective, this chapter makes a case for regarding carbon trading as a novel form of unequal ecological and economic exchange.

3.1. Unequal ecological and economic exchange through carbon trading

The logic underpinning carbon offsetting is that it allows Global North actors to achieve emission reductions where it is cheapest. Far from being a critical take on carbon markets, this is the intentional design of neoliberal environmental governance. As the Chief Economist of the World Bank Lawrence Summers put it in a 1991 memo on polluting industries: "A given amount of health impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages. I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that" (Pellow, 2007). As regards carbon markets more specifically, the stated rationale of Kyoto Protocol's mitigation instruments, particularly the CDM, is to employ marked-based mechanisms to achieve "cost effective reductions" (UNEP, 2005; see also Bumpus and Liverman, 2008; Böhm et al., 2012). As Summers himself admitted in that controversial memo, the low cost of emission reductions in the Global South is by no means a 'natural' fact, but is rather driven by a lower cost of labour, land, and other factors of production, which "must remain cheaper there" (McAfee, 2012:125). In turn, as Amin (1976) and others have shown, international differences in the cost of labour power are not natural but historically produced, and constitute a foundational element of unequal exchange. According to Gutiérrez (2011), the "market in emission reductions can only be conceived in the context of uneven development" (p. 654).

In other words, paraphrasing Uruguayan intellectual Eduardo Galeano, the carbon trading paradigm could be seen as a 'global environmental division of labour', by which wealthy countries delocalise their emission reductions to 'developing' countries to maintain the illusion of limitless economic growth. This configuration, which scholars have referred to as atmospheric colonization (Hickel, 2020a), carbon colonialism (Bachram, 2004; Parsons, 2023), or expropriation of emission rights

from the rural poor (Bruna, 2022), also resonates with Anibal Quijano's coloniality framework (see chapter 1.1), according to which "Western European countries [...] benefit disproportionately from activities that support capital accumulation in the former centers" (Collins et al., 2021:972).

Theories of unequal exchange (or unequal development[45]) originated in the 1970s, most prominently in the work of Arghiri Emmanuel (1972) and Samir Amin, and present considerable connections – both on a personal and a scientific level – with dependency theory (see chapter 1.1). Amin (1974; 1976) explained global wealth polarisation historically, rather than by virtue of cultural superiority or market dynamics. Global imbalances are the product of two concurring value-extraction mechanisms imposed by colonisers: unfair terms of trade (prices of primary commodity exports disadvantageous relative to the prices of imported goods), made gradually worse by diminishing returns, and wage differentials between core and periphery workers (even when corrected for purchasing power) that are not justified by labour productivity gaps. In other words, capitalism is seen as a system of unequal and combined development in which peripheral countries are not merely 'behind' but structurally relegated to a subaltern position to allow for the development of core countries. Karl Marx – Amin contended – went beyond Adam Smith and David Ricardo by explaining that colonies did not just meet the need for absorption of commodity supply, but also the need for surplus generation through cheap labour. The exploitability of Southern labour was imposed through a variety of means, including violence, dispossession and proletarianization, and secured by strengthening "local parasitic social groups which function as transmission belts" (Amin, 1976:193). This is a key departure from Emmanuel, who tended to pit the interests of Global North workers against those of Global South workers, thereby making anti-capitalist struggles appear at odds with decolonial ones[46]. Such a rigid postulation of dependency was eschewed also by Bunker (1984), who instead encouraged a dialectical understanding by which different societies reorganise their modes of production in response to world-system stimuli and in function of their internal class dynamics.

Drawing on Georgescu-Roegen (1971) and ecological economics theory, Hornborg (1998) proposed a complementary theory by suggesting an *ecologically* unequal exchange. Hornborg went back to the most visible form of colonial plunder, that of raw materials, resting on thermodynamics principles: "If industrial processes necessarily entail a degradation of energy [...], the sum of products exported from an industrial center must contain less energy than the sum of its imports" (p. 133). As a result of market prices, "'production' (i.e. the dissipation of resources) will continuously be rewarded with even more resources to dissipate" (ibid:133). This perfectly dovetails with Amin's economic theory, which holds that

[45] This should not be confused with Smith's (2006) notion of "uneven development". An influential contribution in geography, Smith's framework informs the broader perspectives of this dissertation on the production of nature and the geographical unevenness intrinsic to capitalist development, but is not engaged in depth.

[46] On Amin's school of thought and legacy, see Kvangraven (2020) and Kvangraven et al. (2021). For a comprehensive study of uneven development and the flaws of orthodox development economics, see Reinert and Kvangraven (2023).

peripheral countries are forced to export increasing amounts of raw materials to be able to afford imported goods and services.

Inspired by Amin's theories, Hickel et al. (2021) have looked at the roots of uneven development and quantified what they called a "global value drain" through global raw material trade from 1960 to 2017. Their findings expose the extent of unequal exchange at global scale: in 2017, 'advanced' economies "appropriated from the South commodities worth $2.2 trillion in Northern prices — enough to end extreme poverty 15 times over" (p. 1). Analysing the entire period from 1960-2017, they estimate the value drain from the South at $62 trillion, or $152 trillion when accounting for lost growth. To determine these figures, Hickel et al. (2021) applied the Köhler method (see chapter 2.2). Here, I apply a similar approach to the global trade in carbon offsets, and thereby probe the existence of an unequal economic (and ecological) exchange perpetuated by global carbon markets. While scholars have pointed to patterns of unbalanced exchange between global regions (Infante-Amate and Krausmann, 2019; Samaniego et al., 2017), a full picture of unequal exchange requires an analysis of the terms of trade, purchasing power, and the reward of labour. A recent paper by Ricci (2025) weaves the economic and ecological dimensions together by positing that "unequal exchange has a dual dimension, economic as transfer of value as objectified social (abstract) labor, and ecological as transfer of natural resources and concrete labor embodied in use value" (p. 12). For the purposes of this dissertation, the ecological unequal exchange in carbon offsets is defined as a surplus of CO_2 reductions (tons) that countries in the Global South export compared to what they import, and the economic unequal exchange in carbon offsets in terms of Global North appropriating increasing amounts of unpaid (mitigation) work through the purchase of undervalued offsets in the Global South (see also Villamayor-Tomas and Muradian, 2023).

Having introduced unequal exchange theories and defined the unequal exchange in carbon in theoretical terms, let us now turn to the empirical data in the next sub-chapter.

3.2. Neocolonial resource drain on carbon markets: towards a quantification

This sub-chapter presents (and graphically represents) the main quantitative findings of this dissertation. Focusing on VCM trades, the global unequal exchange through carbon commodity chains is quantified to find that, only from 2020 to 2023, wealthy countries appropriated 4 billion USD from the Global South, with further value leakage through carbon brokerage. The arguments are laid out across three sequential hypotheses, with Colombia as a case study.

Hypothesis 1: Unequal ecological exchange

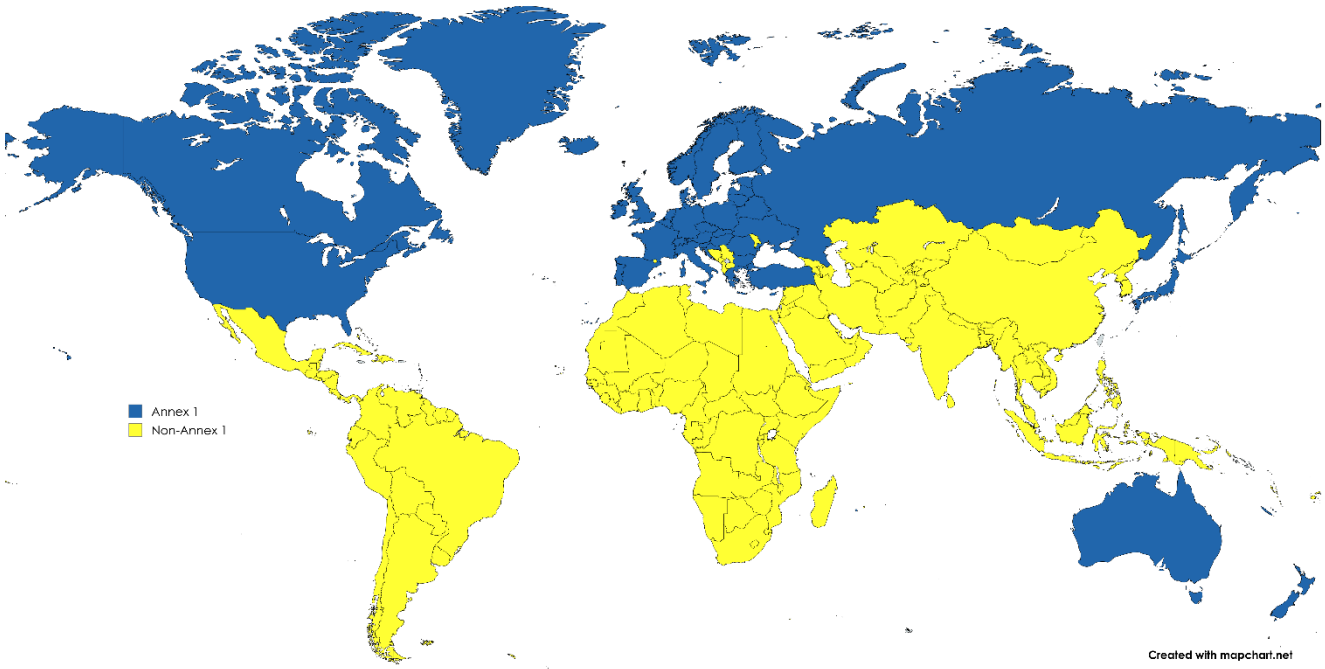


Figure 9: Annex 1 (blue) and non-Annex 1 (yellow) countries to the Kyoto Protocol (elaboration by the author).

This section begins to unpack the value drain from carbon offsetting starting from the hypothesis of world-scale unequal ecological exchange. It starts from the overall number of credits issued and then focus on net credit flows between Annex 1 and non-Annex 1 countries (henceforth "A1" and "NA1" respectively).

The first quantitative finding is that, between 2020 and 2023, over 450 million credits with disclosed buyers were issued in voluntary markets worldwide (each representing a ton of CO_2 equivalent)[47]. An overwhelming majority (88%) were issued in NA1 countries, compared to merely 12 % in A1 countries. Of all these, regardless of where they were issued, almost two thirds (65%) were traded between A1 and NA1 countries, meaning that they were issued in one set of countries and retired in the other[48]. For comparison, the trade of certified emissions reductions under the CDM has been only 120 million CERs in the same time frame (UNFCCC, n.d.). Furthermore, CDM trades have been quite geographically concentrated, as most credits from LDCs came from merely six countries (Bangladesh, Cambodia, Malawi, Uganda, Zambia, and the Democratic Republic of the Congo, see UNCTAD, 2024).

A more thorough analysis of the trade between NA1 and A1 countries reveals one of the most salient – if expected – quantitative findings. Nearly all credits traded between these two sets of countries (292,999,019) flowed only in one direction, meaning they were issued in NA1 countries and sold to buyers

[47] This figure amounts to about half the total of the available data set, which itself is a partial picture of reality, as trades with unknown buyers were ignored (see Table 1 and methodology).

[48] The term "retired" is used for the following reasons: besides being common sector parlance to refer to the final sale of credits, the term "sold" is ambiguous as credits can be bought and sold multiple times before they are retired. Furthermore, from a Marxian theoretical perspective, it is technically "realised capital" (i.e., a commodity is sold).

in A1 countries (see Table 2 and Fig. 11). It is worth dwelling on this finding: while the prevalence of forested areas in some large NA1 countries may play a role, a net flow of 292,298,980 credits (in other words, almost 300 million tons of CO_2 equivalents over four years), is not a predestined phenomenon and suggests that Global South countries are providing most of the mitigation work outside of compulsory emissions trading schemes.

2020-2023	KNOWN BUYER	UNKNOWN BUYER (known issuer)	TOTAL ISSUED
Issued in Annex 1	53,092,492	143,504,037	196,596,529
Issued in non-Annex 1	397,103,140	297,588,679	694,691,819
TOTAL	450,195,632	441,092,716	891,288,348

Table 1: VCM carbon offsets by issuer 2020-2023.

2020-2023	CREDITS ISSUED (known buyer)	PERCENTAGE
TOTAL	450,195,632	100%
ISSUED IN ANNEX 1	53,092,492	11.76%
ISSUED IN NON-ANNEX 1	397,103,140	88.24%
TRADED A1>A1	52,777,582	11.72%
TRADED NA1>NA1	104,419,031	23.19%
TRADED A1<>NA1	292,999,019	65.08%
TRADED NA1>A1	292,684,109	65.01%
TRADED A1>NA1	314,910	0.07%
NET CREDIT FLOW NA1>A1	292,369,199	64.94%

Table 2: VCM offset trade flows between Annex 1 (A1) and non-Annex 1 (NA1) countries 2020-2023.

This section has revealed a net surplus of 292,298,980 credits by wealthy countries, corresponding to a net appropriation of 292,298,980 tCO2eq. On a theoretical level, this appropriation of rights to pollute (Bruna, 2022) could constitute a form of *equal* exchange if offsets were rewarded for their 'right' economic value (assuming one could be established). This will be addressed in the following sections. What stands out here is the clear imbalance in the prevalence of emission reduction activities across world countries, pointing to an unequal ecological exchange and to an international division of

labour along the pathway to decarbonization[49]. Besides socio-environmental justice considerations, according to Givens et al. (2019) ecologically unequal exchange "makes it more carbon intensive for Global South countries to create well-being for their populations" (p. 6), as it draws Southern countries

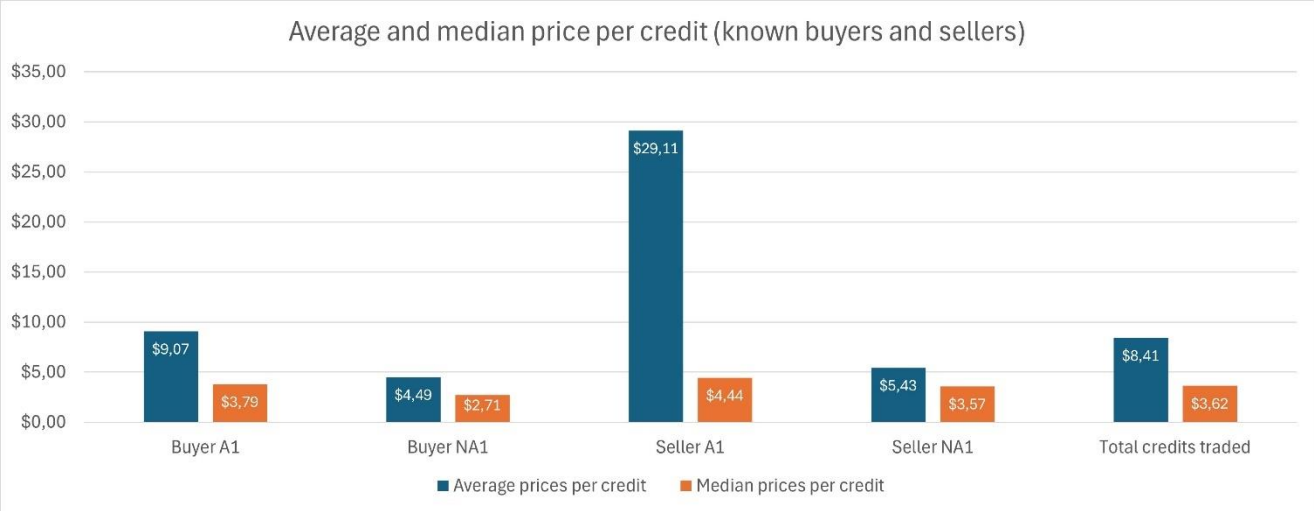


Figure 10: Overview of credit prices in trades between Annex 1 (A1) and non-Annex 1 (NA1) countries (elaboration by Rizzi and Krause, 2025; data source: AlliedOffsets).

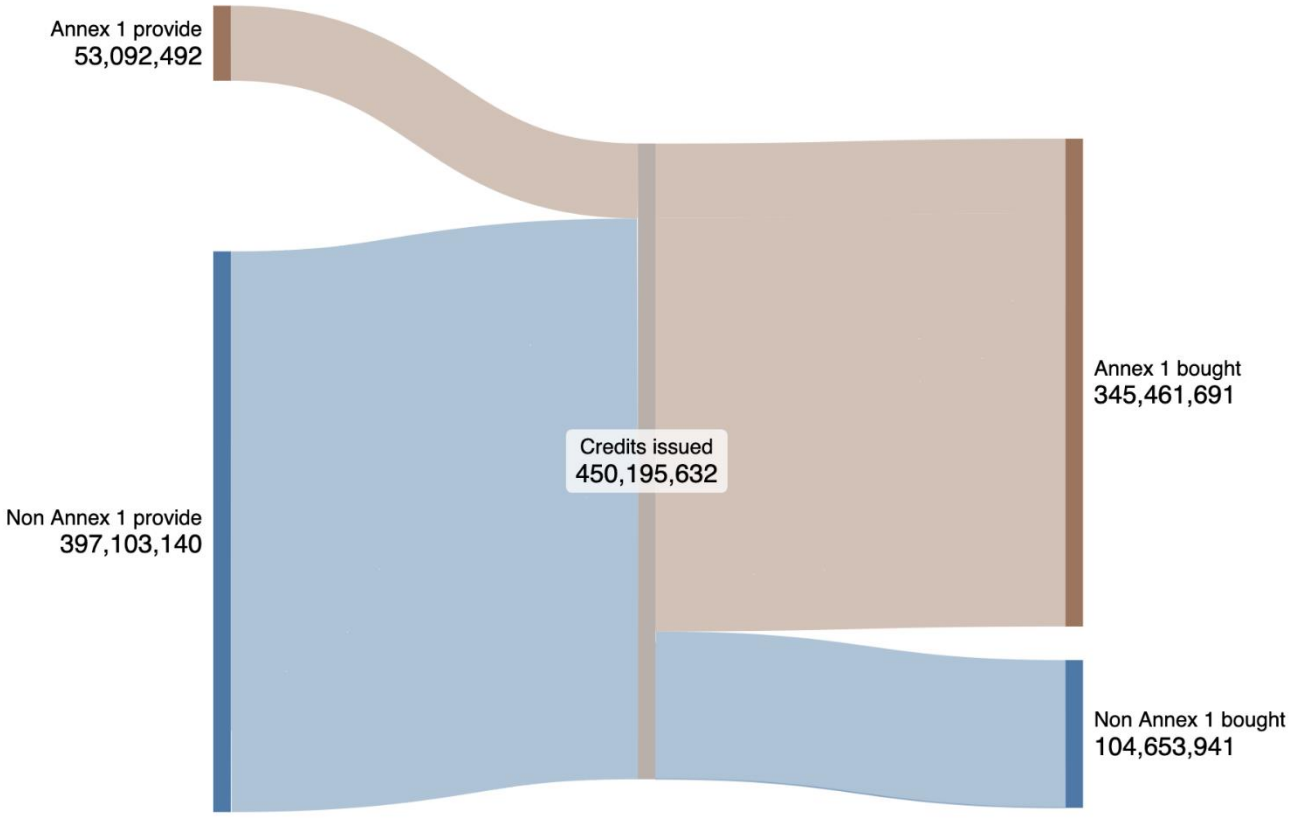


Figure 11: Offset flows between Annex 1 and non-Annex 1 countries on VCM (elaboration by Rizzi and Krause, 2025; data source: AlliedOffsets).

[49] It is worth reiterating that these figures do not capture the entirety of global carbon markets due to the widespread lack of transparency and represent only a fraction of the global exchange in credits that might develop once ITMOs under Article 6 are operationalised.

into a spiral in which ever-greater amounts of resources are needed to sustain the well-being of their population (see also Hornborg, 1998).

While appearing to internalise environmental harm, then, capital displaces its effects across space (Harvey, 2006) and time, burdening both past generations - who took care of vast ecosystems - and future ones - who are required to keep offsetting projects running and assume the potential adverse social effects. Countries in the Global South are thus lured into yet another wave of extractive, low-added value development. It is to this particular aspect (the value of carbon offsets) that I turn next.

Hypothesis 2: Unequal economic exchange

In this section, the global offset-based unequal exchange is quantified to test the hypothesis that ecologically unequal exchange carries with it an economically unequal exchange[50].

Besides the skewed flows in carbon credit trades, the data reveals a substantial imbalance in the prices of traded carbon credits[51] between A1 and NA1 countries. While credits issued in NA1 countries sell for $ 5.43 on average (median price $ 3.57), A1 credits (almost invariably sold in the Global North, see Table 2) have an average price of $ 29.11 (median $ 4.44). One A1 country, however, stands out for selling its offsets at a particularly low price: Turkey (average $ 2.21, median $ 2.26). If Turkey is taken out of the equation as an outlier, the gap widens considerably: the average price per credits issued in A1 countries soars to $ 40.39 (median $ 7.68), amounting to an over 100%-premium over NA1 prices. This price inequality means that the narrative of a net value flow supposedly benefitting the Global South, as illustrated below, is misleading.

2020-2023	CREDITS (known buyer)	PERCENT.	AVG. VALUE ($)	MEDIAN VALUE ($)	TOTAL VALUE ($, based on avg. of each country)
TOTAL WORLD	450,195,632	100%	8.41	3.62	2,018,787,172
ISSUED IN NA1	397,103,140	88.24%	5.43	3.57	1,598,578,637

[50] While this dissertation and previous scholarship on the topic draw – among others – on Marxist theory, in the quantifications presented here value is to be understood primarily in its more generic monetary sense, rather than in reference to the Marxian theory of value *stricto sensu*.

[51] To meet the temperature goals outlined in the Paris Agreement, the High-Level Commission on Carbon Prices stated that prices of at least US$40-80/tCO2 would have been necessary by 2020 and US$50-100/tCO2e by 2030. According to a 2024 meta-study, the median value recommended by experts for 2030 is US$70 (Drupp et al., 2024). The OECD estimates a price of US$147 is needed by 2030 to reach net-zero emissions by 2050 (CarbonCredits.com, 2022).

ISSUED IN A1	53,092,492	11.76%	29.11	4.44	420,208,535
ISSUED IN A1 (w/out Turkey)	38,234,475	8.49%	40.39	7.68	389,049,300
TOTAL TRADED A1<>NA1	292,999,019	100%	5.64	3.71	1.007,120,957
TRADED NA1>A1	292,684,109	99.89%	5.63	3.72	1,005,396,328
TRADED A1>NA1	314,910	0.11%	6.81	1.87	1,724,629
NET FLOW	292,369,199				1,003,671,700

Table 3: Offset trade value and flows between Annex 1 (A1) and non-Annex 1 (NA1) countries 2020-2023.

2020-2023	CREDITS	PERCENT.	AVG. VALUE ($)	MEDIAN VALUE ($)	TOTAL VALUE ($, based on avg. of each country)
TOTAL TRADED HI<>LMI	306,331,134	100%	5.35	3.57	1,052,712,446.93
TRADED LMI>HI	304,495,128	99.40%	5.32	3.57	1,048,098,254.81
TRADED HI>LMI	1,836,006	0.60%	9.85	5.66	4,614,192.12
NET FLOW	302,659,122				1,043,484,062.69

Table 4: Offset trade value and flows between high-income (HI) and low- and middle-income (LMI) countries 2020-2023.

2020-2023	CREDITS	PERCENT.	AVG. VALUE ($)	MEDIAN VALUE ($)	TOTAL VALUE ($, based on avg. of each country)
TOTAL TRADED A1TE<>'rest'	295,183,334	100%	5.65	3.71	1,010,008,563.15
TRADED 'rest'>A1TE	294,945,347	99.92%	5.63	3.72	1,008,393,762.50
TRADED A1TE>'rest'	237,987	0.08%	7.51 *(without Turkey: 24.02)*	1.61 *(without Turkey: 26.83)*	1,614,800.65
NET FLOW	294,707,360				1,006,778,961.85

Table 5: Offset trade value and flows between Annex 1 and top emitters (A1TE) and the remaining countries ('rest') 2020-2023.

These findings support the assumption underlying the design of global offsetting schemes - compensating emissions in the Global South is cheaper. However, as discussed above, there is nothing inherently cheap about offsetting in the Global South. Indeed, NA1 offsets are not cheap, but rather *cheapened* by ongoing historical processes that devalue Southern labour while also undervaluing ecosystems and the ecological functions that give rise to carbon storage (McAfee, 2012; Moore, 2017; Hickel et al., 2024). The difference between Northern and Southern prices, then, constitutes a hidden transfer of value (Hickel et al., 2021) rooted in colonial legacies, which many of the NA1 countries who supply the VCM continue to be subjected to. This is the very essence of neocolonial unequal exchange. In turn, the cheapening of carbon as a 'raw material' deepens the existing imbalances and perpetuates atmospheric colonization (Hickel, 2020b), as offsets from low- and middle-income countries, allowing for the unabated continuation of industrial processes, are embedded in the supposedly 'green' growth of industrialised countries.

To calculate the global hidden transfer of value, Hickel et al. (2021) employ the Köhler method to measure "the value of commodities that the South transfers uncompensated to the North" (p. 4). Applying this to carbon trading, I estimate the value of the carbon credits that Southern countries trade below their value with Northern countries using Köhler's formula as follows:

$$T = d * X - X$$

T = unrecorded transfer of value resulting from unequal exchange

d = country's exchange rate deviation index (ERDI)

X = volume of exports from a low- or middle-income country to high-income countries (at the actual exchange rate)

To the purposes of this work, the formula is transposed as follows:

T = unrecorded transfer of value resulting from the unequal exchange of carbon credits

d = country's exchange rate deviation index (ERDI)

X = value of carbon offsets traded (net flow, at the actual exchange rate)

While net flows may not be the most appropriate proxy because countries typically do not trade credits at the same prices, the potential impact on the end results is inconspicuous because of the limited South-to-North trade. Moreover, given that international prices tend to favour Northern countries, if anything this method underestimates the North-South value drain. The global carbon-based value drain from 2020 to 2023, then, is as follows:

Average ERDI of NA1 countries 2020 to 2023: 4.94

GLOBAL VALUE DRAIN 2020-2023

$$4.93 \times 1{,}003{,}365{,}637.52 - 1{,}003{,}365{,}637.52 = 3{,}943{,}226{,}956\,\$$$

The calculations thus reveal a net appropriation of almost 4 billion USD in 4 years by A1 countries on a global level, obtained through an economically unequal exchange of carbon offsets in voluntary carbon markets.

To test the robustness of these findings, a sensitivity range is developed by running the same calculations while varying the composition of the two country groups broadly representing the Global North and Global South. For example, instead of the Annex 1 categories, a distinction is made between high-income countries and low- and middle-income countries based on the World Bank classification

(World Bank, n.d.b). In another scenario, countries with a high per-capita carbon footprint[52] are added to the Annex 1-group. Not only do the results confirm the trends highlighted above, but they are slightly more favourable to the wealthy country group in both alternative scenarios (see Tables 4 and 5). This reveals a clear pattern of appropriation of emission rights by a minority of countries under the narrative of effective and cost-efficient climate action, including those countries that have been benefitting from fossil fuel windfalls.

As discussed above, this is a conservative estimate. The same calculation with offset prices as a proxy, i.e. the ratio of average Southern offset prices versus average Norther offset prices (excluding Turkey as a clear outlier), suggests an even greater value drain:

Ratio of offset prices GN (w/o Turkey) vs. GS 2020 to 2023: 7.44

GLOBAL VALUE DRAIN 2020-2023

$$7.44 \times 1{,}003{,}365{,}637.52 - 1{,}003{,}365{,}637.52 = 7{,}465{,}040{,}343\,\$$$

Curiously, but perhaps not by chance, the resulting ratio (40.39 / 5.43 = 7.44) nearly matches the ratio identified by Hickel et al. (2022:4) and Dorninger (2024:102) in labour inputs embedded in exports. Let us now examine carbon value drain on a national scale through the case of Colombia.

Hypothesis 2 case study: Colombia

This section analyses the unequal exchange of carbon credits produced in Colombia. While in this chapter I seek to highlight global trends, I also recognise the importance of nuancing numerical findings by making country-specific distinctions. As explained above, the Colombian carbon offsetting landscape is an exemplary case both in terms of number of projects and in terms of pervasiveness in the national public debate. Moreover, despite its peculiarities, Colombia is an excellent prism to understand how the international carbon trading paradigm drives unequal ecological and economic exchange from the global scale down to the grassroots.

Colombia has a considerable number of certified carbon projects that supplied the compliance market, with 7,532,966 CERs issued and 5,484,486 CERs retired in the period from 2020-2023 (UNFCCC, n.d.b). In the same time frame, projects registered in Colombia for the Voluntary Carbon Market produced 85,521,146 credits, which is substantially more than for the compliance market. Buyers located within

[52] This group includes the top-10 global emitters in terms of per capita CO_2 emissions in 2022 (Our World in Data, 2023): UAE, Saudi Arabia, Oman, Qatar, Bahrain, Kuwait, Brunei, and Trinidad and Tobago, although the Allied Offsets data set has registered trades only for the first three in this list. The top-10 also includes Australia, already an Annex 1 country, and New Caledonia, which is part of the Annex 1 country France.

Colombia purchased almost 41% of these VCM credits and an additional 1,914,663 credits from other non-Annex 1 countries. No credits retired in Colombia came from A1 countries or from unknown providers. Approximately 22% of the credits produced in Colombia were sold to buyers registered in Annex 1 countries, and just less than 10% were sold to other Non-Annex 1 countries. The relatively large quantity of carbon credits purchased by unknown buyers (see Fig. 12), however, complicates a reading of Colombia's carbon trading landscape.

These findings highlight one of the peculiarities that characterise the Colombian carbon landscape, that is the relatively large size of Colombia's internal carbon market, with the majority of domestic credits bought by buyers registered in the country. One likely explanation is that, up until recently, companies could use carbon credits as a means to avoid paying the national carbon tax, introduced in 2016 under the Santos government, through the so-called "no-causation mechanism". Based on official ministry data, over 50% of national offsets used to this end come from REDD+ projects (Ministerio de Ambiente y Desarrollo Sostenible, 2024a). Companies from the fossil fuel sector such as Ecopetrol, Primax, and Biomax were among the primary buyers of carbon credits generated domestically, often through their own projects (Bermúdez Liévano, 2021; Ecopetrol, 2023; Co2Cero, 2024; Primax Colombia is among the top offset buyers worldwide, see AlliedOffsets, 2023). While under the previous governments companies could offset the carbon tax by 100%, the Petro government limited this to 50%, which is likely to cause a contraction of the internal carbon market (Asocarbono, 2024). Regarding price differences, credits bought by buyers in Annex 1 countries achieve the highest average and median price per credit (see Fig.12) as compared to credits purchased by other buyers.

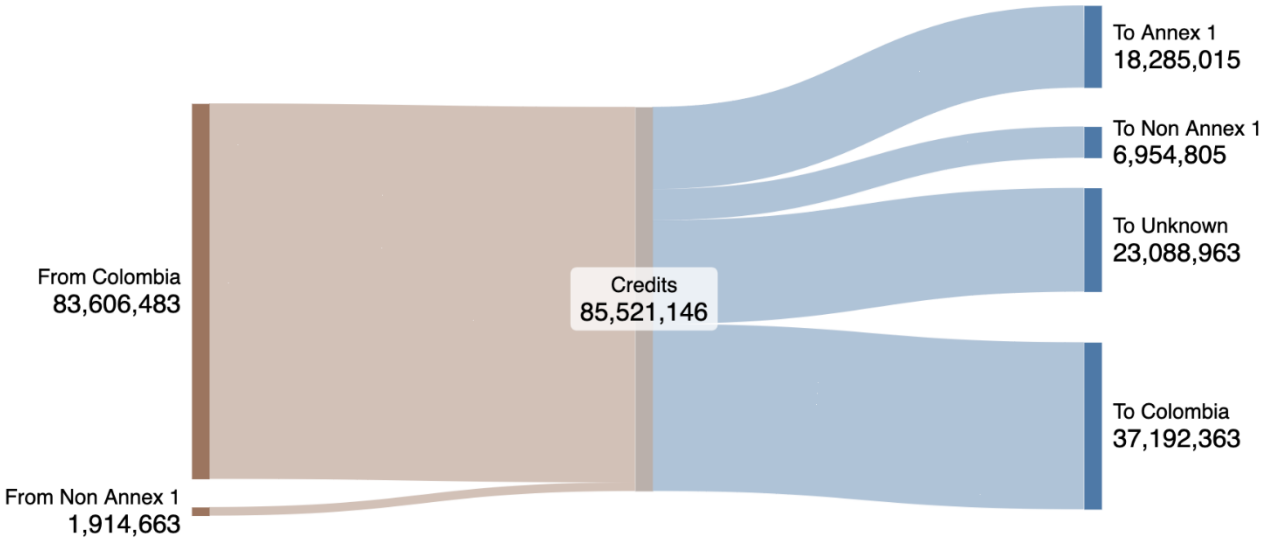


Figure 12: Offset flows between Colombia and Annex 1/non-Annex 1 countries on the VCM (elaboration by Rizzi and Krause, 2025; data source: AlliedOffsets; made with SankeyMATIC.com).

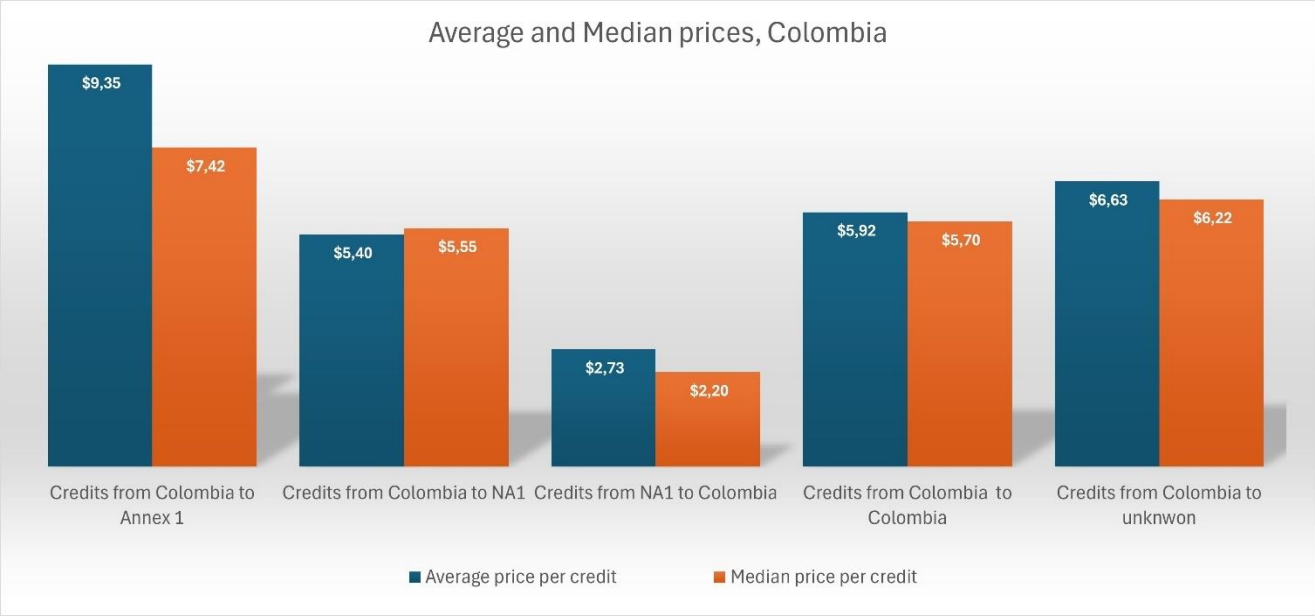


Figure 13: Overview of credit prices in trades involving Colombia (elaboration by Rizzi and Krause, 2025; data source: AlliedOffsets).

2020-2023	CREDITS	PERCENT.	AVG. VALUE ($)	MEDIAN VALUE ($)	TOTAL VALUE ($, based on avg. of each country)
TOTAL TRADED A1<>COL	18,285,015	100%	9.35	7.42	99,667,219
TRADED COL>A1	18,285,015	100%	9.35	7.42	99,667,219
TRADED A1>COL	0	0%	/	/	0
NET FLOW	18,285,015				99,667,219

Table 6: Offset trade value and flows between Annex 1 countries (A1) and Colombia (COL) 2020-2023.

The carbon-based value drain from Colombia from 2020 to 2023 is calculated as follows:

Colombia's exchange-rate differential = Colombia's GDP 2023 / Colombia's GDP at PPP 2023

$$1{,}122{,}331{,}900 \div 363{,}540{,}160 = 3.09$$

Value drain from Colombia 2020-2023

$$3.09 \times 99{,}667{,}219 - 99{,}667{,}219 = 208{,}304{,}488\,\$$$

The findings for Colombia reveal a net appropriation by A1 countries of approximately $208,000,000 from 2020-2023, at the expense of landowners and indigenous communities who provide the land and labour required to generate the credits.

The Colombian carbon landscape is characterised by poor governmental oversight with regards to the private contracts between legal landowners, in many cases indigenous territories, and private project developers. For several years, particularly since the launch of the Vision Amazonia program (Carbon Market Watch, 2021), scholars and NGOs have been criticising the intransparent negotiations between project developers and local communities around forest carbon projects (Aguilar-Støen, 2017). These projects often result in low financial benefits for landowners, corruption of local officials, social conflicts over the distribution of funds, and a general lack of understanding of contract terms (Vergara, 2022). My own research in Colombia (see chapter 5), as well as the research of the co-author of the paper this chapter draws on (Rizzi and Krause, 2025) corroborate this lack of transparency and the degree to which forest carbon projects pervade the Colombian Amazon (see also Krause, 2020). Nearly all the communities we visited over the past years have signed or been offered carbon offsetting projects, but are legally prohibited from disclosing contractual terms. The terms, moreover, are often obscure to community members themselves, who receive little if any monetary benefits but are required to reduce the extent of their traditional agroforestry subsistence practices as they allegedly constitute a deforestation driver.

Thus, both value chain calculations and qualitative insights from the localities in which carbon projects are developed and implemented substantiate the unequal exchange hypothesis, as local people and indigenous communities, often talked into carbon projects with no real informed consent (Aguilar-Støen, 2017), face social costs while the economic benefits accrue to project developers and carbon brokers. The next section is devoted precisely to this latter aspect.

Hypothesis 3: Value capture along the chain

This section discusses value leakage across the carbon offset commodity chain with a view to assessing whether and to what extent climate finance ostensibly destined to local partner communities effectively benefits the communities doing the mitigation work on the ground. Given the high degree of secrecy of project developers and credit brokers (90% of carbon market intermediaries do not disclose the fees charged nor profit margins, according to Carbon Market Watch, 2023), this section presents a more speculative account than the previous ones, based to a lesser extent on quantitative data and more on anecdotal evidence and grounded research. Although this investigation encountered similar hurdles as past research when looking for reliable quantitative data, it summarises up-to-date findings and introduces a novel element by including illegal groups among the intermediaries.

On paper, the most common benefit sharing formula in carbon forestry projects is 60-40% (60% to the local community, 40% to the developer). In fact, research has shown that the reality on the ground seldom reflects these scenarios. The revenues prospected to communities – if pre-negotiated at all – are typically meant *after* expenses and with no price floor nor revenue guarantee, unless the project is sponsored by a specific buyer that commits to the purchase of a certain number of credits. Moreover, cases of delayed or missed payments are increasingly reported both in the academic (Lederer, 2012; Lee et al., 2015; Gay-Antaki, 2016; Pye et al. 2017; Milne et al., 2019; Wunder et al., 2020; Frewer, 2021; Huff, 2021; Mukono 2024) and the grey literature (C. Lang, 2024d; DW News, 2025; Legrand, 2025), often resulting from funding not trickling down to project developers.

The carbon credit commodity chain can be roughly pictured as follows:

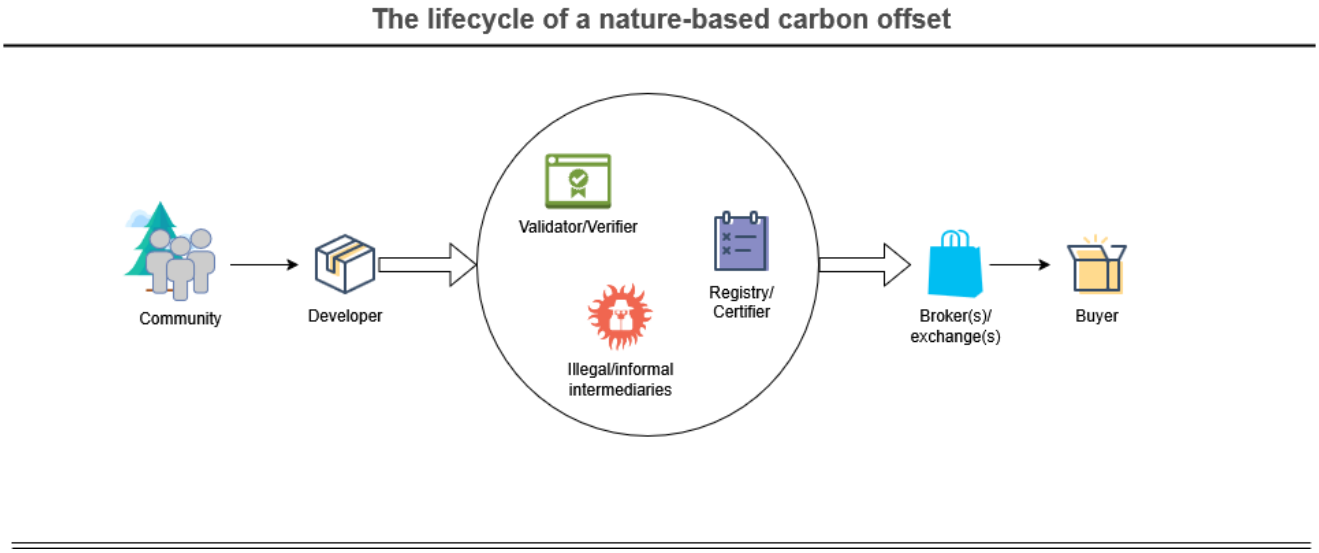


Figure 14: Simplified commodity chain of nature-based voluntary carbon offsets (author's elaboration, made with draw.io).

Albeit simplified, especially in its linearity, Fig. 14 effectively depicts the main stages of the 'life' of a carbon offset on the VCM, although going beyond symbolic icons has proven arduous. Even a well-informed 'market watchdog' like Carbon Market Watch was not able to go much beyond speculation in

their analysis of carbon intermediaries (Dufrasne, 2023; see also Collins, 2025). Nevertheless, some figures have pierced this veil of secrecy: an investigation by "Unearthed" revealed that a developer running a project in northern Brazil sold credits for $2.75, whereas a broker down the chain offered them - to clients including Natwest, easyJet, Air France and Coca-Cola - for as much as $20, which amounts to a 627% markup or 86% of the market price (Unearthed, 2022). In another instance, the DBG Group purchased credits from a reforestation scheme in Sierra Leone and sold them on at a 60.7% markup, whereas a foundation running a mangrove conservation project in Myanmar sold carbon credits for around $10.70 to a Swiss reseller that then marketed them at over $30, again a markup of over 300%. Along similar lines, an investigation by "The Guardian" on the Kariba REDD+ project in Zimbabwe revealed that, of the €100m revenue generated, not more than €14m went - on paper - to Kariba communities through cash transfers and infrastructure improvements. The registry company, which was not involved in any activities on the ground, deducted €24m (declaring €18m in profits) before sending €57m to the developer for his share of revenues, while the modest revenues earmarked for local communities have not materialised (Greenfield and Chingono, 2024). In late 2022, offsets from this project, which boasts a record number of retired credits (19 million), were on sale for $8.90 to $11.75 on an international exchange (AlliedOffsets, 2023). The figures in this paragraph appear at odds with self-reported gains: according to a study by Carbon Market Watch (2023), the average fee of the very few transparent intermediaries is about 15.5% per transaction[53].

As far as Colombia is concerned, in a rather brazen statement, Masbosques (the main company involved in the "REDD+ Baka Rokarire" case, which reached the Constitutional Court, see Bermúdez Liévano, 2024) affirmed that the company "does not get any profit from these projects, what we gain is experience and recognition in the area" (Bermúdez Liévano, 2022). The company that sold the offsets, Soluciones Proambiente, claims that, after deducting administrative costs, 60% of the revenues went to the 22 local communities involved. In this dissertation's case study, the "Deiyiabena REDD+ Nükak Bakà" project in Guaviare, the same percentage, after expenses, was allocated - on paper - to the community (see chapter 5).

It is important to keep in mind that the revenue share that remains after detracting brokers' and developers' markup does not necessarily trickle down to community members nor is necessarily spent in local infrastructures. While some companies draw up impact reports (see Carbon Tanzania, 2024), the breakdown of expenses and the actual implementation of the reported measures often remain shrouded in mystery. Building on extensive research in Peru, Lock (2021) refers that the contracts provided for 55-70% of the funds from the sale of the credits to return to local associations, while the developer would

[53] AlliedOffsets (2023) estimates intermediaries' markup for forestry credits at 22%, but this concerns small-scale retail transactions, which represent a small chunk of the market. As illustrated above, wholesale transactions appear to have much less balanced markup shares.

retain a minimum of 30%. However, "after all of the deductions and the requirements of the project, the annual funding can be underwhelming for the amount of land it covers" (p. 106).

In carrying out research for this chapter, this researcher has personally witnessed how carbon developers, almost invariably outsiders to the region, adopt shady practices and make hyperbolic promises in order to persuade local communities and initiate certification processes even before an informed consent process has been set into motion (see also chapter 5). In one instance, in Guaviare, a prospective developer, having summoned the leaders of a small indigenous community, estimated that a carbon forestry project could yield as many as 55 carbon credits per hectare (personal communication, 2024). This particularly outlandish figure[54] might be related to the fact that, given that the community owned a relatively small area of land, a realistic estimate would not have sounded particularly alluring. Besides the anecdotal evidence, it is now common knowledge that over the last few years the Amazon has become a coveted playground for so-called "carbon cowboys" (Aguilar-Støen, 2017; Antunes, 2024) looking to set up carbon projects with more or less aware rural communities (Bermúdez Liévano, 2023). Most of these projects are registered on Global North-based registries, meaning that a large chunk of the offset price (constituting a non-hidden North-South value transfer) is in fact captured along the value chain through administrative fees and funnelled back to Europe or the US (Dufrasne, 2023; Pinto, 2023; Hartlief and Cabello, 2024).

One more concerning phenomenon has been recently associated with carbon forestry: the involvement of illegal actors. As will be detailed in the next chapter, guerrilla groups active in the Colombian Amazon have been demanding 'bribes' (vernacularly known as *vacunas* in Colombia) from companies looking to develop REDD+ or similar projects in areas under the de facto territorial control of these groups. Illegal actors, then, effectively become one more intermediary along the commodity chain, skimming off part of the profits (at least 20%, informants estimated) from formal beneficiaries. On top of this, Colombian informants shared their suspicion that even the start-up capital of some forest-carbon project developers, who have to make an initial investment for administrative and logistical purposes, as well as to ensure the 'loyalty' of indigenous leaders, might come from illicit trades.

This section has proposed that, even within the little finance that is allocated to carbon projects in the Global South, it can be safely assumed that a considerable portion is appropriated along the commodity chain by intermediaries and project developers often located in A1 countries (AlliedOffsets, 2023; Wyburd, 2024). Thus, a considerable share of the finance is indirectly returned to A1 countries, in addition to the hidden appropriation exposed above. The general opaqueness along carbon value chains, characterising most of the institutional and corporate parties involved, is arguably unparalleled, at least among large legal industries, as is the industry's apparent immunity to criticism. Even the recent outpour

[54] While a hectare of rainforest can store considerably more than 55 tons of CO_2 (FAO, n.d.), the issuing of over 50 offsets per hectare would imply a constant deforestation rate of at least 20%. By comparison, between 2001 and 2021 the department of Guaviare lost just over 7% of its total tree cover (see chapter 5.2).

of bad press and scientific scrutiny appear to have led merely to the suspension of the particular projects exposed, not to a general overhaul of the underlying logic of these schemes (Flynn, 2024). Besides cases of blatant misdemeanour, the low price of carbon offsets issued in the Global South is grounded in the political economy of the globalised carbon trade, a perpetuation of historically unequal terms of trade and power relations. By empirically dissecting these processes, this chapter has given quantitative weight to the overall argument undergirding this dissertation: regardless of their biogeochemical effectiveness, carbon markets are an instrument of neocolonial appropriation that benefits the Global North and private companies at the expense of communities in the Global South, thereby perpetuating uneven development. In other words, from a historical socio-environmental justice perspective, they are not a false solution as much as a *wrong* one.

4. LAND, ENVIRONMENT, AND OFFSETTING IN COLOMBIA

Picking up from the focus on Colombia of chapter 3.2, this chapter delves into the history, political geography, and political ecology of Colombia as a preamble to the ethnographic analysis of chapter 5. Particularly, the chapter deploys the conceptual constellation of extractivism introduced in chapter 1 and shows its bearing on the history and current reality of Colombia. The chapter also outlines a number of observations and arguments concerning the inter-scalar effects of mitigation policies, the self-reinforcing frontiers of carbon forestry and deforestation, and the role of guerrilla groups as environmental actors of sorts. Although previous chapters have occasionally drawn on field notes and quotes, it is in this chapter and in the next that the qualitative data from the field takes centre stage.

4.1. The land question in Colombia

Land and *territorio*

When talking about Colombia – and Latin America more generally – the "land question" can be, in first instance, taken very literally to mean "what is land?". Halvorsen (2019), among others, has drawn attention to the semantic and epistemic multidimensionality of Spanish terms such as *tierra*, *territorio* and *territorios*: in seeking to open up a dialogue between Eurocentric concepts around "territory", "territoriality", and *territorio*, he recognises that the latter, far from being confined to the academic debate, has been explicitly re-purposed by different social actors across Latin America in ways that, following Angel and Loftus (2019), could be described as in-against-and-beyond the state, i.e. both engaging institutions and carving out autonomous pathways of political action. Fittingly, the Colombian Truth Commission (see below) assumes *territorio* "as a constructed process, thus underlining its dynamic condition, its heterogeneity and the recognition of its mobile and fluid borders" (Comisión de la Verdad, 2022a:19). Sandoval et al. (2017) go as far as to maintain that *territorio* is a specific Latin American concept and highlight particularly the indigenous understanding of territory as a means to secure social reproduction and the satisfaction of material and symbolic needs. While their regional-specificity thesis is questionable[55], embodied territorial and ethno-territorial struggles, as Martin and Larsimont (2016) observe, define Latin American political ecology to a greater extent than European and North American political ecology. This might be related to the strong indigenous and Afro-descendant component (Asher, 2018), which is nearly absent in Europe and bears a different connotation in North America: in this regard,

[55] The Italian word *territorio* has an equivalent meaning and it too has been mobilised in different ways within and outside academic circles.

Anthias (2021) adds a problematisation of property, highlighting how land and property, widely regarded to play an emancipatory role, can in fact work in synergy to "efface alternative indigenous ontologies of land and reinscribe state sovereignty over indigenous socio-natures" (p. 269). Indeed, as we shall see in the following chapter, adding indigenous ontologies and cosmogonies to the mix further complicates a clear-cut definition of land and territory.

Haesbaert (2013) departs from the territorialisation/de-territorialisation binary – the idea that territory, as an empty container of social relations, can somehow go through a power void – by arguing that de-territorialisation is always combined with re-territorialisation; to account for the simultaneous articulation of multiple hybrid territories, he proposes the concept of multi-territoriality. Haesbaert and Mason-Deese (2020), thinking with Massey (2005), argue that the condition for this multiplicity lies in native (Latin) American thought's propensity to centre space over the Hegelian, Eurocentric temporal dimension of territory and linear dimension of historicity. Within the Latin American social space-time, then, three main understandings of territory emerge: as a category of practice (i.e. its common-sense conception), as a normative category (territory as it *should* be according to institutional policies), and as a category of analysis (a prerogative of the academic sphere). This is particularly relevant in Colombia, a country in which competing claims over land and its resources have been – and still are – at the core of a multi-scalar military and political struggle in ways that resonate with Haesbaert's (2004) economic definition of *territorio* as "the spatial source of productive forces [...] that result from class struggles" (Sandoval, 2017:55). In other words, the land question in Latin America (and Colombia), as a pressing everyday concern that goes much beyond the idea of property over a bounded area of the Earth's surface, is very much open.

Disputed territoriality, violence, and land grabbing in Colombia

For over half a century, Colombia has been the scene of a seemingly endless internal conflict rooted in social inequalities, land struggles, and resource exploitation. Besides the Colombian state, this complex, decades-long armed struggle involved left-wing guerrilla movements such as the Revolutionary Armed Forces of Colombia -People's Army (FARC-EP - acronym in Spanish), the National Liberation Army (ELN), the Popular Liberation Army (EPL), the 19th of April Movement (M-19), and right-wing paramilitary groups such as the United Self-Defense Forces of Colombia (AUC)[56]. The conflict is considered to have started in the mid-1940s with *La Violencia*, a brutal civil war, formally fought between Liberals and Conservatives, rooted in the abysmal inequalities in the country and particularly in demands for agrarian reform (Comisión de la Verdad, 2022b). Intensified in the 1970s with the expansion of guerrilla groups (the FARC-EP was established in 1964) and further escalated in the 1980s with the rise of drug cartels and

[56] By way of orientation, guerrilla formations can be said to be of anticapitalistic inspiration, whereas the AUC were generally counterinsurgent forces with proven connections with landlords and political elites (Gutiérrez Sanín, 2008). For more information, see Comisión de la Verdad (2022f).

paramilitary groups, the conflict officially ended only in 2016, after decades of failed negotiations, with the signing of a historic peace agreement (see below). While a detailed genesis of the Colombian conflict is much beyond the scope of this work, it is a widely-accepted fact that vulnerable rural populations (peasants) and racialised groups (indigenous and Afro-Colombian communities) were the hardest hit (Asher, 2018; Comisión de la Verdad, 2022f).

According to the Truth Commission, instituted in 2016 with the goal of "clarifying what happened during Colombia's internal armed conflict, promoting the acknowledgement of responsibility, as well as social dialogue and coexistence" (Comisión de la Verdad, 2022c:12), the widespread violence in the country, resulting in the displacement of more than nine million people and the usurpation of more than eight million hectares of land, can be explained by "conflicts over land and rural development, deficits in the political representation of popular sectors (especially peasants) [and] drug trafficking" (Comisión de la Verdad, 2022c:24). Not coincidentally, the FARC were born out of peasant colonies established to shield Communist-leaning peasants persecuted by liberal forces and the national military (Comisión de la Verdad, 2022b:53). Today, Colombia has one of the highest degrees of land concentration in the most unequal region in the world in terms of land distribution, Latin America (Oxfam, 2013).

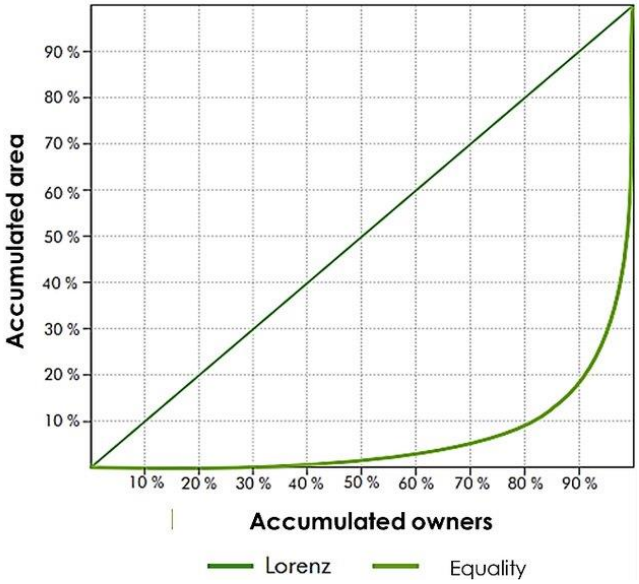


Figure 15: Lorenz curve for Colombia in 2014, representing land inequality in private rural property with agricultural destination. Source: Vargas and Núñez (2020).

While the conflict is typically associated with coca cultivation and trafficking, resource-related violence and dispossession in Colombia can be traced at least as far back as the banana 'empire' of the United Fruits Company (Brungardt, 1995) and has continued with environmental distribution conflicts (Scheidel et al., 2018) linked to fossil fuels, agriculture, farming, and renewable energy (Ulloa, 2021; Comisión de la Verdad, 2022d; Arango et al., 2025). Colombia has been the theatre of violent showdowns within a conflict that, though displaying markedly domestic traits, is better understood as a 'g-local' one, its multi-scalar roots reaching deep in the capitalist colonial order. Indeed, while forced displacement appears to have peaked in past decades, land grabbing and resource grabbing in a myriad subtler forms – as this dissertation aims to show – remain a very topical phenomenon, as global and national capital (assuming they can be distinguished) seek new avenues for land and labour exploitation.

Colombia's 1991 constitution, recognised by many experts as one of the most innovative in Latin America (Pardo, 2021), was the first in the region to mandate special protection of the environment and granting land ownership provisions for agrarian workers and indigenous communities, besides legally

recognising the principles of social justice, pluralism, and decentralisation. Possibly following the International Labour Organisation's adoption in 1989 of Convention 169, which urged governments to "take steps as necessary to identify the lands which the peoples concerned traditionally occupy, and to guarantee effective protection of their rights of ownership and possession" (ILO, 1989) the constituent assembly decided to make indigenous territories equivalent to departments[57]. At the core of the constitutional text was *ordenamiento territorial* (roughly translatable as land planning, or land 'ordering'), addressed in Title 11 "*De la organización territorial*" (Corte Constitucional de Colombia, 2024). According to sociologist Orlando Fals Borda, a member of the constituent assembly, a functional *ordenamiento* was to be an indispensable contribution for the resolution of internal conflicts. To this end, he stressed the pivotal role of provinces and regions over departments within what he envisioned as a "Republic of United Regions" hinging on unitary autonomism (Fals Borda, 1998). Three decades later, it is fair to say that his vision never materialised, not only because centralist positions eventually prevailed, but also because many constitutional proclamations, overrun by a material reality characterised by ongoing violence, vested interests, and centripetal political tendencies, were left unapplied in practice (Botero-Bernal, 2017; Escobar, 2021).



Figure 16: Pre-Colombian bicephalous figure. Exhibited at Bogota's Gold Museum, it is thought to refer to the splitting of political authority between two groups. Over 500 years later, it does not cease to characterise Colombia (photo by the author, 2024).

In November 2016, the conflict officially came to an end with the signing of a peace agreement in Cuba between Manuel Santos' government and FARC-EP leaders, who committed to the disbandment of the group (Comisión de la Verdad, 2022f). The agreement, which included provisions for land redistribution and the reintegration of former guerrilla into civilian life (Jurisdicción Especial para la Paz, n.d.), was rejected by a tight majority of Colombians in a national referendum, leading to revisions before its ratification by the national Congress. Much more than a temporary stoppage, this rejection was a harbinger of the precarious peace that was to come.

Indeed, despite provisions on agrarian reform included in the peace agreement and Petro government's political and economic investment in extensive agrarian reform, blood continues to be spilled in confrontations with the so-called *disidencias* (former FARC-EP nuclei that have refused to sign the deal) and other groups, and dispossession strides on as several rural areas are still effectively subject to a double – or at least fluid – authority. "The FARC are going to issue ID cards to be used in their territories,

[57] It should be noted that a *resguardo* is not the same as an Indigenous Territorial Entity (ETI). While the former is a recognised territorial unit, a community needs to constitute an ETI to be able to manage financial resources autonomously. The Nükak *resguardo* has not yet constituted an ETI. The relevance of this will emerge later in the case study analysis.

different from Colombian national ones" (Interview Augusto, 2024), a former public official affirmed. According to an influential ENGO worker, "if the state is not capable of leading processes of territorial occupation, there will be those who do, regardless of the land's legal status and of all the paraphernalia of Colombian law. Reality will bend the legal pedantry and inaction of a decadent state. And so another state emerges amidst jungle, ashes, and cattle" (Botero, 2024a). Territory, Haesbaert and Mason-Deese (2020) remind us, is "constructed on a broad continuum between hegemonic domination and subaltern appropriation and resistance" (p. 265). Resistance, in this sense, is not necessarily brought by armed groups, but also by rural inhabitants harbouring distrust towards formal institutions, which translates into popular consensus for alternative powers: "[FARC co-founder Manuel] Marulanda used to say that there is no better jungle for the guerrilla than the civilian population. [...] A guerrilla organisation needs the civilian population on its side. If it does not, it is doomed to disappear" (Interview Rodrigo, 2024), a former FARC member maintained. Clearly, the legitimation of national geographies cannot refrain from an engagement with rural populations, as the following quote by an Amazonian peasant reveals: "Cartography is designed in an office, but they have not come to our territory to say, this *vereda*[58] goes from this stream here to the edge there, from there to the east is [something else]. Their cartography is imaginary" (Interview Ferney, 2024). The historical stratification of unruly appropriations resulted in what an Amazonian mayor dubbed "*cartografía del desorden*" (cartography of chaos, see Rodríguez, 2024).

Having reviewed the meaning(s) of land and the genesis of land-related struggles in Colombia, the next sub-chapter moves on to the related environmental issues characterising the country.

4.2. Environment and extractivism in Colombia

From a bonanza to another: A political economy of the Colombian Amazon

The bulk of the fieldwork for this dissertation was carried out in 2024, when Colombia celebrated 100 years of "The Vortex" (*La Vorágine*), a seminal book by José Eustasio Rivera narrating the story of two young lovers who get lost in the forest at the height of the rubber boom in the Amazon. Despite the long time elapsed, the book remains extremely topical[59], as well as a trove of insights for understanding the extractive history of this region, as the economy of Colombia, and even more so of its Amazonian region (making up approximately 6% of the Amazon biome, see RAISG, 2021), may be summarised as a sequence of boom-and-bust cycles bearing striking commonalities. Inevitably, these extractive waves and the corresponding infrastructural developments took their toll on the region's vegetation and altered its

[58] In Colombia's administrative organisation, a *vereda* is a rural subdivision of a municipality.
[59] In a public speech in San José del Guaviare, president Petro lambasted carbon credits stating that "indigenous people are enslaved as in the days of 'The Vortex'" (Presidencia de la República de Colombia, 2025). Furthermore, in 2024 an artistic collective collaborated with members of the Nükak people to translate the novel into their language and create a performance that blends memory and social criticism (Puentes, 2024).

ecosystems (Alimonda, 2009; Vallejo et al., 2011). Despite the increased environmental awareness and international conservation efforts, the gradual but relentless deterioration of the most biodiverse region on the planet, believed to be approaching a tipping point (Flores et al., 2024), continues in Colombia and elsewhere.

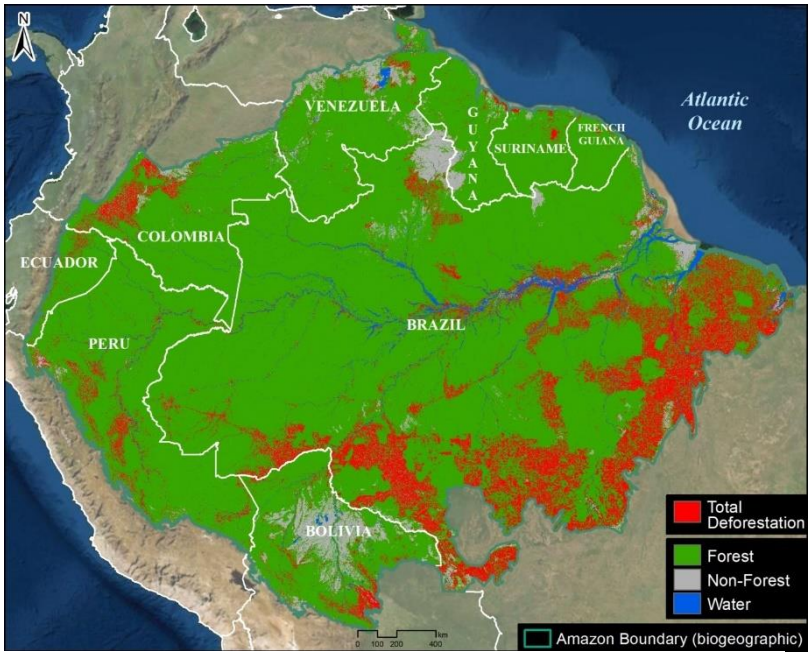


Figure 17: Total Amazon forest loss was estimated at 85 million hectares in 2022 and has since then considerably increased. Source: Finer and Mamani (2022).

Barring episodic incursions by early colonisers and Christian missionaries, this cyclical exploitation can be said to have started in the mid-nineteenth century precisely with the rubber boom (*fiebre del caucho*). Shortly after, the demand for quinine skyrocketed: a powerful anti-fever agent extracted from the *cinchona officinalis* shrub, it has long been the treatment of choice for malaria. This boom, however, proved to be short lived once the Dutch started large-scale *cinchona* cultivations in Indonesia, while rubber demand was further spurred by the invention of rubber vulcanisation (Cuvi and Viera, 2024). The materiality of rubber extractivism (latex extraction from *hevea brasiliensis* does not require tree felling) and the rather spontaneous nature of rubber ventures, however, meant that the rubber boom was not as devastating for the Amazon's rainforest as it was for its native inhabitants, who were massively enslaved, exterminated, or displaced. The same can be said for the localised gold bonanzas and for the so-called *tigrilleo*, consisting in the hunting and trade of animal skins. Peaked from the 1940s to the 1960s, this bonanza decimated the population of Amazonian felines such as jaguars and ocelots (also called *tigrillos*), but also caimans, otters, and other species (Payán and Trujillo, 2006). Around the same time, two more extractive sectors developed, destined to threaten the Amazon for decades to come: the trade in precious wood (mainly American cedar) and oil exploration (Arcila, 2011).

An acceleration in the destruction of the rainforest was marked by the 1961 agrarian reform, which encouraged and funded the colonisation of *baldìos* (uncultivated state land) through the newly-established Institute of Agrarian Reform (INCORA). "The state back then was totally ignorant of the Amazon, their initial vision was – get down there, cut down and burn" (Interview Francisco, 2024), an employee of the Sinchi research institute admitted. A peasant interviewed recollects: "Since the late 1960s, the national government itself carried out a great colonisation. It brought in peasants from different parts of the country and promised them these lands with the slogan 'land without men for men without land'" (Interview Gerardo, 2024). At the time, Colombia had already equipped itself with environmental

laws (particularly the 1959 *Ley Segunda*[60] and the 1989 Law on National Parks), yet peasants seemed unaware or unwilling to comply. In hindsight, it is hard to blame them since national institutions themselves were ready to trample on environmental provisions:

> "The government told [peasants] to cut down trees, to deforest as much as they could. In order to clear the land, they were awarded loans by the Caja Agraria. [...] They gave them axes, gave them machetes, gave them supplies. [...] They started establishing legal entities like municipalities and departments. [...] Throughout the whole process, nobody explained to them that there were environmental laws providing for nature to be taken care of and preserved, as was Ley Segunda of 1959. [...] In 1989 national park regulations were created, but nobody told them" (Interview Gerardo, 2024).

This wave of colonisation was inspired by a Lockean conception of land entitlement. An official from the national Ombudsman's office (*Defensoría del Pueblo*) summarised it as follows: "The colonisation process, the avalanche of the majority society, swept the territory with the idea that it had to be put to productive use. From the time of marijuana to the animal bonanza, from the rubber boom until today's rural development zones [*Zonas de Desarrollo Rural, Económico y Social*]" (Interview Juan Camilo, 2024). As we shall see in the next chapter, this view, predicated on Western colonial conceptions of territory and property, is as deeply-ingrained in rural development officials' mindsets as it is alien to indigenous worldviews. The resulting clash becomes manifest when dealing with the Nükak's land use practices.

Determined to make the most of the newly acquired land and unable to achieve decent living standard with traditional products, many peasants turned to the most profitable cultivations: illicit ones. First was marihuana, which spread in the 1980s only to be outcompeted by foreign producers, then came the coca leaf. While Colombia was initially only a transit country, in the late 1970s drug traffickers started introducing its cultivation in Caquetá, Guaviare, Vaupés, Guainía and Putumayo (Comisión de la Verdad, 2022a:70). In several areas, the FARC exerted hegemonic control over its production (Acosta García and Fold, 2022): "We were forsaken by the government, and that is when some people arrived [...] and promoted the coca bush, they said, 'here is this seed, sow it, I will buy the whole yield. And if you have seeds left over, give them to other peasants and tell them I will buy the whole yield'. This is how coca cultivation gradually expanded, it was one of the best options for a while" (Interview Gerardo, 2024). At first stigmatised, over time coca was normalised as the run-of-the-mill cultivation of Colombian peasant families and became para-legal, to the point that coca growers took the streets to raise political demands:

[60] Law 2 of 1959, commonly known simply as *Ley Segunda*, established forest reserves zones not as strictly protected areas but with the aim of promoting the development of the forestry economy as well as the protection of soil and wildlife (SIAC, n.d.).

“In 1989-91 there were big *cocalero* marches, *paros cocaleros* as we call them, demanding benefits for peasants. After that [...] the new agrarian reform was issued, and Peasant Reserve Zones were established” (Interview Gerardo, 2024). At the apogee of the coca trade, in the 1990s, coca cultivations soared across the country (although the historical record was set in 2022 with 230,000 ha) and expanded across the whole Amazon, invading indigenous territories and national parks. The *de facto* authority in large swathes of rural Colombia was held by drug cartels and guerrilla organisations such as the FARC-EP.

This sequence of short-sighted, compulsive extractive waves is consistent with Bunker’s (1985) analysis of the post-colonial dependent mode of extraction, “organized in response to world-system exchange opportunities focused on the single natural products for which there was greatest global demand” (p. 250). In a dialectic between material reality and mental superstructures, the ‘short-termist’ mentality built up over decades throughout the country has had – in turn – lasting repercussions on lived reality: “Peasants in Guaviare have a bonanza philosophy. They are used to bonanzas, not to subsistence farming. In fact, they are not peasants, they are colonisers. Their mentality is different. [...] In the 1980s, with their decree 02, the FARC asked *campesinos* to use one fourth of their land for subsistence farming. Many said ‘just tell me how much the fine is. I am not going to do that’” (Interview Augusto, 2023). While this generalisation does not fully do justice to the diverse peasant population of Guaviare, partly consisting of indigenous and Afro-descendant peoples displaced by previous waves of extractivism (Asher, 2018; Comisión de la Verdad, 2022b), reports by the Truth Commission corroborate this view: “Institutional colonisation, unlike peasant-led processes, attracted many men who had no knowledge or experience of farming. In Guaviare, for example, the colonisation of El Retorno (1968-1974) followed the call of radio journalist Orlando López García through his show Al Campo. Families travelled in Colombian Air Force planes. People accustomed to a life in the city found themselves in an inhospitable setting” (Comisión de la Verdad, 2022e:59). The official character of the colonisation process, and the state of abandonment rural inhabitants perceived during the conflict, when they were often collectively stigmatised as guerrilla stooges, helps explain why they now resist being villainised: “Who brought the first settlers in these regions? The Colombian state, with subsidies. Now we are the villains, why?” (Interview Juan David, 2024), a peasant resented. Large-scale deforestation, a high-ranking environmental official from the CDA (the Colombian agency for the sustainable development of the Amazonian region) guarantees, “is totally linked to extensive cattle ranching, land grabbing on large extensions. However, there is still a cultural chip, as it were, in ordinary peasants who think that if they do not cut down some trees they have nowhere to grow crops, so all small farmers deforest 2-3 hectares per year. When you add all it all up, it is a considerable amount” (Interview Julio, 2024). What is left at the end of this trajectory is a rural economy in disarray and the need to guarantee subsistence to *campesinos* to avoid mass deforestation, the undesirable alternative being mass urbanisation and proletarisation.

Since the 2016 peace agreement, this scenario has mutated due to the direct effects of the agreement as well as to unrelated circumstances. For the purposes of this chapter, the most remarkable changes have taken place in the main drivers of deforestation and dispossession in the Amazon. It is to these developments that I turn next.

Post-2016: Environmental peace, peacetime deforestation

In light of the above, it appears clear – it certainly does to Colombian political actors – that an inextricable link exist between peace and territory, and consequently peace and environment[61]. "There can be no total peace without environmental peace" (Garzón, 2023), affirmed the Colombian High Commissioner for Peace, Danilo Rueda, referring to the concept of *paz total* enshrined in Presidente Petro's official peace policy.

From an analytical perspective, one way to untangle the yarn of conflict, peace, and environment in Colombia is to distinguish four different stages: during the conflict, during the 2012-2016 negotiations, after the signing of the 2016 peace agreement, and after the election of Gustavo Petro in 2022. During the war, the FARC-EP acted as the *de facto* environmental authority in the areas under their control and generally prevented large-scale deforestation (Rodríguez-de-Francisco, 2021). While some FARC-EP commanders have recently sought to fashion themselves as environmental defenders (Ríos and Castrillón, 2024), to guerrilla fighters forests were a form of protection as well as an operational field, which led them to impose forest use restrictions on peasants and to prevent any activity entailing large-scale forest clearing. Additionally, Colombia's political and economic instability kept many international investors at bay, indirectly shielding the country from certain extractive activities. The conflict, nevertheless, contributed to deforestation in other ways: the mass resettlements caused by both guerrilla and paramilitary groups (Comisión de la Verdad, 2022b) prompted the colonisation of new areas, often by dint of machete and shovel: "Many of us ended up here displaced from other parts of the country. They told us there was plenty of land to be worked" (Interview Juan David, 2024). Furthermore, some of the AUC, ostensibly created for the defence of peasants, engaged in violent land grabbing often aimed at establishing large oil palm monocultures, which required the clearing of forests and savannas (Thomson, 2019; Reina, 2022).

As the peace negotiations held in Cuba entered their final stage, negotiators devised an incentive plan for peasants to replace their coca cultivations with legal crops. Since negotiation tables included peasant representatives (Acero and Machuca, 2021), the prospect soon reached the ears of *campesinos*, giving them a perverse incentive to expand their coca cultivations in order to be able to reap higher benefits once the substitution plan (called PNIS, *Programa Nacional Integral de Sustitución de Cultivos de Uso Ilícito*) was implemented. This anticipatory moral hazard (Garcia and Sanford, 2024) led to a sharp

[61] Naturally, a link exists also between conflict and environment, which will not be addressed here in order not to overextend the scope of analysis. On this topic, see among others Pérez-Rincón et al. (2022) and Kaufmann and Côte (2021).

increase in coca cultivations (Londoño et al., 2024) and deforestation since 2013 (Ministerio de Justicia y del Derecho de la República de Colombia, 2023). “As soon as the FARC upheld their side of the peace agreement, they no longer exercised any control over peasants, who began to cut down the forest. Since 2017, deforestation figures shot up, to the point that in Guaviare we had 42,000 hectares deforested in one year” (Interview Samuel, 2024). This quote by a conservation official from Guaviare summarises the perverse post-peace developments in the Amazon (and elsewhere in Colombia). This was but the first warning sign of the potential adverse effects of peace on forest and biodiversity conservation. However, the danger looming over the Amazon was much beyond small-scale *campesinos* culling a few trees to reap higher subsidies. “With the failure of the 2016 peace process, the rainforest of the Colombian Amazon turned into a business opportunity” (Interview Juan David, 2024). This farmer is referring to the fact of, although the recognised leaders of the FARC-EP signed the peace agreement, certain groups within their ranks refused to comply. These groups, collectively dubbed *disidencias* (dissidents) and loosely regrouped in the self-proclaimed Estado Mayor Central (EMC), quickly filled the power vacuum left by their former organisation and started vying for the spoils of formerly FARC-dominated territory with cattle ranchers and other land grabbers (Sánchez García and Wong, 2024). The official of a departmental environmental agency explained: "The old FARC had a certain degree of control over fauna and flora, but now, with the new *disidencias*, [...] that presence has somehow vanished. Now there is no centralised control as armed actors are fragmented, the issue is convoluted as never before” (Interview Julio, 2024). An insider view by a former FARC member reveals that FARC ‘spin-offs’ present markedly different features:

> “The FARC have had two stages: the first was when the large guerrilla army signed the agreement, the second is the present one. Not all [new groups] adhere to the discipline that the FARC used to have. [...] The FARC had a very strong stance on environmental protection. They would not allow massive deforestation, they would rather encourage fallowing. We needed forests but we also understood the value of protecting them, the jungle, tributaries and water sources. This orientation was articulated through the so-called ‘norms of coexistence’ [stipulating] that one could not deforest watersheds, rivers nor streams, one had to leave a 50-metre strip on either side and so on. Now things have changed. It appears that in some areas they are even imposing mandatory deforestation. [...] The FARC was an eminently peasant army. [...] When we controlled the area from Guanapalo [near river Guaviare] to river Inírida, one would go through thick jungle all the way across, now one goes from pasture to pasture. [...] The state has not been able to fill in the need for authority in the territory” (Interview Rodrigo, 2024).

But why is it, then, that this about-face on forest conservation has come about? “There was a power reshuffle in the territory. […] Armed actors, while establishing the well-known ‘rules of coexistence’, also know that they have to give in order to receive, they have to generate new loyalties. Since they are on edge because of the possible entry of paramilitary groups from Vichada or the [FARC dissidents] Segunda Marquetalia from the Macarena area, they have to generate a whole range of options in order to be able to sustain themselves. What does this imply? Well, you want to cut trees? Go ahead. There are places where I have witnessed an ecocide, barbaric things” (Interview Juan Camilo, 2024).

President Iván Duque, who replaced Santos in 2018, favoured the stick over the carrot and put the blame on *campesinos*. His US-backed strategy to eradicate coca cultivations was a muscular one: in 2019, the government launched the so-called Artemisa plan, a heavy-handed law-enforcement plan aimed at destroying illegal crops that, however, mostly affected small-scale peasants and left landed elites unscathed (Comisión de la Verdad, 2022a). “We do want to take care of the forest, that has been our struggle as peasants, […] but nothing comes our way. The only thing that comes our way is repression, we got the Artemisa plan, people have been arrested. [In our community] an 82-year-old peasant was arrested because they found him planting grass. But they did not see those mansions, those farms, or chose not to see them. The abuse is always against peasants. The real deforesters should be identified” (Interview Juan David, 2024). Not even nomadic forest communities were able to escape the wreath of the Artemisa Plan, which included carpet glyphosate fumigations to extirpate coca bushes. An NGO worker recalls: “To many [indigenous people], glyphosate fumigations were lethal. One elder from [an Amazonian village] told me over half of them died from fumigations. Riverways were contaminated, they had to flee and could not even bury their dead” (Interview Alex, 2024).

The plan was counterproductive. Not only did it not succeed in wiping out coca and the related guerrilla groups, but it increased the acrimony and distrust between institutions and peasants:

> “To me, environmental norms have been nothing more than a colonisation strategy. First, they sent down the peasants without explaining to them that there were environmental norms, then they even created new norms. In 2021 they passed law 2111, the famous Artemisa plan. And with that they began to remove peasants from various areas of the department […] but they never stopped extensive cattle ranching and large landowners buying up land. They [land grabbers] do not stop, they keep buying land deep into the forest. Cattle ranching goes on. […] It has been more of a business, peasants eventually grow weary and sell their land cheap because they do not want to be persecuted, they do not want to end up in jail. [Land grabbers] buy land from them pretending they are reluctant, saying well, you have to go, you cannot stay, I will buy it and give you such and such a price. If it is okay with you, fine, if it is not, I will do it anyway. So you end up giving the land away, give me the money and I will go. And then [land

> grabbers] grab the land, deforest it, bring in their cattle and reap the benefits. Nothing happens to them, but to us, humble peasants, nothing at all is allowed. If we cut a single tree the CDA [environmental authority] is all over us" (Interview Juan David, 2024).

While the good faith of each interviewee is hard to prove, these quotes hit the nail on the head as regards the shortcomings of the Artemisa plan: even discounting the harsh methods, the plan's utter failure lied in the wrong identification of deforestation drivers. While the government lumped together and scapegoated whole rural communities, the agrarian change patterns observed in the Colombian Amazon seem to suggest the penetration of large capital concentrations for extensive agriculture (Dávalos et al., 2016) and cattle ranching, as this environmental official from Guaviare remarks: "It is all for cattle ranching. They cut down everything and do not even use the wood, they burn it all and turn it into pasture. We considered revoking forest exploitation permits but they insisted. We told them, do not take us for fools, you are getting out three trees per hectare…" (Interview Samuel, 2024). A *campesino* from the same department denounced: "The state is lying, it is not the peasants who are destroying nature, that are destroying everything. Who is destroying everything? The companies, the big multinationals, the landowners. All these actors who come here from the outside. In the area of Calamar there are farms owned by a single owner covering 10,000 hectares. Among us peasants, the one who has the most has 200 hectares, but he works about 50 hectares, the rest is forest. It is always the peasant farmer who suffers the most. What is driving ecosystem destruction is large-scale cattle ranching, that is what the government is saying. But we farmers do not do extensive cattle ranching because we have 50 animals each at most. And we are focusing on reconverting that land, but according to what the government invests in us" (Interview Ferney, 2024).

Things changed again with the election of a new president, former guerrilla and Bogota mayor Gustavo Petro[62]. Running on a strong environmental platform, confirmed by the appointment of leading environmentalist Susana Muhamad as the Minister of Environment[63], the Petro government set out to fight deforestation and appeared to score an immediate success as deforestation in the Colombian Amazon in 2023 fell by 38% compared to 2022 (Ministerio de Ambiente y Desarrollo Sostenible, 2024b). While minister Mohamad hailed it as an achievement of government policies such as "*Conservar paga"* ("preserving pays off", see Ministerio de Ambiente y Desarrollo Sostenible, n.d.), others pointed to alternative – or at least concurring – factors: first, the drop in the demand for coca leaf recorded since 2022 (Bravo and Rodríguez, 2024) reduced the incentive to clear forested land for coca cultivation, as a peasant admitted in early 2024: "I used to sow coca because life left me no other option, the state gave me no other option, there is nothing else to do. But coca is over now" (Interview Juan David, 2024). Second,

[62] He was a member of the 19th of April Movement (M-19), a guerrilla organisation that emerged in 1974 and transitioned into electoral politics in the late 1980s (Janetsky, 2022).
[63] Muhamad resigned in early 2025 and was replaced by indigenous activist Lena Estrada.

the reduction in deforestation rates was interpreted as a gesture of good will towards president Petro by the EMC, which appeared willing to engage in peace negotiations. An environmental expert recalls: “Beginning in 2022 and through 2023, it appeared evident that [the EMC] had taken a decision, and an impressive one. It was the first time that a group with such a substantial and capillary territorial control managed to bring down deforestation figures so dramatically. Seeing an entire summer, in 2023, with practically no deforestation, no burning, apart from some very specific sites, [...] first gave hope and, second, showed that things could change. However, in late 2023 the group decided to change its policy and to establish new conditions for this openness, or to give the green light to some forms of deforestation, supposedly with [...] a certain maximum unit, which was not the case” (Parques Como Vamos, 2024). Indeed, deforestation rates stopped falling and started climbing again between 2024 and 2025 (Defensoría del Pueblo, 2025b).

The dynamics of deforestation in the Amazon are by no means straightforward, all the more as deforestation drivers tend to shift and morph over time and space. Its multifarious underlying causes cannot always be easily pinned down and cannot be generalised for the different regions covered by the rainforest biome. For one thing, coca cultivation and downright illegal activities, while relevant (GI-TOC, 2023), certainly do not tell the whole story. According to experts, the ‘business model’ of deforestation in the Colombian Amazon rests on three pillars: impunity, public investment, and land appropriation (Cheston et al., 2023; see also Comisión Quinta - Cámara de Representantes, 2024). This formula reflects a well-known process that testifies to the ‘long tail’ of coca cultivation in the Amazon (Arbelaez and Acosta, 2024): coca often acts as the wedge driving the opening up new deforestation frontiers; then, to legitimise and legalise the investment, comes the *potrerizaciòn* (‘pasturisation’) for cattle ranching: “Land usurped from indigenous people, public investment, and cattle sold without inquiring about its origin, a profitable formula for a model that predates on the forest and its people” (Botero, 2024a). This explains

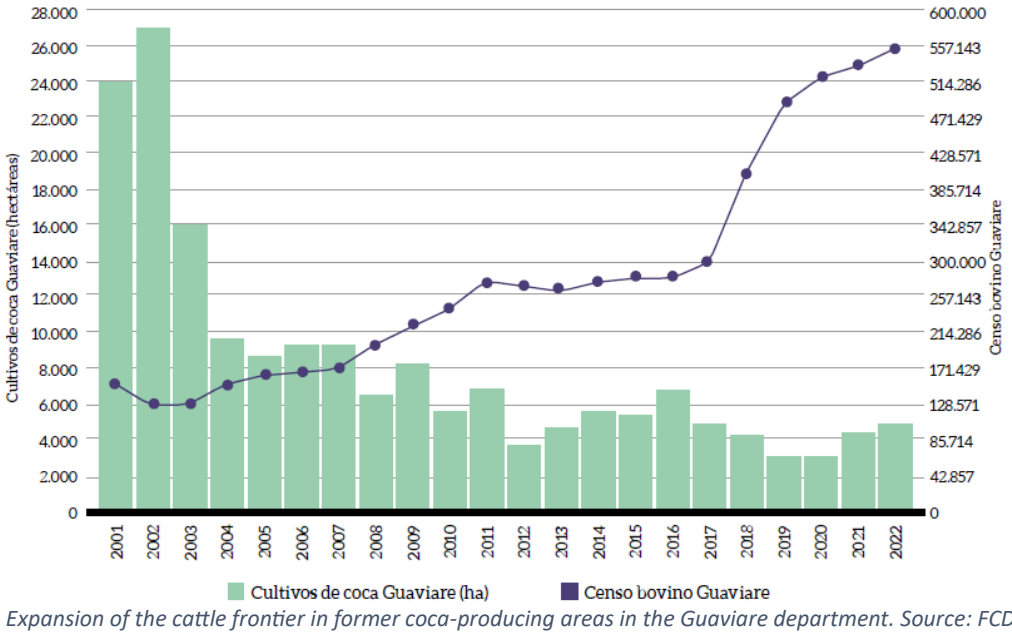


Figure 18: Expansion of the cattle frontier in former coca-producing areas in the Guaviare department. Source: FCDS (2024).

why, as the land cultivated with coca has stagnated or decreased, the number of cows (a mammal – it is worth reminding – that is alien to the Amazon) has skyrocketed throughout the Colombian Amazon (see the example of Guaviare in Fig. 18). This whole process is not only tolerated, but actively – albeit indirectly – incentivised by formal institutions until today: "About 78% of Caja Agraria credits are granted for livestock farming. [...] More than 900 loans were granted in [the Amazon] for more than 35,000 million pesos [almost 8 million euros]. In the last 4 or 5 years, these loans have shot up enormously. 66% go towards the purchase of cattle" (Parques Como Vamos, 2024). Where bank loans do not suffice, land-grabbing capital chips in. As a result, as of 2024 72% of Colombia's farmland was owned by large-scale farmers, partly through figureheads (FCDS, 2024).

Caught in the struggle between guerrilla, corrupt officials, and large capital, ordinary peasants find themselves between a rock and a hard place: "We are lacking roads, education, healthcare, agricultural machinery for peasants to switch their activities. They want us to transition away from coca, but where is the state? Where is the investment?" (Interview Juan David, 2024). When the state is unable to offer a convincing vision of development, as has been documented in various areas of Colombia (Ballvé, 2012), competing actors step in. As one leading environmentalist put it: "[EMC leader] Calarcá's regional development proposal is much clearer. Calarcá says: 'we build roads, we build schools, we bring in cattle, we distribute land, we clarify land tenure'. It is unclear what the state's counter-proposal is" (Rodríguez, 2024).

After the peace agreement, the Colombian state contemplated different pathways to address the dependency of rural citizens on coca, first with the PNIS crop substitution programme, then with "*Conservar paga*" (Ministerio de Ambiente y Desarrollo Sostenible, n.d.), a payment for ecosystem services programme launched in 2023. However, both schemes have been a mixed success at best (Vélez and Rubiano-Lizarazo, 2022). One peasant from Guaviare affirmed: "The PNIS has not delivered. They [the government] have not fulfilled it and I do not think they ever will. They have come up with these regulations to get rid of us. They talk about environmental programmes, that conservation pays off, but they are talking about very little money and we do not even know if they are going to pay" (Interview Gerardo, 2024). Another peasant claimed that, of the 36 payouts initially promised, only 12 were made. The "*Conservar paga*" programme, while surely a huge effort for the fragile fiscal balance of the Colombian State, is far from ideal: "We did the maths. The Ministry of the Environment is paying us 900,000 pesos [nearly 200 euros] per month regardless of the preserved area. Say I decide to preserve 10 hectares [...] If I make an investment for deforesting 10 hectares and bringing in cattle, after a couple of years I will have gained almost double as much" (Interview Juan David, 2024). Another peasant brings up yet another issue:

> "Current conservation payments are by no means justified. Someone who has 200 hectares of forest receives the same amount as someone who has 5 or 10. If one has 5, it means that he has already felled the rest but eventually earns the same, [which] does

> not induce peasants to take care of the forest. We peasants have clearly said that we do want to take care of the forest that is left, but we want the government to come and sit down with us and between the two of us we can agree, inform, discuss, and organise how we want to do it in a way that benefits both peasant farmers and the government, so that they can show the world that they can do conservation. Things should not be decided top-down in Bogotá and implemented here, policies should be designed here, with peasants. Now, that would be something different" (Interview Gerardo, 2024).

One of the main outstanding issues remains tenure unclarity. "The first point of the peace agreement deals with land legality. It is the first point of the peace agreement and it has not been fulfilled" (Interview Catarina, 2024), affirmed an official from the National Land Agency (*Agencia Nacional de Tierras*, ANT). Much beyond a simple matter of private property right, tenure informality leads – among other things – to an increase in coca cultivation: barred from accessing credit for legal enterprises on informally owned land, peasants might as well go for the more profitable – if illegal – alternative. Recognising this, the Petro government has committed considerable resources both for the actualisation of the land registry (entrusted to the "Agustín Codazzi" Geographic Institute) and for land titling through the ANT. However, the government has so far failed to endow this ambitious scheme with sufficient resources (Quintero, 2024). On top of that, in the political arena president Petro appears isolated even within his own cabinet, as the numerous cabinet reshuffles and political fights within government majority forces stand to show (Torrado, 2025b). "Petro has intelligence to spare, he is a very advanced thinker for our time. I think his team is not as resolute as he is. Petro is the leftist here, with a left-wing revolutionary vision. The others are not. The others are sort of an appendage of the Bogotá bourgeoisie and of landed elites" (Interview Rodrigo, 2024). In 2025 Susana Mohamad, former Environment minister and one of Petro's closest allies since his time as Bogota mayor, announced that she will be running for president in 2026 with her own political formation (Turan, 2025).

FARC *disidencias* have taken advantage of this weakness, although it is not clear to what extent deforestation was used deliberately to coax the government into making concessions. According to an official at the Ombudsman's office of Guaviare, winning over rural inhabitants plays an equally important role: "There are both components: on the one hand, the generation of loyalties and the positioning and potential expansion in the territory, on the other, a pressure mechanism for negotiation purposes" (Interview Juan Camilo, 2024). A former member of the FARC suggests an even more nuanced explanation, linked to the hesitancy and short-sightedness of new guerrilla cadres:

> "If the leader does not have a clear idea about what he wants, all the less do his people. Can you imagine that the organisation believes deforestation can be used as leverage? There is no more serious mistake than that, because it is about life that we are talking

about. What are they going to negotiate if we no longer have a way to prevent this disaster? [...] What are they going to negotiate? A planet that is going to last a hundred more years and then it is all over?" (Interview Rodrigo, 2024).

This ambivalence is confirmed by investigative media reports. According to the mayor of La Macarena, "[Briceño block leader] Calarcá is telling people not to deforest and [EMC leader] Mordisco is telling them to deforest" (Rodríguez, 2024). In late September 2024, through letters and Whatsapp audio messages (CORE and Akörde, 2024), Calarcá told peasant organisations that the maximum deforested area allowed was five hectares. Nevertheless, he added that, should the state fail to solve the agrarian problem in the areas under FARC influence, "we will mandate the seizure of state land suitable for agriculture" (Rodríguez, 2024). Not everyone, however, was equal before FARC law: according to a local peasant leader, it was common for large landowners to pay a fine to the *disidencias* in order to be exempted from forest clearing restrictions (ibid).

In teasing out the environmental question in Colombia, this sub-chapter has shown how the political economy of the Amazon has relied on cyclical – if ephemeral – bonanzas. The next sub-chapter introduces a new bonanza that has been haunting the Amazon for almost a decade now, and is the main focus of this dissertation: carbon forestry.

4.3. Carbon offsetting in Colombia

"*Nos tomó ventaja*": Carbon trading in Colombia

In few countries is REDD+, an abstruse acronym to many, so prevalent in the public domain and in policy-making as it has been in Colombia. From policymakers to businesspeople, from environmentally-aware urban dwellers to peasants in remote rural areas, the concept of *bonos de carbono* has been on everyone's lips for some time. This is justified by the rapid and capillary spread of carbon offsetting projects (especially nature-based ones) in the country, partly boosted by the Visión Amazonía REDD Early Movers programme embraced by the Colombian Environment ministry. A UN programme launched in 2015 based on payments for verified emission reductions, the programme aims to promote a new development model for the Colombian Amazon based on low deforestation and low-carbon activities. Crucially to this dissertation, its pillar 4 provides for environmental governance with indigenous people (Andoke Andoke et al., 2017).

There is no reliable official registry of carbon offsetting projects in Colombia. RENARE (*Registro Nacional de Reducción de las Emisiones de Gas de Efecto Invernadero*), the national registry run by the Ministry of Environment, has been inactive for several months between 2023 and 2024 and its updated

version, a sort of 'RENARE 2.0' (Ministerio de Ambiente y Desarrollo Sostenible, 2024c), presented many of the flaws that led to the deactivation of its first version amid criticism by CSOs and market actors, mainly linked to a lack of scrutiny over the uploaded projects (Global Financial Integrity, 2025). In early 2025, RENARE included 190 projects[64]. Unofficial estimates vary substantially: according to the Colombian carbon industry association Asocarbono, in 2023 the country had 208 certified offsetting projects (of which, 80 reforestation projects plus 47 REDD+, see Asocarbono, 2023). A report by two Colombian NGOs speaks of 123 ongoing projects in 2023, of which 52 are afforestation/reforestation and 71 are REDD+ (Pérez and Gómez, 2023), a number consistent with the 135 estimated by an investigative journalism platform in 2025 (CLIP, 2025), while the "Geo-Grafiar" platform, launched in 2024, presents 92 active REDD+ projects country-wide (Censat Agua Viva, 2025). According to the Sinchi research institute, the Colombian Amazon alone hosted 51 projects in 2022 (Díaz and Ruiz-Nieto, 2023).

Colombia is considered among the most attractive destinations for investors in carbon offsetting worldwide (Energynews, 2024; Mi Putumayo, 2025). Indeed, it appears that national and international market operators got a hunch about potential bargains to be made even before Colombian lawmakers could get to grips with the carbon offsetting paradigm (Ministerio de Ambiente y Desarrollo Sostenible, 2024d). Only in 2024 did the Ministry of the Environment and Sustainable Development put forward a comprehensive bill aimed at regulating the national carbon market (Arbelaez and Pacheco, 2024), previously governed by vague norms (Gaia Amazonas, 2023) despite the fact that in 2016 the same ministry, under a different government, launched "Vision Amazonía", a REDD Early Movers forest conservation programme covering the whole Colombian Amazon (see above). This legal vacuum has spurred a flurry of cautionary pronouncements by NGOs and scholars, who warn of the risk of exacerbating territorial and social tensions as well as structural inequalities surrounding forests and land (Ilich Bacca and Trujillo, 2024; Schmid and Castro Osorio, 2025; CEALDES, n.d.) In some cases, carbon projects led to court litigations. Indeed, among the reasons for carbon offsetting's notoriety in Colombia are the numerous scandals and lawsuits involving REDD+ projects, which received vast public attention in a country that is particularly skilled in sniffing out foulness in high-sounding public affairs: the most notorious of all is the "REDD+ Baka Rokarire" project, developed by a forest management company called Masbosques in the Vaupés department. On July fifteenth 2022, the Pirá Paraná Indigenous Council and the local association of indigenous traditional authorities filed a *tutela* (a constitutional injunction aiming to protect fundamental constitutional rights) arguing that the entities involved (besides the developer, a consulting firm, the auditor, the certifying company and Colombian Institute of Hydrology, Meteorology and Environmental Studies, IDEAM) deliberately ignored indigenous authorities and that Masbosques negotiated the REDD+ project with a former community leader who had been removed from his position two weeks before he signed the REDD+ contract. The case reached the Supreme Court, which ruled in

[64] In mid-2025, the Ministry of the Environment suspended RENARE for "modernisation" purposes (Ministerio de Ambiente y Desarrollo Sostenible, 2025a). As of late 2025, the platform has not yet come back online.

favour of the indigenous authorities, thereby setting a precedent for carbon offsetting in the country (Gaia Amazonas, 2024). The ruling declared that the project violated several of the community's fundamental rights including self-determination, autonomy, self-government, territory, identity, physical and cultural integrity and free, prior and informed consent, and contained harsh rebukes to the companies, although the developer issued its own watered-down, self-absolving reading of the ruling (Masbosques, 2024).

This and other cases (another infamous project is "Bosque de Galilea", see Rutas del Conflicto and CLIP, 2024) uncovered several layers of complication in the development of forest carbon projects, not all of which can be solved through court rulings (Dejusticia, 2025). No judge, for example, may take it upon themselves to establish who can speak on behalf of indigenous communities, especially those that are spread throughout the Amazon and traditionally adopt horizontal decision-making methods (see chapter 5). Nor should it be up to a tribunal – rather to a legislative body – to define the forms of regulation and oversight to be applied to carbon forestry projects, all the more as these typically entail a contractual agreement between a private actor and a formal territorial entity, and not merely among private citizens. The Baka Rokarire case was not an isolated one, but merely the most egregious example of controversial offsetting projects in Colombia: the National Observatory on Free, Prior and Informed Consultation run by legal consulting NGO Akubadaura, one of the first to scrutinise carbon offsetting projects in the country, periodically issues a bulletin on suspect violations of the right to prior consultation through REDD+ projects (Akubadaura, 2024), while investigative journalism collective El Clip has a dedicated web page (CLIP, 2023).

In the absence of strict regulations and safeguards on free prior and informed consent, REDD+ projects are ultimately the product of secretive negotiations between developers and communities, which – in the best-case scenario – express a decision through they leaders regardless of how well they have been informed. Indeed, in Colombia it is not only national authorities that were taken aback by "carbon cowboys". Even more importantly, carbon profiteers realised the business potential of Colombia's ecosystems before the rural and indigenous communities involved and the associations supposed to represent them started to explore the sophisticated science and finance of carbon trading. *"El tema nos tomo ventaja"* ("The topic took us by surprise") (Javier, 2023), a member of ONIC confessed to justify the lack of an official stance on carbon offsetting by the largest Colombian indigenous association. Since the Santos government allowed companies to waive the carbon tax through carbon credits[65], dozens of indigenous and non-indigenous rural communities were approached by more or less conscientious developers presenting more or less realistic prospects of carbon revenue. As could be expected, most communities were not in the position to make an informed judgement, and some have fallen for the enticing financial prospects and sometimes modest initial payouts. In the worst cases, indigenous leaders were not aware of the project being carried out in their own territory (Bermúdez Liévano, 2025).

[65] According to Asocarbono, since 2016 over 130 million carbon credits were issued by carbon standards and "a significant amount of credits" were traded on the international voluntary market (Asocarbono, 2023). More on this in chapter 3.

Since in many instances – as discussed above and illustrated below – carbon forestry projects entail changes in indigenous forest practices, they constitute ostensibly non-violent forms of land appropriation. In other words, new *de facto* enclosures. In the symbolic and *de facto* appropriation of territory and nature through REDD+, Ulloa (2013) identifies one of the processes unleashed by the consolidation of neoliberal natures.

After the initial hesitation, Colombian indigenous associations have begun to grapple with the carbon frenzy that has taken the country by storm. In 2023, both ONIC and OPIAC started formal conversations both internally and with relevant stakeholders (including the Ministry of Environment) on how to come to terms with the new 'pharmakon'[66] of environmental policy. While the two associations see both risks and opportunities, their agenda appears contradictory: on the one hand, they are determined to ensure the indigenous ownership of the process, for it not to be taken over by urban elites and foreign profiteers at the expense of indigenous communities. As an eminent OPIAC member explained: "Many developers are garage companies, so to speak. They have no experience, they are established overnight, the people who run them are not qualified, and their purpose has nothing to do with conservation and the fight against deforestation. All they have in mind is, how much can I make with this and how much can I take from the indigenous people?" (Interview Marco, 2024). On the other hand, their actions displayed a tendency towards centralisation, bureaucratisation, and commodification including in intra-indigenous relations. "Carbon markets are an opportunity for indigenous people to create a different development model for the Amazon, but there must be enabling conditions. The government should create a public policy on issues beyond carbon, let us call it an *economy of nature*" (Interview Marco, 2024, italics added). Economy, here, is no metaphor, but is rather meant in a strictly capitalist sense. It follows that indigenous people are expected to act as profit-maximising *homo economicus*, or "ecopreneurs" (Khan, 2025): "We tell [indigenous communities] that this is the tail end of capitalism, think of it that way. So, do not think of yourself as an [aid] beneficiary. If you do so, you are not going to get far" (Interview Marco, 2024).

In some instances, REDD+ seems to be a promising instrument for indigenous empowerment (Orduz and Páramo, 2024). However, cases of fraudulent projects such as those discussed above considerably outweigh, both in Latin America and on a global level, cases of successful projects. Even when projects appear successful on the surface, it often speaks more to the ability of project developers to build a persuasive narrative (Asiyanbi and Massarella, 2020) than it does to the actual effects on the ground. Carbon projects, after all, are not developed in a vacuum, but rather inserted in a social reality characterised by shifting power relations that class-blind development interventions can contribute to entrench (Arévalo and Ros-Tonen, 2009). According to some of the experts interviewed, among the motives of national and local indigenous elites might be an attempt to ensure personal gains, in other

[66] In ancient Greek, *pharmakon* could mean both remedy and poison. Jacques Derrida introduced the concept into critical theory in his essay "Plato's Pharmacy".

words, to have a slice of the cake. Others were more wary of the far-reaching socio-political implications of carbon schemes:

> "If your territory is inalienable, imprescriptible, unseizable, and someone comes and says, I am going to pay you for the oxygen you produce, but you cannot cut trees, although indigenous people are used to making [a different use of the forest], sovereignty is already lost. [...] A constitutional principle is already being violated. And besides, the ratio between what these organisations earn and what is left for the indigenous people is ridiculous" (Interview Rodrigo, 2024).

Mostly excluded from all this were non-indigenous peasants, who – as discussed at length above – make up a considerable part of the Colombian rural population. They too, however, got wind of a new potential opportunity aligning with their bonanza mindset, and have sought to play their own hand. In one media report, *campesinos* gathered in San José del Guaviare for an information meeting affirmed being "baffled" (*desconcertados*) by the Ministry of Environment's inability to provide exhaustive clarifications and assistance for the participation of peasants in carbon offsetting (Marandua Stereo, 2024a). While peasants appeared to be at a loss about the functioning of carbon offsetting as much as indigenous people are, they seemed to be better aware of the retail-level economics of carbon credits:

> "We did some research. A carbon credit is about 40,000 pesos [slightly less than 10 euros]. What we have not been able to figure out is how much forest is needed to produce one of those [credits], how much would be offered for a hectare of forest. [...] What will happen is that intermediaries will capture it as always. They register their legal company in Villavicencio or wherever so they can be the local operator. They will get the money and throw the crumbs to the peasants" (Interview Ferney, 2024).

Clearly, peasants are unwilling to accept vague commitments. This might be one of the reasons why developers are more inclined to engage with indigenous people than they are with *campesinos*. The other – and primary – reason being that areas under the (collective) ownership of indigenous people are typically much larger and more forested than the ones owned by peasants, even if one were to envision peasant consortia. Large-scale landowners, on their part, have little interest in keeping the forest standing, and will have no incentive to switch to environmentally-friendly land management until conservation revenues outcompete the Amazonian business model illustrated above.

Arguably, the main overarching lesson that can be drawn from Colombia's experience with carbon offsetting is that an ill-designed national carbon market, lacking strict regulations and effective monitoring, can both fail to achieve the expected results, as projects escaping international standards do

not provide demonstrable carbon-withholding outcomes (assuming that nature-based carbon offsetting can deliver at all), and have profound side effects, first and foremost in terms of social justice (this aspect will be further illustrated below though a case study). Colombia's carbon tax and its key provisions (the 100% tax exemption allowed from 2016 to 2022, and since 2018 the eligibility of credits generated in Colombia only), resulted in an inflated carbon market and a mushrooming of projects of all kinds, mostly geared towards an internal loosely-regulated market. While some carbon businesses are at least willing to subject themselves to the scrutiny of global market-based watchdogs (Cercarbono, 2024), many have nothing to gain from coming under the radar of international carbon brokers and certifiers. This also helps explain one of the issues raised in chapter 3: sometimes, global carbon chains cannot be mapped not because they are 'subterranean', but rather because they are not meant to be global in the first place. The problem, then, lies not (or not only) in the international trade in carbon as much as in the international decarbonisation paradigm sparking unintended country-specific consequences. In Colombia, as well as in other Global South countries, the roots of socio-environmental injustice are to be sought not in a direct colonial appropriation of pollution rights (Bruna, 2022) as much as in the colonial matrix of the neoliberal global mitigation paradigm. Once the spurious equivalence between a permission to pollute and a certain amount of actual greenhouse gases receives the UN's blessing, the 'genie' is out of the bottle, as national players can apply the equivalence in any context without being constrained by international legal restrictions or third-party monitoring. Not coincidentally, in Colombia carbon trading gained a foothold with president Iván Duque, a staunch believer in neoliberal policies and market-based environmental governance (CLACSO, 2021; Garcés-Velástegui, 2024) and was – consequently – left to self-regulation.

As discussed in chapter 3, a market-based solution to the excessive accumulation of CO_2 in the atmosphere could have been concocted only in a context of unequal development (and expected to remain unequal) in which reducing emissions is cheaper in the Global South, a region that – coincidentally – is also better endowed with lush carbon stocks. To the extent that carbon markets are supposed to be profitable, they are not designed to free low-income countries from the shackles of 'underdevelopment' but rather rely on their cheap conservation labour for decades to come. In other words, beyond the PR campaigns of the global climate-action regime, carbon markets were never meant to be emancipatory. Indeed this configuration, as Colombia stands to show, is conductive to the reproduction of coloniality both between and within countries, as Colombia ends up playing a subaltern role anchored in the global core-periphery system (cleaning up the 'mess' others have made) while at the same time allowing for the exploitation of national subalterns (rural communities) by national elites.

One legal expert interviewed cited the legal framework governing carbon deals as a crucial problem: "As carbon forestry contracts are regulated under private law, like any other transaction among privates, they are not subject to public scrutiny nor to specific regulations" (Interview Emiliano, 2023). The draft resolution proposed by the Ministry of Environment in 2024 (Ministerio de Ambiente y Desarrollo Sostenible, 2024e) partly addressed these deficiencies, but the devil is in the details of the informed

consent process: how to guarantee, for example, that the Project Design Document (see above) is properly translated in the local language(s) and handed in to the community? Such basic requirements have often been disregarded in the past. "They give them three-day lectures on things that, if you ask them, they do not have a clue about. Were they informed? [developers reply] Yes, they were. Did they agree? Yes, they did. Did they sign? Yes, they did. [...] So you gave us 900,000 hectares, you just have to sign here. [...] There is no state advisory assistance" (Interview Rodrigo, 2024). Another expert, working for an ENGO, claimed that if a carbon project is proven to have been ineffective the companies that bought the associated credits should be held accountable for tax fraud, as ineffectual offsetting can be considered to be tantamount to an unpaid tax (Interview Emiliano, 2023). While buyer companies, such as Colombian fossil fuel company Primax, typically claim that the accountability for verifying the environmental efficacy of offsets lies with validation and verification bodies (Greenfield, 2021), the tax fraud case is being made by some environmentalists.

This section has analysed the political economy of carbon offsetting in Colombia, as well as some of the social and political responses to it. The next two sections will explore two more specific features of carbon forestry: the first, while not unique to Colombia, is particularly prominent in the country; the second is deeply intertwined with Colombia's history and socio-political landscape.

Mutual aid gone wrong: Deforestation and carbon forestry

In "Mutual Aid: A Factor of Evolution", Peter Kropotkin (1902) made a groundbreaking argument on species evolution. Challenging the prevailing Social Darwinist perspectives of the time, which posited competition as the primary driver of evolution, Kropotkin argued that mutual aid, understood as cooperation and solidarity among individuals as well as among different species, had been just as crucial – if not more so – for the thriving of living beings, including humans. In this section, the concept of mutual aid is mobilised figuratively, through the case of Colombia, to illustrate how different extractive frontiers collaborate (or even co-evolve) in nefarious ways, at times even before extractive projects materialise on the ground. Indeed, among the underrated (and understudied) effects of carbon offsetting are its social and ecological impacts *before* (as well as during) project implementation, and how these are enmeshed in contradictory dynamics of capital expansion. While it is beyond the scope of this dissertation to dissect such effects in detail, it is worth briefly discussing them based on the existing data and literature, as well as on insights collected in the field.

The main raison d'être of nature-based carbon offsetting, together with excess CO_2 in the atmosphere, is deforestation. It is tautological: if there were no deforestation or ecosystem degradation, there would be no future emissions to be avoided. It follows that, paradoxically, REDD+ developers *need* deforestation and forest degradation just as much as alarm systems manufacturers need burglary. As Leonardi (2017) brilliantly put it, "carbon markets, in order to be offered as their own remedy, must always fail *to a certain extent*" (p. 79). Indeed, the mechanism of carbon forestry creates perverse incentives both

for project developers, who are constantly on the look for threatened rainforests to implement new projects, and for prospective project owners, who might be induced to make a short-term investment in deforestation in order to generate the perception of a threat to their own land. In Colombia, there is an alarming precedent in this regard: as illustrated above, the mere prospect of the establishment of crop replacement program PNIS in the early 2010s gave Colombian peasants the perverse incentive to expand their coca leaf cultivations (and consequently the deforestation frontier) in order to secure higher gains at a later stage. While the circumstances are different, a precaution principle would suggest taking this risk into account in carbon forestry.

The relation between new carbon forestry frontiers and older commodity frontiers (Beckert et al., 2021) is not only one of co-existence, but rather of mutual reinforcement. Bridge (2011), among others, drew attention to the interdependence between new and old carbon economies "so that they appear as extensions of each other rather than separate (or even alternative) [...] for example, offsets and sequestration projects license the continued development and extraction of fossil fuels" (p. 829, see also Le Billon, 2021). Not incidentally, oil major Shell has been among the largest buyers of carbon offsets precisely as it develops AI models to increase crude extraction (Ferman, 2025). In the case of deforestation-based economies and carbon offsetting, the interdependence, or synergy (Vuola, 2022), is deeper: not only does deforestation 'license' the continuation of nature-based offsetting, but the former is absolutely vital to the latter. In exchange, carbon forestry aids extractive economies by 'greening' their activities (Wahabu, 2025) as well as in subtler ways: once an area of forest that was previously outside the purview of capital is commodified, what will prevent those who control it from valorising it in different ways in a near or distant future? Once an 'outside' of capital has been conquered and indigenous communities are made into labourers selling 'sustainability', that capitalised environment is open to other forms of accumulation. This is particularly worrying when applied to one of the most valuable biomes on the planet since commodification, as the history of capitalism stands to show, is a one-way street. To quote Mies and Bennholdt-Thomsen (1999), "money and capital can grow out of life, but no new life can grow out of capital and money" (p. 21).

In a country characterised by a history of land grabbing like Colombia, one more perverse incentive lurks in the background: should conservation payments ever equal or outcompete the revenues from other land uses, further land concentration could be triggered by green profiteers equipped with capital or violent means of extortion. *Campesinos* are devising strategies to avert this risk, as the representative of a peasant consortium explained: "Since people here own small plots of land, the idea is that the association is paid for those, say, 10,000 hectares overall and the revenues are distributed according to what each one owns" (Interview Eriberto, 2024). For now, however, nothing tangible has materialised: "We have been looking into carbon forestry to see how we can pay back the people for all the hectares of forest that they have. There is so much talk about this [...] but we have not seen any results so far" (Interview Eriberto, 2024).

One notable distinction between carbon forestry and more conventional forms of extractivism, and one more reason to regard carbon offsetting as a subtle environmental policy, is that it tends to trigger a weaker instinctive resistance among local communities and the wider public. Indeed, whereas traditional extractive industries are associated with obvious scars on the landscape and health hazards, carbon forestry projects leave no mine tailings, cause no oil spills, require no gas flaring, and do not contaminate aquifers. Understanding the adverse environmental impacts of carbon offsetting – setting aside for a moment its social implications – requires an understanding of how, by legitimising the continued reliance on fossil-based socio-economic systems, it exacerbates the climate crisis, thereby ultimately undermining the very ecosystems it is supposed to protect, with consequent effects on people who depend on them. Additionally, the commodification of previously non-commodified areas of life – discussed in previous paragraphs – further endangers the survival of ecosystems and sustainable ways of life. The far less visible and superficially destructive consequences of carbon projects, however, make it much harder, even for those who make these far-fetched connections, to mobilise public opposition.

So far, this sub-chapter has introduced carbon offsetting in Colombia and shown why Colombia is a particularly topical case study for this field. Colombia is an even more relevant location to start digging into another largely ignored question: what is the role of illegal actors and how much does corruption weigh in on the global carbon commodity chain? The next sub-chapter will seek to shed some light onto a phenomenon scholars are yet to start grappling with.

Uncharted intermediaries: Guerrilla as environmental actors

The practice of guerrilla groups to systematically collect protection money (the so-called *vacuna*, literally vaccination) in the areas they assert their control on is Colombia's worst-kept secret. Despite being of course completely illegal – in fact, subversive – all Colombians, from the proverbial 'man in the street' to policymakers, openly talk about it, and most Colombians in rural areas have experienced paying or at least witnessing the payment of *vacuna* to one or the other guerrilla group. Protection 'taxes' are paid regularly by each shop owner and taxi driver in rural areas and certain towns, and every time a governmental or non-governmental organisation wishes to access guerrilla-controlled territory. "Everybody here pays, shopkeepers pay, whoever executes a project pays" (Interview Samuel, 2024). When developers begun to venture deep into guerrilla territory to pitch carbon projects to indigenous communities, no one doubted that they too were being 'vaccinated'. While some GreenVenture members denied this, one of them admitted: "It is no secret that we speak to them [guerrilla]. We told them that we are not a multinational nor spies. We are bringing projects. As far as they are concerned, we are welcome" (Interview Alex, 2024). After all, even prestigious international organisations have to yield: "Of course carbon developers pay the *vacuna*. Even USAID recently had to pay for a project" (Interview Sonia, 2024). In March 2024, Colombia's Ombudsman, the Defensoría del Pueblo, mentioned in passing in a report that

offsetting developers might be funding terrorism (Defensoría del Pueblo, 2024:124), sparking short-lived outrage both internationally and domestically (Quintero Díaz, 2024).

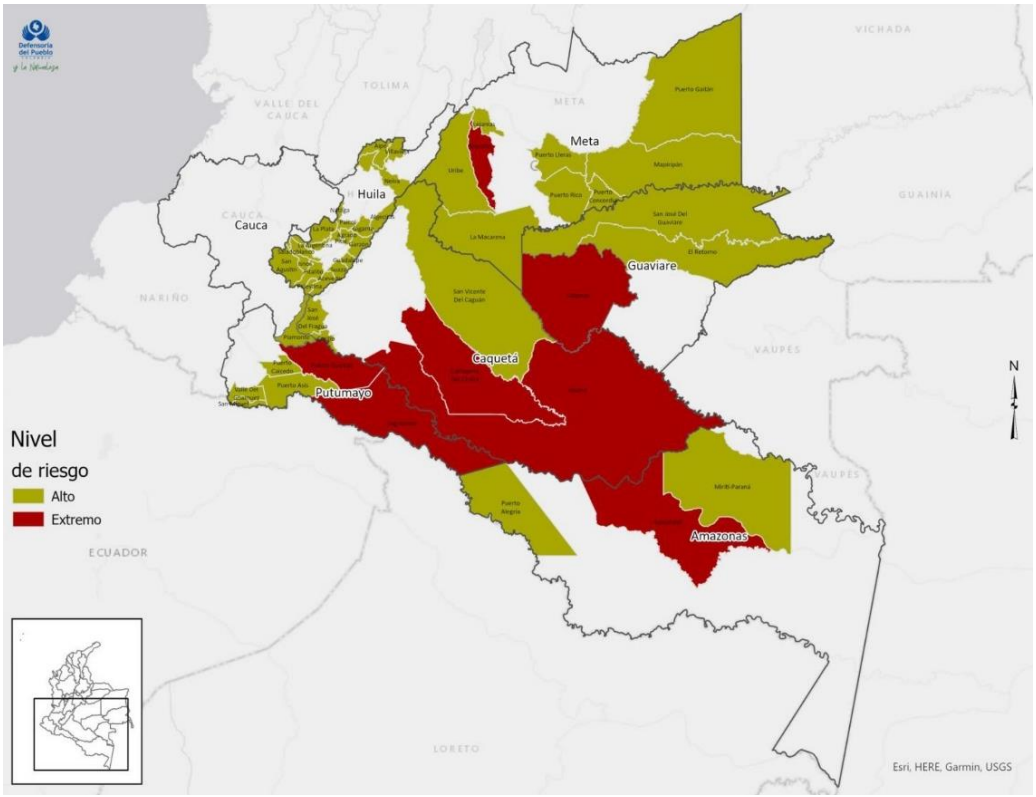


Figure 19: Areas at high or extreme risk of armed confrontations in South-Eastern Colombia. As the image shows, armed groups are present in most of the Colombian Amazon, hence most REDD-relevant territories. Source: Defensoría del Pueblo (2025a).

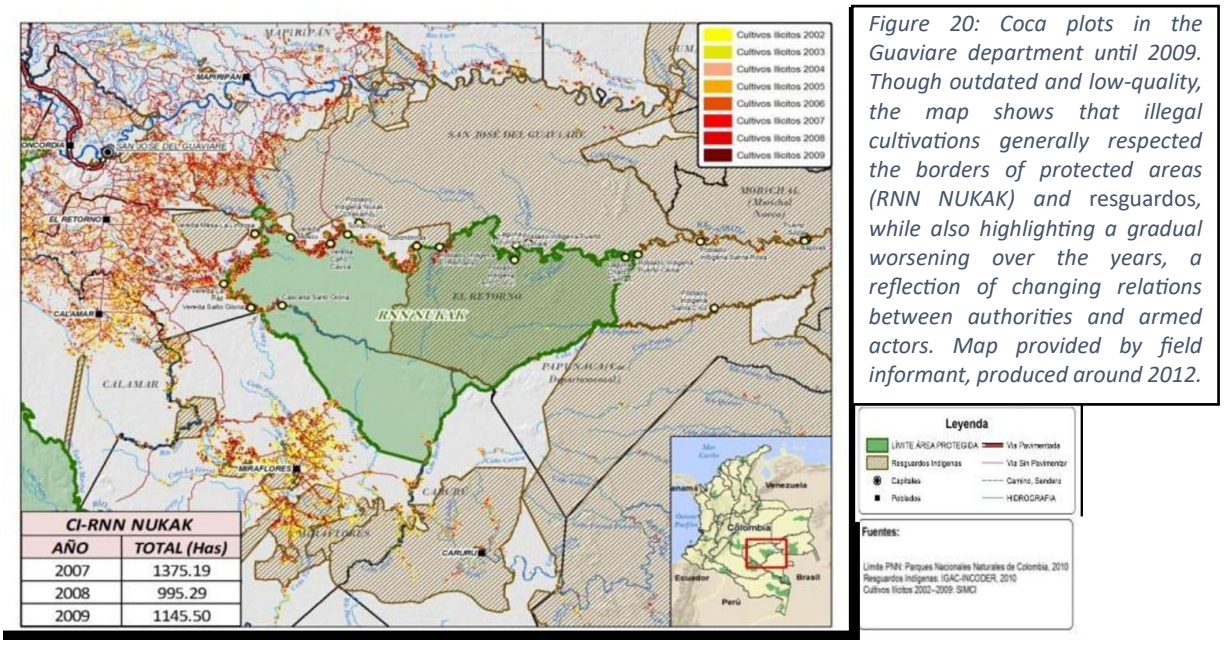
This is particularly concerning when considering, although projects may be national in scope, the global offsetting paradigm rests on a UN-vetted programme. It could thus be concluded that UN-labelled mitigation projects may be indirectly funding illegal armed actors. What is more, the volume of potential revenue from carbon forestry projects is not at all neglectable: in 2023, the Defensoría del Pueblo had also recorded an ostensibly welcoming attitude towards carbon offsetting by the Frente Primero group, presumably linked to high extortion expectations (Defensoría del Pueblo, 2024:126). Typically, the FARC charge both a fee for the right of passage through their territory and a sort of corporate income tax: “They say, okay, you want to enter this territory. What project are you carrying out? How much is it worth? And they establish a percentage fee” (Interview Sonia, 2024). The fee is not a random one left to the whims of local commanders, but usually established through more or less precise directives: “In the year 2000, the FARC passed two laws, 001 and 002. 001 was against corruption and 002 established a levy on anyone who had more than 1,000,000 dollars. In the case of carbon offsets, I would think law 002 applies. I would guess the rate to be 10%” (Interview Rodrigo, 2024), affirmed a former high-ranking FARC member. “That is why the state should intervene. First and foremost because, although the decisions may be informed, the communities do not have enough information to digest what it means to put a territory into it” (Interview Rodrigo, 2024). A former national park officer estimated that *vacuna* in this case would amount

to “at least 20% of project value” (Interview Augusto, 2024). An indigenous leader from a different department made a similar estimate: “Considering that coca leaf is declining, the EMC is going to resort to landowners. For example, if a *resguardo* is receiving 15 billion pesos [about 3.5 million euros] for a conservation project, the guerrillas arrive and say, you know what? If you are going to implement the project, give me 3 million pesos [about 0.7 million euros]” (Interview Marco, 2024).

Besides the size of payments, the issue also lies in whom exactly gets paid. The geography of FARC-EP dissident groups in the Colombian Amazon is a constantly changing jigsaw, as bloc leaders vie for supremacy of the different areas (CORE, 2024). While in the past protection payments were collected in the name of a counterinsurgent Marxist movement with a robust ideological platform and a strong popular basis, today’s *disidencias* look more like parasitic racket organisations:

> “The FARC is a Marxist-Leninist organisation [...] based on the principles of Leninist organisation: confidence in the political leadership, democratic centralism and internal democracy, collective leadership, individual responsibility, criticism and self-criticism. [...] When the peace agreement was signed in 2016, the ideological cadres of the FARC signed the agreement. And we, as the new generation of cadres, also signed it. So who was left? Boys and girls who did not have much knowledge, who had to start reading FARC documents and understand them in her own way” (Interview Rodrigo, 2024).

President Petro, a former guerrilla himself, distilled it with his poignant rhetoric: “No revolution can be made with cocaine. [...] They say they believe in Karl Marx, but I think who they believe in is Pablo Escobar, because he taught them what it was like to earn money through racketeering” (Espitia, 2025). According to most observers, FARC troop strength is seriously dwindling, at least in Guaviare: “It is estimated that the FARC never had more than 3,000 active members, and they could hold the country



CI-RNN NUKAK	
AÑO	TOTAL (Has)
2007	1375.19
2008	995.29
2009	1145.50

Figure 20: Coca plots in the Guaviare department until 2009. Though outdated and low-quality, the map shows that illegal cultivations generally respected the borders of protected areas (RNN NUKAK) and resguardos*, while also highlighting a gradual worsening over the years, a reflection of changing relations between authorities and armed actors. Map provided by field informant, produced around 2012.*

ransom. Now they have about 150-200 armed personnel in the whole of Guaviare. The rest are collaborators of different kinds, it is estimated that each of them has 10 informants" (Interview Augusto, 2024). While this further discredits them as an alternative force of government, it does not lessen – in fact, it reinforces – their need to visibly assert their monopoly of violence in the areas they lay claim to.

From the perspective of carbon project developers, the rationale for forking out these fees might be less for mere 'protection' and more of a strategic nature. Colombian developers know all too well that, as discussed above, deforestation (or the lack thereof) in the country has depended much more on the political economy of guerrilla-controlled territories than on pompous governmental environment policies or foreign development interventions. This is true also in Guaviare, where the FARC-EP generally refrained from exploiting protected areas and peasants from colonising them because that would have caught the attention of law enforcement agencies and, above all, complicated a later legalisation (although this changed in recent years, see previous sub-chapter). According to a former environmental official, "there were clear provisions by guerrilla leaders that indigenous communities had to be respected" (Interview Augusto, 2023; see also Fig. 20). A former guerrilla confirms: "I entered the territory under a guiding principle: indigenous territories are unseizable, imprescriptible and inalienable, and they are self-governed. The insurgency has to reach an agreement with indigenous people on how the territory is to be protected" (Interview Rodrigo, 2024). Developers also know that, for REDD+ projects to be validated, a decades-long conservation commitment is required, typically of not less than 30 years. While most of them would be hardly pressed to offer a credible conservation vision for such a long-term horizon (as argued above, this is one of the weakest points of the REDD+ paradigm), surely it is in their business interest that, in the foreseeable future, project areas remain relatively unscathed, lest their offsets lose all their economic value and the company loses its credibility. Their *vacuna* investment, then, might be interpreted to serve a double purpose: on the one hand, to move unhindered through guerrilla territory; on the other, to save the appearances, or – more concretely – the canopy of the project area long enough to persuade certifiers and end clients.

Moreover, reasserting the ability to successfully bargain with illegal actors, though of course constituting an admission of guilt, might in fact be in the interest of carbon developers. Understanding this requires, once again, a descent into the rabbit hole of carbon offsetting mechanisms: to begin with, it is worth reminding that offsetting projects need to be additional, which entails proving that without the project the desired effect (in the case of REDD+, avoided deforestation) would not happen. In other words, developers in the Amazon claim that, without their efforts, the forest would be cut down. If, however, a wilful government, be it through effective conservation policies or through a political agreement with guerrilla groups (which is what happened in Colombia, see above), proved able to curb deforestation, how could developers possibly vow for the additionality of their voluntary offsetting projects? How could they prove that they are not simply 'cashing in' on government action? In this sense, developers have more to gain from proving able to wrangle their way through guerrilla politics than from seeing their alleged goal

(forest conservation) achieved. Further proof that carbon offsetting "must always fail *to a certain extent*" (Leonardi, 2017:79). As mentioned above, some informants went beyond this by suggesting that even the start-up capital for some forest-carbon projects might consist of laundered money from guerrilla-run drug trade. "Carbon forestry requires significant upfront investments, which none of our institutions or community organisations can afford. [...] Certain organisations take advantage of this weakness, do all the management and gain access to the territory, but there is no clarity about the economic resources involved" (Interview Julio, 2024).

Ultimately, then, as contentious as it might be, in Colombia guerrilla groups are environmental actors, and have been for a long time. They have been reining in deforestation, at times unleashing it, and are now acting – almost literally – as gatekeepers for carbon projects. So deep are they entwined in forest processes, and so effective have they been at preserving the forest when they needed it, that some environmental officials would consider officialising the FARC's environmental stewardship in the name of *Realpolitik*:

> "How can we guarantee that nobody else engages in deforestation? I think we need either the presence of the state to be felt, army and all, or a different strategy that I have been proposing, which sounds crazy. [...] The state should legalise the *vacuna*, that is, establish a nation-wide tax paid by all citizens, 10,000 pesos, 50,000 pesos each, I do not know how much it should be. Now we are doing it illegally because everyone is paying on the sly. [...] We could use the tax and turn them into forest stewards. It sounds funny but we have to do it, or we will simply continue to pay on the sly" (Interview Samuel, 2024).

While the idea might not be as outlandish as it sounds, its implementation would presumably come across massive obstacles, first and foremost regarding land tenure: recognising guerrilla groups as environmental authorities in the areas under their control would effectively mean legitimising their authority over state-owned, indigenous-owned land, in addition to some privately-owned plots. Not only would this amount to dispossession, but it would add one more node in the carbon credit commodity chain (see offset commodity chain in chapter 3.2) thereby taking a toll on what should be under the autonomous administration of indigenous communities. Furthermore, corporate buyers could be expected to be reluctant to purchasing "FARC-certified" offsets, given the reputational risks attached. As things stand, carbon actors are quite open – off the record – about paying *vacuna*. The indigenous community, who is supposedly not only the landowner, but also the project owner, has hardly any control over this. Which, as the next few sections will show, is merely the tip of the iceberg of the machinations taking place at the expense of indigenous communities around REDD+ projects.

This chapter has explored Colombia's socio-natural history and its extractivist legacy, presenting various arguments regarding the implications of mitigation policies, including the awkward involvement of guerrilla groups and the self-perpetuating dynamics of carbon forestry and deforestation frontiers. The next chapter further narrows the focus to a specific REDD+ project.

5. CASE STUDY: DEIYIABENA REDD+ NÜKAK BAKÁ

"For the West there are no other worlds, only unfinished fragments of itself"

(A. Gutiérrez)

This chapter dives deep into the empirical findings of this case study. The first sub-chapter explores the intersection of indigeneity and conservation in the Amazon and the troubled contemporary history of the Nükak people. The second sub-chapter looks closely at the REDD+ project itself and mobilises many of the concepts introduced in previous chapters (see particularly chapter 2) to articulate the political ecology of the project, illuminate its socio-environmental repercussions, and interpret the socio-environmental and epistemic processes that are at play below the surface of participative carbon forestry.

5.1. Guests of space: A history of the Nükak people

Indigeneity and indigenous conservation in the Colombian Amazon

Colombia is among the most biodiverse countries in the world (Ministerio de Ambiente y Desarrollo Sostenible, 2025b). This is, of course, not by chance, and is partly the product of its socio-environmental history. An old but enduring misconception among Western conservationists and the general population describes biomes such as the Amazon with attributes such as 'pristine' and 'untouched'. In fact, the Amazon rainforest is "a dynamic anthropic formation, not a virgin, natural one" (Roosevelt, 2013:70), especially along its waterways (Levis et al., 2017). Although recent research highlighted the risk of overstating the importance of indigenous forest stewardship (Fernández-Llamazares et al., 2024), it can be safely said that traditional modes of social production and reproduction of Amazonian indigenous populations are not only sustainable[67], but indeed reduce forest disturbances and promote biodiversity (Blackman and Veit, 2018; Garnett et al., 2018; Fa et al., 2020; Flores et al., 2024; Pietracci, 2025). As indigenous peoples shaped the Amazon rainforest as we know it today, the rainforest shaped them in a mutual process of co-production (see also chapter 2). Differently from the Western thought, based on constitutive dualisms such as nature/society or human/non-human, indigenous thought and its cosmogonies generally reflect an awareness of the inseparability, mutual interdependence, and even permeability of these domains. As Porto-Gonçalves (2012) notes, this wealth of knowledge "built largely in a relationship *with, rather than against*, nature [...] opens up prospects for

[67] A livelihood is sustainable when "it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base" (Scoones, 1998).

dialogue, especially at a time when the body of scientific and technological knowledge produced under the primacy of the *domination of nature* is being called into question" (p. 31). Not coincidentally, indigenous people "have become central to contemporary critical and governmental imaginaries as the West tries to cope with planetary crises" (Chandler and Reid, 2020:485).

Indigenous forest 'management' (for lack of a better term) is inextricably linked to indigenous conceptions of territory. Indigenous communities – in Latin America and elsewhere – hold a very broad conception of what the Western modernity understands as territory, nature, and landscape (see chapter 1)[68]. Although the topic is too extensive for a dissertation chapter to do it justice, by way of approximation it can be affirmed that indigenous peoples typically perceive themselves as enmeshed in a web of human and more-than-human relationships involving spiritual connections that go beyond the biological living/non-living divide (Schroeder and González, 2019). Territory is understood not through size, distance, and morphological features as much through the biotic, abiotic, and spiritual elements that make up the ecosystem a community is part of (Daes, 2000; Llaitul and Arrate, 2014). It can thus be argued that territory, in the sense of an empty 'slate' to be claimed and charted, does not exist in the ancestral indigenous worldview.



Figure 21: Conceptual map of Nükak territory, the product of a collaboration between a Colombian artist and a Nükak family. Source: Nomada-ediciones.com/mapa-ye-baka.

[68] For a problematisation of these concepts in Western academic literature, see for example Elden (2010) and Li (2014); on landscape, see Wylie (2007).

A similar conception applies to nature: in the indigenous worldview, nature and environment are not discrete entities separated from humans. Ironically though, as Radcliffe (2015) observes, "geography articles mentioning Indigenous peoples remain centred on discussions of environmental governance" (p. 6). The following explanation by a Colombian indigenous leader is revealing in this respect:

> "Each clan, each family has a specific name [...] It is like a fingerprint, it is unique. You have your own traditional name, for example, there are armadillo people, there are rooster people, there are tapir people, there are wind people. This code is what we call spirituality. [...] If we are water people, then we are water. If a river is affected, we are affected directly. It is different from when people say, I am an animalist. Animalists walk around with their little dog [...] and say 'I am an animalist'. But they do not have the code, the spirituality of that dog. They may have all the affection, all the love, but that person is not a dog. You ask them, are you an animalist? Yes. Do you think you are a dog? No, not at all. On the other hand, if you ask the indigenous person, you are armadillo people, do you think you are an armadillo? They answer: yes" (Interview Marco, 2024).

Of course, the interaction with their environment was not the only influence in the history of indigenous peoples, a historical watershed being marked by the arrival of European conquerors. Indigenous people died by the millions, entire civilizations collapsed and some communities sought refuge in the jungle and in nomadic practices despite having previously been sedentary cultivators (Scott, 2009; Mahecha, 2024). Among those who opted for (or were coerced into) co-existence with Europeans and their descendants, many were exploited in the innumerable extractive waves of the Americas. The labour and skills of Amazonian peoples came in useful especially during the rubber boom (see above), as well as for coca harvesting (*raspar*). World-system making and then state formation went hand in hand with restrictions on indigenous mobility, the expansion of extractive frontiers with the erosion of indigenous land. Since the conflict broke out, indigenous people have suffered its consequences like all Colombians, as scores were killed and many youths were more or less forcibly enlisted by guerrilla or paramilitary groups (IWGIA, 2025). In proportion, in fact, they often paid the heaviest toll: in 2023, for example, almost 19% of murdered social leaders across Colombia were indigenous, although indigenous people constitute only 3.85% of the national population (Restrepo and Galvis, 2023).

Despite all of the tragedies that befell them, Amazonian communities retained a deep connection to their ancestral lands. Though generally aware of the existence of 'alien' newcomers, some of them took the decision to avoid systematic contact and, as James C. Scott (2009) would have it, managed to flee the gaze of the urbanised state by remaining hidden in the rainforest, a region truncated by "eccentricity and asynchrony" from the history of Colombia proper (Palacio, 2007). The modern Western society named

these communities “uncontacted tribes”. This is the case of the Nükak people, the last traditionally nomadic people officially contacted in Colombia.

The pursuit of happiness: The history of the Nükak

“*Mucho se teje alrededor de los Nükak*” (“many webs are spun around the Nükak”; Interview Augusto, 2023). This quote by a former Colombian national park official is an effective way of summarising everything that revolves around the Nükak people, which this chapter shall endeavour to flesh out.

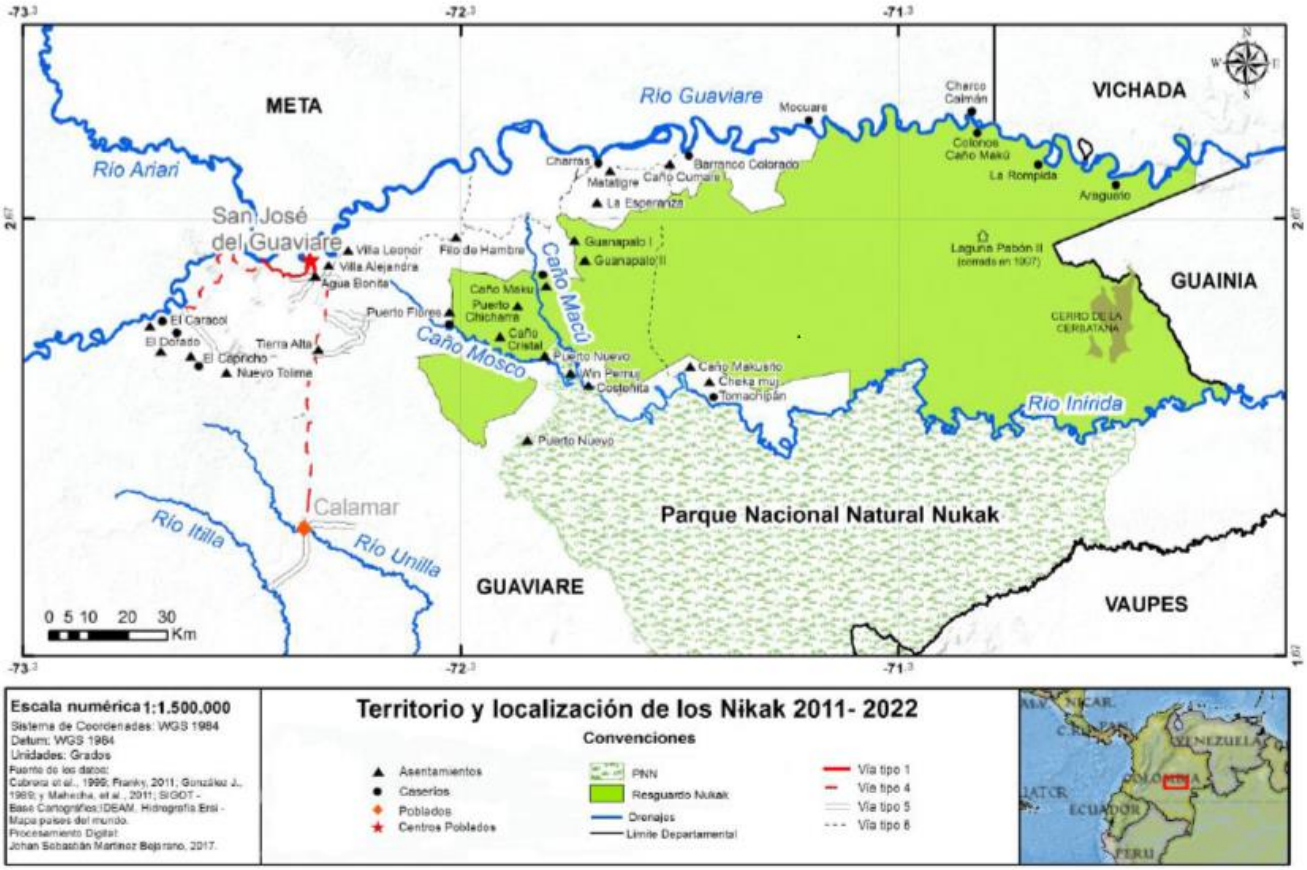


Figure 22: Nükak territory and settlement localisation from 2011-2022. Source: Mahecha (2024).

The Nükak are recognised as the last nomadic people in Colombia, the latest “uncontacted tribe”[69] to have been officially contacted in 1988. Their ancestral territory is mainly located in the northeastern part of the Guaviare department, in the interfluve between the Guaviare river and the Inírida river. Today, they are officially categorised as being at a stage of “initial contact” with the Colombian urbanised society (Franky, 2011; Mahecha, 2024). The Nükak are likely to be among the descendants of the diverse peoples who settled in the Amazon region since the Pleistocene (Morcote- Ríos et al., 2021). Their endonym is formed by *nük* (language) and *kak* (person), meaning that they self-identify as the

[69] Now more commonly referred to as in “voluntary isolation”, these communities are more numerous than typically assumed. Only in South America there are approximately 185 indigenous peoples in isolation, 66 confirmed and 119 to be confirmed (GTI PIACI, n.d.).

"people of the language", a language that is today classified as "Definitely endangered" (UNESCO, 2010). Unlike previously believed, recent research suggests that their ancestors, probably a motley group of various ethnic origins, sought isolation in the depths of the rainforest in the mid-seventeenth century, marking the beginning of a process of ethnic reconfiguration (Mahecha, 2024).

The first reported encounter between the Nükak and *colonos* (settler peasants) took place in 1965, when a Nükak group tried to establish peaceful relations at a recently-established settlement called Charras, on the banks of the River Guaviare. After a never fully clarified chain of events, this encounter ended up in a violent confrontation and the Nükak avoided any further contact until the late 1980s. Although frequent contacts were re-established since the early 1980s with missionaries from Misión Nuevas Tribus in the eastern part of what would become *Resguardo* Nükak and since the mid-1980s with peasants in the western part, it was only in 1988 that a group of Nükak, most of them sick with flu, appeared near the town of Calamar, leading to the official recognition as "uncontacted people" (Cabrera et al., 1999). From then onwards, the Nükak established frequent interactions with farmers, journalists, researchers, institutions and NGOs. Although government agencies, inspired by a precaution principle, tended to adopt an evasive attitude, the Nükak started to pick up the Spanish language and their haphazard process of integration in the majority society begun. The most tragic short-term result was the spread of viruses: in the first five years of contact, 38.43% of whole Nükak population died of flu, with unfathomable impacts on their social reproduction and knowledge transfer. A decade after this first official contact, the few Nükak left (less than 400, see Carvajal, 1999) showed signs of chronical malnourishment (a previously unknown disorder to them), had started to abandon their traditional rituals, and were undergoing gradual sedentarisation (Mahecha, 2024). One of the reasons was that some peasants saw on opportunity to take advantage of their physical strength and poor acquaintance with money and hired them as *raspachines* (coca pickers), sometimes paying them back with coca paste instead of an actual wage. An NGO worker recalled: "They have been working on what was available. They also helped down south towards Calamar in the rubber industry, and up here as well, but it was a very demanding work and they did not quite tolerate it. In the central part of the region there was *tigrilleo*, they also did that, but then coca came and it hit hard. Had people planted coffee here, that is what they would have done" (Interview Alejandra, 2024). Since the late 1990s, young Nükak who could speak some Spanish were even enlisted by the FARC-EP. A former FARC member, with a degree of cynicism, explained: "In eminently indigenous regions, the insurgency has to recruit indigenous people, otherwise the insurgency is bound to fail due to material shortage. But rules have to be established, the independence of these communities is to be respected. Communities need to understand that the insurgency in their territory is not there to bother them, but rather to help protect that territory. The FARC was very clear about that" (Interview Rodrigo, 2024).

In 1993, in a milestone that was going to prove both a blessing and a curse, the Nükak were awarded collective ownership over their ancestral land through the establishment of a *resguardo*[70] roughly comprised between rivers Guaviare and Inírida (see Fig. 4 and Fig. 22). As Anthias (2021) rightly points out, the conception of indigeneity as territorially bounded "is infused with colonial power; it effaces complex histories of territorial dispossession and struggle, and situates indigenous peoples in a 'savage slot', as 'boundary objects through which notions of the West, the nation, and nature are constituted'" (p. 269). In that conjuncture, however, the Colombian state did not struck observers as oblivious to this predicament: while other indigenous groups achieved analogous legal recognition, few received as much land as the Nükak in relation to population size. This can be partly attributed to their sustainable societal organisation, as the head of an environmental agency explains: "One of the criteria for formalising their tenure was its ecological function, manifested through their ancestral management" (Interview Julio, 2024).

This notwithstanding, the titled land started generating frictions and tensions since the beginning: "The *resguardo* was constituted as if they were already sedentary, but, since they are nomadic and semi-nomadic, they did not stay put in the *resguardo*, so peasants and others began to come in with livestock, cutting down the forest" (Interview Marco, 2024), an indigenous OPIAC member recalls. As the conflict was ongoing and territorial control was fluid, peasant settlers had no reason to comply with resolutions issued in Bogotá. Some claim complete unawareness:

> "Nobody said that there were indigenous people here. Those who knew, coexisted with them, but they never said that this was indigenous territory or anything of the sort. It became known that it was *Ley Segunda* land after the 2016 peace process. In 1989 they passed the Parks law, and nobody said that they had created national parks, nor regional parks or anything like that. They created indigenous *resguardos* and nobody told us, not even the indigenous people themselves knew they had a *resguardo*. [...] Only during the peace process did all these norms appear [...] and they began to criminalise peasants, they began to call us environmental terrorists. [...] At one point, a renowned environmentalist came here and mixed cattle deforestation, coca deforestation, peasant deforestation, he mixed it all up and threw the department into chaos" (Interview Gerardo, 2024).

According to ENGO workers, not all peasants were unaware of the presence of indigenous tribes or peacefully coexisting with them. One of these ENGO workers, possibly the "renowned environmentalist" the interviewee above referred to, recalled: "In 1996, I had the opportunity to

[70] See footnotes 38 and 57.

participate in a peccary hunting trip, whose purpose was to 'take the food away from those *indios*' so that they would go deeper into the forest" (Botero, 2025).

Owing – at least in part – to these considerations, the *resguardo* was expanded in 1997. Coming from a modern nation state, this was a particularly progressive decision: at a time when the Nükak population was dwindling, the guerrilla war was raging and extractive pressures over the Amazon were mounting, Colombian institutions, advised by anthropologists, acknowledged the peculiar needs of nomadic groups and the role of indigenous land tenure as a barrier to the expansion of the agricultural frontier. Despite the growing socio-environmental awareness, such a measure was not to be taken for granted: elsewhere in Latin America, indigenous territoriality was unceremoniously fragmented (see Anthias, 2021). As could be expected, the measured exacerbated the controversy with peasants. The expansion was not really an expansion as much as a reshaping, which took away on one side (acknowledging the *fait accompli* of *campesino* occupation) while giving (more) on the other. An ENGO worker explained: "The *resguardo* was constituted not only with them in mind, but also as a mechanism to protect an area of forest. There were already peasants in areas they were roaming and what they did was to compensate that in some way, [...] as if to say, here we give you one more area because you cannot have what is already titled, occupied, fragmented by peasants" (Interview Alejandra, 2024). Indeed, peasant presence in Nükak territory had been intensifying since the 1970s, as the fledgling coca trade, with the FARC-EP in the foreground, required the establishment of agrarian colonies (Mahecha, 2024).

In an Institutional *coup de théâtre*, the Colombian Institute for the Agrarian Reform (INCORA, since 2015 replaced by the ANT) officialised the *resguardo* expansion on the same day as it established the partially overlapping Peasant Reserve Zone of Guaviare, thereby generating an obvious *traslape* (overlap, another mantra of Colombian rural politics) and heaps of potential double-titling conflicts. A peasant recalled: "We were seeking to obtain a peasant reserve zone on state-owned territory. Curiously enough, on the same day, INCORA also expanded the Nükak *resguardo*, overlapping with several existing peasant settlements. [...] They never told us about the expansion and about the overlap. They disregarded the work we did for all those years, and suddenly we were the bad guys" (Interview Gerardo, 2024). Another peasant echoes these recriminations: "If when they approved the expansion there were already peasants in that area, why did they not consider that? [...] That law was the death of those peasants" (Interview Ferney, 2024). Almost 30 years later, a degree of uncertainty remains as to the exact borders of the *resguardo*, as different institutions present different cartographies (see Fig. 4 and Fig. 23) and NGOs are divided between those who seek to uphold indigenous rights and those that take the side of peasants. According to a local official, "today there are 800-1,000 families there and it is a mess. Some got in knowing that it was a *resguardo*, others were already there and the state extended the *resguardo* without taking them into account" (Interview Samuel, 2024). According to a different official, peasant families in the Nükak *resguardo* are approximately 200. Whichever the correct number, the problem stands: "How can we possibly relocate the whole *vereda*?" (Interview Catarina, 2024). More relevantly to our purposes, if a

peasant settlement is within the *resguardo* or not makes all the difference for the credibility of REDD-related conservation claims.

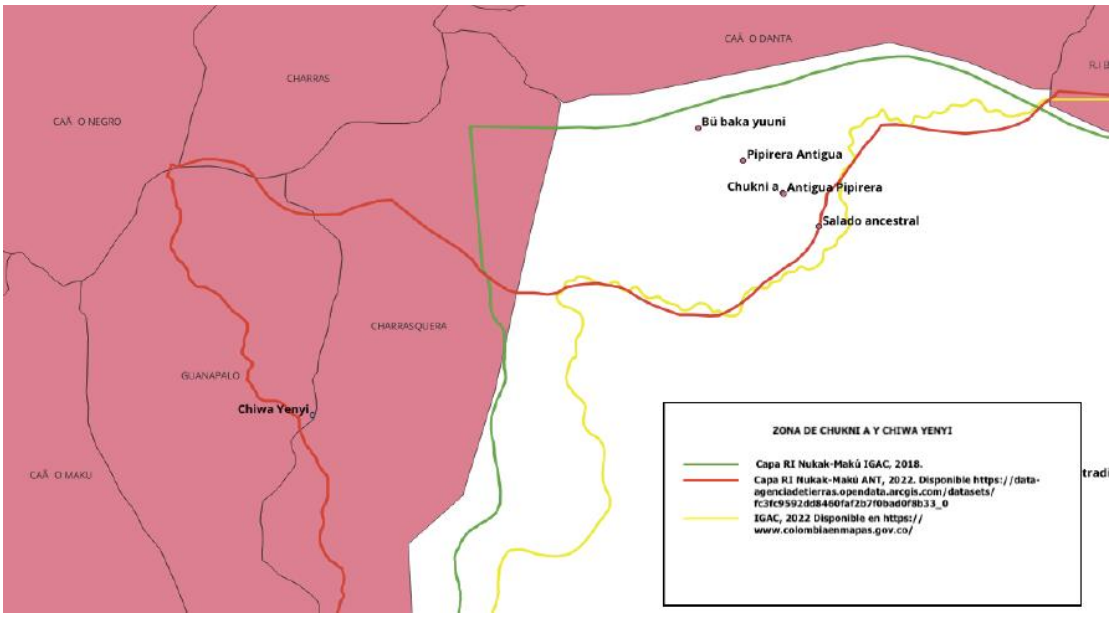


Figure 23: Different cartographic records were produced at different stages by different institutions (in this case the Codazzi Geographic Institute and the ANT). Peasant settlements (with a strong FARC presence) like Guanapalo and Charrasquera were caught in this uncertainty, with significant repercussions on peasant livelihood and Nükak's land tenure security. Source: Peña (2022).

Beyond the nuances of historical agrarian processes in Guaviare, in the view of many peasants and ANT officers, who tend to be sympathetic to *campesinos*, the *resguardo* was too large since its inception. The reflection of an ANT official is enlightening in this respect:

> "The problem with *resguardos* in general, not only in Guaviare, is that [indigenous people] think that they can freely roam the territory. But since they were given so much, too much really, they cannot be policing 100% of their territory. [...] A calculation should have been made. If there are 10 families, then at least enough for each family to live on. [...] If one hectare per family is not enough, let us give them 20, that would have meant 200 hectares. In fact, [the Nükak] were given 500,000. They cannot possibly control them. The state should have titled them according to their capacity, like they do with the peasant community councils. [...] The *resguardo* is private, that is to say, just as I give peasants a plot and expect them to fence it so that nobody gets in, [...] then the indigenous community also has to demarcate its *resguardo*". As for encroaching peasants, "it is not that settlers enter the territory, it is because indigenous people allow settler peasants to enter. If they did not allow it, they would not enter. [...] If you do not want people to get into your house, you fence it or close the door" (Interview Catarina, 2024).

The logic by which "either you enclose land or someone else will" (be it encroaching *campesinos* or – metaphorically – carbon developers) is an unapologetically colonial one, predicated on Western colonial conceptions of territory and property that characterised the modern extractive history of Colombia (see also chapter 4.2). Indeed, it eerily resonates with the infamous claims of an Israeli settler in the West Bank caught on camera in a viral 2021 video: "If I don't steal your home, someone else will steal it" (Al Jazeera, 2021).

Given its peasant base, the FARC-EP tend to be *campesinistas*. To some of them, this whole vicissitude was nothing short of a neocolonial conspiracy: "If one were to investigate further, the corruption of state bodies would be exposed. Everyone could have noticed that there were five villages inside [the *resguardo* expansion area], still they went ahead and expanded it" (Interview Rodrigo, 2024). In this view, the conspiracy has come a long way, carbon forestry being only its latest stage:

> "The government expanded the *resguardo* and then a company comes along and says, 'I am going to pay the indigenous people for environmental services for all those hectares they have'. It was a state policy. If one were to investigate thoroughly, one would find that Iván Duque is in on it, his ministers are in on it, and they should go to jail because this is a form of state-sanctioned slavery. And that is very serious for a society like the Colombian society, also because the Nükak are very vulnerable and that generated conflicts" (Interview Rodrigo, 2024).

Surrounded by extractive frontiers and strategic to armed groups and illicit economies, the Nükak *resguardo* has been susceptible to forced displacement and encroachment by outsiders. The plight of the Nükak reached its acme when the territorial dispute between the AUC (*Autodefensas Unidas de Colombia*) paramilitary group and the FARC-EP over the middle course of river Guaviare, which had already caused massacres in the late 1990s, came to a head in 2002 in the villages of Puerto Ospina and Charrasquera. Indigenous peoples in the region, mostly Nükak and Hiw, were forcibly displaced and sought refuge in San José and other urban centres. To date, despite several valuable attempts, some degree of opacity remains as to the funding streams, military methods, and political agenda of the AUC, both on a national and on a local level (Comisión de la Verdad, 2022c; Escobar Moreno, 2024). In Guaviare, it is now common knowledge that high-ranking political officials were in cahoots with AUC leaders:

> "The whole truth has not been told [about paramilitary action in Guaviare]. Who were the politicians in charge in 1997, and in the years before and after that, who allowed and encouraged the entry of these armed groups that devastated not only the indigenous

> people, but also the peasant population?[71] The paramilitary project was at an early stage. They terrorised, tortured, made people disappear, but there was an economic project behind that, taking control of the land, and you can still see it today" (Interview Juan Camilo, 2024).

In a more laconic statement, a Nükak man who lived through that period affirmed: "Guerrilla and *paracos* [paramilitaries] do not ask, they come and kill" (Interview Leandro, 2024). From 2002 to 2006, dozens of Nükak families reached San José in different waves of displacement (Mahecha and Franky, 2013), but cultural and bureaucratic hurdles prevented them from officially being recognised as victims of the conflict. Only recently have the Nükak been making progress in the so-called "integral reparation", involving monetary compensation and other forms of assistance (Unidad para las Víctimas, 2024). An official from a government agency explained:

> "All Nükak were displaced[72]. In cases of displacement, information had to be provided such as what, how, when etc. [but] 80% of the Nükak are not included in the RUV [centralised victims registry]. This is terrible, because only those who are included in the registry have access to the associated benefits [...] When the Nükak began to arrive in San José, they settled by the stadium or at the central park, and locals went into shock. They went to get grocery, sought a place for the Nükak to stay, established committees, made appointments and so on. Eventually what they did was giving them grocery and assuming that the issue was settled, but the Nükak never declared [their status as victims]. Some did, most did not" (Interview Cristina, 2024).

The fast degeneration of the situation, and subsequent institutional failures, gave way to a vicious circle of vulnerability the Nükak are still mired in. While some groups have managed to return to their territory, or at least live at its margins and occasionally access it for hunting and gathering rounds, many are still living in makeshift camps in the outskirts of San José in extremely dire conditions (Unidad para las Víctimas, 2024). Dany Mahecha (2024), one of the very first scholars to have carried out 'embedded' research with the Nükak and to date one of the most trusted by Nükak elders, effectively resumes the current circumstances as follows: "The Nükak today face complex changes in their way of life due to the consequences of dependence on humanitarian aid, disputes with the settler population over the use of forest resources and land ownership, criminal behaviour by children and youth, begging, psychoactive substance use, and increasing cases of sexual abuse and prostitution" (Mahecha, 2024:46; see also

[71] The reference here is to former right-wing departmental governor Nebio Echeverry. See also Escobar Moreno (2024).
[72] According to some sources, only 35% were forcibly displaced (Mahecha and Franky, 2013). Other sources claim 80% of the Nükak population live outside of their *resguardo* (Mongabay, 2022).

Resguardo Nɨ̈kak Baká, 2024a). Though affecting all Nükak settlements, these challenges are more severe among the displaced groups. A Nükak leader affirmed: "We need to go back to our land. If we stay near the town, we will perish. Our young people are consuming things that do not belong among us" (Interview Jerónimo, 2024). A Nükak woman living in the outskirts of San José del Guaviare voiced similar concerns: "Our men get drunk a lot. We drink too, but they drink a lot in the town" (Interview Sara, 2024). Nükak living far from the town, on the edge of the forest, have a slightly different view: "We like both the town and the settlement. We like to come and go, perhaps spending a week in the town and coming back" (Conversation at Charrasquera settlement, 2024).

Within the galaxy of institutional and non-governmental organisations that (to different degrees) provide assistance to the Nükak, not all are moved by noble reasons: "Some years ago there was a guy who ran thousands of projects. He worked for the Ministry of the Interior, for the Ministry of Culture, for all the ministries, he had three, four, five contracts at the same time and did not get shit done, he was not even there" (Interview Cristina, 2024). The issue of prostitution is a paradigmatic example of how Nükak problems are often approached through a patriarchal, neocolonial lens:

> "During a meeting, the governor said 'we have to talk to the families and the girls because they rape them and so on... I said 'Forgive me governor, [...] if there are no clients there is no prostitution, as simple as that. [...] I have never seen them prostitute themselves in the street. The hotels [where they prostitute themselves] are connected with people close to politics, to business, that we do not want to touch'. Of course they kept quiet, but on top of that he said appalling things. At one point he said something like 'many of us can be victims: indigenous people, blacks, and *normal people*'" (Interview Cristina, 2024, italics added).

Having determined that dependence on humanitarian aid and vicinity to urban centres (with closely related risks such as alcohol and prostitution) are detrimental to the social health and cohesion of the Nükak, over the years government agencies and NGOs, also pursuant to court rulings (Mahecha, 2024:435), have repeatedly initiated relocation programmes aimed at creating the conditions for at least some groups to go back to living in their own territory, not necessarily to a fully nomadic lifestyle but at least to a higher level of self-sufficiency. After an attempt in 2006 failed spectacularly[73], more recent attempts have been less dramatic, albeit hardly more successful. The main obstacles lie in the territorial

[73] In August 2006, some Nükak moved to Puerto Ospina, a peasant settlement near San José, in a process sponsored by local and national institutions. Shortly after, due to a number of cascading events and misunderstandings, social turmoil was unleashed among the Nükak, most of whom left Puerto Ospina, partly chased away by the FARC who do not tolerate upheaval in their territories (Mahecha and Franky, 2013). As Mao-be, the then Nükak leader, committed suicide, the issue made headlines worldwide (Schulz, 2007), institutions ran away fearing reputational damage and the idea of organised relocation lost traction (events partly reconstructed through personal communications).

authority of FARC *disidencias*, who may arbitrarily revoke access permits, and in the reluctance of some peasant settlers to adapt to the mobility of Nükak groups, especially the youth who have been getting accustomed to the perks (and vices) of urbanised settings. "What we want? To live happily, perhaps to buy a small plot of land. But the FARC prevent everyone from selling land to the Nükak" (Interview Sara, 2024), a Nükak woman begrudgingly affirmed.

The Nükak social organisation, cosmogony, and environmental 'governance'

The Nükak do not measure the well-being of their society through GDP or economic wealth, but primarily in terms of happiness. When things go wrong, they are caught by a very deep feeling of sadness, comparable to what the Western society denominates depression. A non-Nükak interviewee explained:

> "They call it *watakañeru*. Their heart suffers as they see their people dying and they cannot do anything about it. And they cannot exercise their culture because their culture is the forest. If the forest does not exist, the Nükak do not exist, it is as simple as that. Because they are while they are 'jungling'[74]. Jungling is wondering, spotting animals, catching fish, bathing in the river, recognising plants, talking to the birds" (Interview Sonia, 2024).

At times, *watakañeru* is so deep that, combined with their botanic knowledge, it brings them to commit suicide by ingesting curare, a poison derived from the *Chondrodendron tomentosum* liana. A Nükak female leader sombrely related: "Our men are unhappy, many have killed themselves" (Interview Sara, 2024).

As laid out above, indigenous people tend to have a very intimate relationship with what Western thought categorises as 'nature', as they perceive themselves to be internal to nature and do not see it as a repertoire of resources at the disposal of humans. This is particularly true for the Nükak, considering their ongoing transition from a fully nomadic lifestyle to a still muddled integration into the Colombian national society. Their relationship with the biotic environment of their *resguardo* is particularly relevant when it comes to carbon forestry projects like the one analysed later in this chapter. A key notion, in this regard, is forest dependency, or "the level to which residents rely on forest products and functions to fulfil their subsistence and commercial needs" (Thanichanon et al., 2013:1288). As discussed above, when it comes to indigenous communities the concept of forest dependency should be better understood as a mutual relationship by which communities depend on the forest almost as much as the forest ecosystem depends on forest communities, especially nomadic ones: "The Nükak depend on the forest. Their

[74] This concept, rendered in Spanish as *selvar*, is expressed in Nükak as *yê'náu'chañʉat*, literally 'wandering and talking in the forest' (Resguardo Nʉkak Baká, 2024b). In Nükak language, the verb *cha-ñɨ* (to live or to exist) is composed by *cha* (to be) and ñɨ (to move, to wander), which means that to exist for the Nükak is to be wandering (see also Mahecha, 2024).

mobility depends on the health of the forest and the forest in turn depends on them being able to practice seasonal rotations so that it does not deteriorate in terms of number and diversity of species" (Interview Alejandra, 2024). According to Cabrera et al. (1999) and Mahecha (2024), Nükak forest management includes the following: a broad-spectrum diet composed of at least 120 plant species (23 of which cultivated), 16 mammals, about 10 birds, 40 fish, and 70 insects, as well as batrachians, reptiles, and crustaceans; the generation of anthropogenic forests both as a source of food and raw materials and as an attraction for prey; selective tree felling (also for larvae breeding); diverse orchards created through fallow management. Inherent to nomadic practices is the need for groups to be limited in number, which makes their forest use patterns fully sustainable: "There are not many of them, and on top of that they have seasonal migration patterns. They have no way of harming [the forest]. They have mechanisms by which they get to a place, stay there for a while[75], set up a gathering round, [...] and seed self-regenerating anthropic orchards. After a while they come back, the forest is there and there is food for them. It is a way of cultivating the forest, but it comes about through years of walking through an area" (Interview Alejandra, 2024). A social worker confirmed this view: "They do not come back to the same spot until one year later. It goes like this: we start here, we know that there is mango to collect, done. We go on and there is patawa [*Oenocarpus bataua*], done. And so forth. When they come back, the forest has already recovered" (Interview Sonia, 2024).

The interlocking factors of demography and 'mode of production', which dispel the notion of the Nükak as a threat to the forest, are going gradually lost with sedentarisation, as the Nükak are more and more accustomed to processed food and numerous families. Additionally, machetes and similar tools, which they have now known for decades, sometimes allow them to spare the effort of climbing trees, an activity they are extremely well-versed in. According to a peasant, "if they see a patawa palm, they do not climb up to take collect the fruits, they just fell it. If they see a tree with bee honey, or açaí, if they have to knock down the tree, they just do it. They also hunt birds a lot. [...] Down Caño Mosco there are areas where one cannot spot a patawa palm for miles, if at all small ones growing. Most of them are down. They too destroy the environment" (Interview Gerardo, 2024). This behaviour, as witnessed by the author, is not as generalised as some peasants might want external observers to believe. Environmental authorities in Guaviare uphold this view: "We do not consider Nükak presence among deforestation drivers. Indigenous communities continue their ancestral, cyclical forest management practices, but we have not detected any deforestation activities on their part. What we have detected is the encroachment of peasant settlers into *resguardos*" (Interview Julio, 2024). According to a carbon project developer, Nükak forest uses impact 0.5% of the territory, therefore causing no regression in forest cover trends. Sometimes, they have an ecological function. For instance, one of the delicacies of Nükak diet is *mojojoy*, a weevil larva they extract from the bark of certain palm trees: "People see that a tree has been felled, but the Nükak know that that

[75] Traditionally, the average permanence time of Nükak settlements was of about one week. These patters have been changing due to sedentarisation and other reasons (Mahecha, 2024).

palm is already damaged and that is why there are *mojojoy* inside, it is rotting in the inside. We just do not know how the forest works" (Interview Sonia, 2024). The claim that the Nükak would massively cull palm trees is highly doubtful also in light of the fact that their relationship with trees is not merely a utilitarian one. One example being the cumare palm [*Astrocaryum chambira*], which Nükak women traditionally employ for all kinds of practical and decorative accessories: "Since people have no idea how the Nükak exploit the cumare palm, sometimes hectares of cumare are burnt down. [...] When Nükak women see that, they cry and hug and sing, it is as if a piece of their heart was being torn out of them. To them, it is everything: their land, their home, their food, their life" (Interview Sonia, 2024). This is hardly surprising if one considers that the Nükak's intimacy with plants is so deep that they can recognise individual trees among millions. One botanist interviewed was awestruck when, as she showed a Nükak girl a photo of a cumare palm, the little girl not only recognised the species, but identified it as a particular palm tree situated in a specific geographical location.



Figure 24: A representation of the Nükak cosmovision. Source: GIZ Colombia (2018).

The Nükak's relation to the environment (or rather, what the Western gaze considers 'the environment') is strictly related to their social organisation and forms of social and material reproduction, which, in turn, are strictly related to their cosmogony[76]. The Nükak believe the universe is divided into three levels: humans live in the *y*ê, which also means forest[77]. Underneath is *bak*, the underworld, which is not comparable to hell in the Abrahamitic religions but is rather the place all humans came from, accessing

[76] For reasons of space and relevance, the cultural, linguistic, and spiritual aspects of the Nükak can be outlined only in broad strokes here. For an exhaustive account, see Mahecha (2024) in Spanish and related English publications.
[77] This is clearly no coincidental homonymy: to the Nükak, as this chapter elucidates, the forest has always coincided with the known world. Curiously, also in the native Athshean language imagined by Ursula Le Guin (1972) in "The Word for World Is Forest", the word for "forest" is also used to identify the world.

the *yê* through a whole in the ground pierced by the mythical woman Machoroko with her anteater claws. Up above is *jea*, inhabited by people and spirits who run a similar life to their earthly peers. Each person has three spirits: after death, two of them leave the earthily body for *jea* and *bak* respectively, whereas one, *takueyi*, is a kind of guardian angel or spirit guide. Nükak shamans may have several *takueyi*, who are also associated to the inhalation of a consciousness-altering substance called *eoro*. Worldly human beings are divided between Nükak and non-Nükak, called *kawene*. Among non-human beings of this world, some animals are seen as agnates, others as affines, as certain species (especially tapirs, deer, tigers) are believed to contain the spirit of deceased relatives or ancestors who returned to the *bak*, and sometimes roam the forest in search for food. The Nükak also believe that, when seeds are spread in one level, they fertilise the level beneath (Franky, 2011; Mahecha, 2024).

This vision of fluid, intertwined living and non-living entities, in which the forest ecosystem appears as an intricated web of relations and reciprocities rather than a mere background for human activities, helps elucidate the ontological distance between the Nükak worldview and the rationalist Cartesian one the Colombian national society has largely adopted, and explains why the singularisation of a whole forest as a carbon stock sits uncomfortably with the spiritual and material meanings the Nükak attach to it.

In terms of socio-spatial organisation, Nükak communities are based on patrilineal kinship relationships that give rise to regional, local, and family (or domestic) groups. Family groups are formed when a man and a woman enter into a marital union and establish their own fireplace around which they sleep, eat, manufacture utensils, and carry out all daily activities associated with social life. Various family groups living in the same settlement form a local group, the core unit of Nükak social and cultural reproduction, made up of 30-60 people who typically move together (although individuals or sub-groups can break apart for many reasons). The largest social unit is represented by regional groups, linguistically categorised through the word *muno* (people). Most researchers identify two main non-endogamic regional groups, corresponding to the two main rivers that constitute the natural boundaries of Nükak mobility, the Guaviare and the Inírida. The former are identified as *Wayari muno*, the latter as *Mipa muno* (Franky, 2011; Mahecha, 2024).

Of course, the Nükak society is not devoid of social conflict, which can become quite violent. According to one volunteer working with the Nükak, one particularly thorny problem is social envy: “They really suffer from envy. […] They cannot tolerate seeing others thrive. If one does better than the other, it is a problem” (Interview Sonia, 2024). What this interviewee might be referring to is the Nükak’s keen sense of equality: during hunting and gathering rounds, as the author witnessed first-hand, while they cooperate to find food and resources, each family group works hard to collect as much food as possible in their own plant-made baskets (now sometimes replaced by plastic jars) and does not share much with other family groups. What on the surface might seem like a social ill, however, could also be interpreted, in the tradition of Marxist-leaning anthropology (Mintz, 1985; Mauss, 2002), as a deeply-rooted social strategy against accumulation. At any rate, the Nükak have traditionally adopted an ‘atomistic’ strategy

for overcoming conflict: “They solve things by fission, they split, time goes by and eventually things are fixed. If I am living in a group and I made a mistake, I leave for a few months. After a while, my fault is forgotten and I can come back” (Interview Cristina, 2024). This strategy, viable when the Nükak could freely roam the forest and tap into its bountiful resources, is struggling to stand the test of territorial and cultural loss. As Mahecha (2024) notes, “the conditions have changed and external pressures leave them little choice [other than integrating into the national society]. But the way they have done so also reveals that they wish to learn to live with the *kawene* by taking as their point of reference the population of our society that is closest to them: peasants” (p. 49).

A milestone in the history of Nükak social organisation was set in 2017, when the “Mauro Muno” council of traditional authorities was formed as a result of confusing parallel processes conducted by different organisations (Mahecha, 2024:48). The council is composed by eleven elders, one legal representative and four advisors on specific topics such as women affairs or healthcare, as well as a translator. Since then, the Nükak also have an elected legal representative who is entitled – as far as the Colombian legal system is concerned – to sign documents in the name of the whole community. This milestone was not the spontaneous product of endogenous stimuli and, as will be further detailed in the next sub-chapter, has not proved to be beneficial on all accounts. Although the Nükak perceive themselves as what – in Western terms – can be defined as an ethnic group, clearly distinguishable from ‘whites’ and other indigenous groups, their social formation has never contemplated hierarchical structures (except within family groups, which tend to be patriarchal), nor the idea of elected representatives. While elders tend to be more authoritative than younger community members (this too is changing, as young Nükak’s mastery of the Spanish language and of Western technologies grants them considerable technocratic leverage, see Mahecha, 2024), no single person or group can speak for all, nor commit other people’s work or resources for whatever cause.

> “Mauro Muno was set up in response to a need for normalisation of the mechanisms of interaction with the state. Their organisational structure, which is more like a federation, established by families that have common rules but a large degree of independence, is associated with the reality of their territory, not with that of the centralist, monotheistic Colombian state, with its head sitting in Bogota, which is also quite far away. […] It is not true, as people say, that they have no organisational structure. They do have it, and a clearly defined one, suited to their own traditional needs and purposes” (Interview Alejandra, 2024).

In this sense, Mauro Muno was constituted based on the need of Colombian institutions to deal with the Nükak through the established procedures of a modern liberal democracy, not on the needs of Nükak themselves, although at least some of the parties involved believe this political ‘interpolation’ to

be the least harmful method to temper the inevitable frictions deriving from the integration into the national society. It is, in a way, a process of cultural and political translation in the Gramscian sense (Boothman, 2019): “If I cannot speak Spanish and I need another person to talk to you because that is the only way for me to convey my needs, then I have my representation in him, as I do not have a direct way to dialogue with you. That is what Mauro Muno is, a translator of people's needs towards the state” (Interview Alejandra, 2024).

Whatever the intentions may have been, it appears that this institutionalisation process has brought about a problematic dynamic of hierarchisation revolving around the figure of the Nükak legal representative. While the representative is supposedly elected in broad-based assemblies, one cannot but wonder how fair such election can be deemed to be in an ethnic group whose political toolbox does not feature political elections as understood in a modern liberal state, and whose members are often not familiar with the processes the elected representative will be called upon to deliberate on, the most egregious example being carbon offsetting. “The legal representative has administrative purposes, not decision-making powers. If something, for example an education project, is to be carried out, it should be agreed with the council of traditional authorities and not only with the representative. But that is how it actually works, because the state has allowed that” (Interview Cristina, 2024).

It is in this conjuncture, fraught with both potential and raging social conflict, compounded by looming environmental disaster, that carbon offsetting suddenly barged in.

5.2. The Deiyiabena REDD+ Nükak Baká project

Having outlined the socio-environmental backdrop the Nükak REDD+ project unfolds against, this sub-chapter dives deep into the political ecology of the project, its rationale, development, narratives, and impacts. As all carbon forestry initiatives require the spectre of deforestation for their mitigation narrative to hold water, before introducing the actors involved a section is devoted to deforestation trends and drivers in the Guaviare department and, more specifically, in the *resguardo* covered by the project.

Carbon on a silver platter: Deforestation in Guaviare

“I would recommend you urgently turn your gaze to Guaviare, because your water will soon be over” (Laverde, 2021). This stark warning addressed by an Amazonian environmentalist to fellow Colombians from the highlands, referring to the ecosystemic function of the Amazon rainforest in the humidification of the Colombian cordilleras, draws attention to one of the main deforestation hotspots of Colombia, bearing direct repercussions on the whole country and especially on its capital Bogotá, which was hit by a severe drought spell in early 2024 (Serrano and Villalba, 2025).

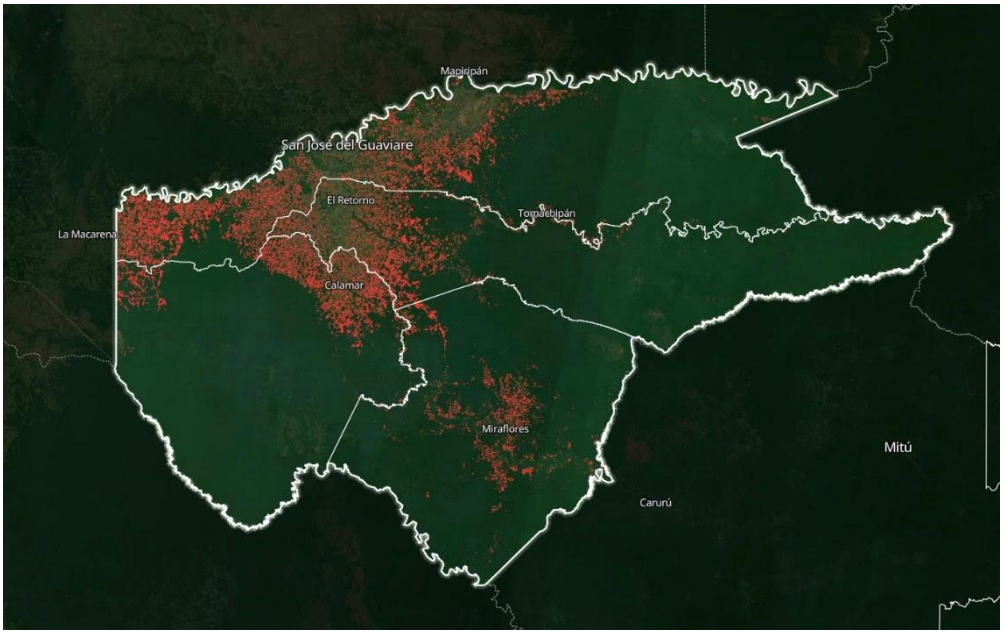


Figure 25: Accumulated deforestation (red highlighted) in Guaviare between 1985 and 2024. Source: Mapbiomas (2024).

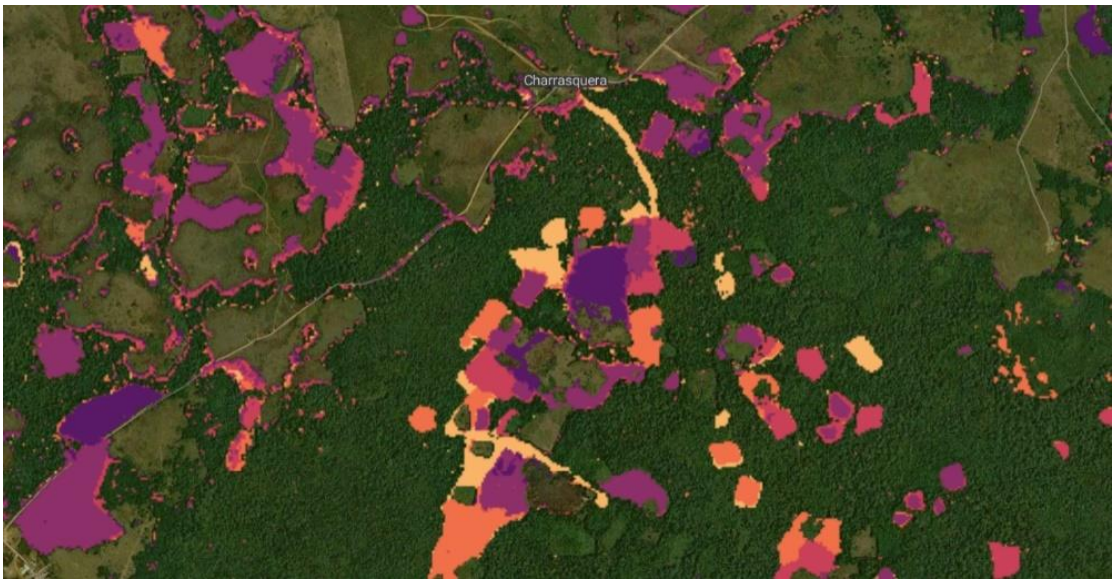


Figure 26: Detail of recent deforestation in the Nükak resguardo *(area of Charrasquera) between 2021 (purple patches), 2022 (red), and 2023 (yellow). Source: CTrees (n.d.).*



Figure 27: Coca plots within the Nükak resguardo *in 2020. Source: FCDS (n.d.).*

The department of Guaviare, situated at the ecotone between grassland plains (*llanos*) and a tropical, semideciduous rainforest, has been one of Colombia's most unrelenting deforestation frontiers for several decades, with an alarming increase in the years following the signing of the 2016 peace agreement (see above). It is estimated that, between 2001 y 2023, Guaviare lost 442,577 hectares of rainforest, covering 7.97% of its territory (Cotes-Ontibón and Uribe, 2024), or 319,000 hectares of humid primary forest, amounting to 6.5% of its total humid primary forest cover, according to a different estimate (Global Forest Watch, n.d.). In only two years after the signing of the peace agreement, between 2016 and 2018, 72,000 hectares of forest were wiped away (Barbosa, 2023). "There is no other part [of Colombia], not Catatumbo, not the Pacific, not the Magdalena [valley], where more than half a million hectares have been lost in five years. There is no other part of the country where national parks are being lost at the current rate, there is no other part where indigenous *resguardos* are being affected as seriously as they are in the Amazon" (Parques Como Vamos, 2024), explained a leading environmentalist.

Deforestation drivers in Guaviare mirror the patterns observed in the rest of the Amazon: "It has been established that deforestation in the *resguardo* is for coca, cattle farming and land grabbing per se, in order to later sell it. [The logic is] I grab it, take advantage of the land, and use it for coca or cattle ranching until they kick me out. Also, the *resguardo* is one of the few areas [of Guaviare] rich in precious timber. [...] This has been an additional source of extraction" (Interview Alejandra, 2024). These uses

should not be understood as alternative, but rather as complementary, at times even sequential. “The average cattle occupancy in Guaviare is 0.7 cow per hectare. This way, cattle farming can yield about 600.000 pesos [140 €] per hectare. Cultivated with *chontaduro*, one hectare would yield several millions. Why do they do that then? It is because they actually grow coca” (Interview Augusto, 2023). Historically, coca has been ‘pushing’ the deforestation frontier. Typically, coca bushes are cultivated in three different rotational patches (see Fig. 27). Then, once the forest is gone and the land is exhausted, the new land claimants, with a view to a potential future tenure legalisation, turn it into a long-term ‘asset’ through *potrerizaciòn* for cattle ranching. This is particularly true for Guaviare, whose clay soils are generally poor in nutrients and thus unsuitable for industrial agriculture (CONtexto ganadero, 2014).

As elsewhere in the country, large-scale agrarian processes are not driven by humble peasants. Local peasants interviewed in this respect estimated that deforesting one hectare of land in Guaviare, and preparing it for cattle ranching, can cost several hundred euros per hectare, excluding the purchase of calf and other expenses. While ordinary *campesinos* may be the ones doing the actual culling and toiling, the land-grabbing capital comes from higher up in the local and national socioeconomic ladder, namely – in fact, *unnamedly* – from the so-called “untouchables” (Pacheco, 2019), well-connected shadow landholders thriving on cronyism and corruption networks. A peasant explained: “One should look at the deforestation matrix, and that is large-scale cattle ranching. Now they say that we peasants are deforesting, that we are drug traffickers, that we are guerrilla… But look at us, we look like nothing but peasants thrashed by the Colombian oligarchy” (Interview Juan David, 2024). So well-connected are the “untouchables” that they act as if they were above the law. Telling apart legitimate from illegal forest uses in Guaviare should not be difficult, since its ecosystems are almost entirely under some type of protection (Olaya, 2019). “Only about 9% of the territory of Guaviare [whose overall surface is approximately 5,5 million ha] can be titled. […] As for the remaining 90%, the Nükak *resguardo* alone covers almost one million hectares. I would say that around 25% are *resguardos* and 40% are parks, […] which means that 25% is left for peasants, but in those areas no titling is allowed, so the only thing that can be granted to them is the right to use and hold the land” (Interview Catarina, 2024). Still, taking advantage of the fluid territorialisation and shielded by para-legal activities, land grabbers often get away with it: “There is a lot of capital involved, but it is at the same time legal and illegal. […] There is an alliance of various sectors that like this business very much. A business called land and cattle” (Parques Como Vamos, 2024; see also FCDS, 2024).

Historically, the Nükak *resguardo* has been mostly spared by extractive forest uses, also owing to its disputed territoriality. “The FARC have always respected the boundaries of natural parks and *resguardos*, at least until the peace negotiations […] Up until 2012, in Guaviare there were no coca plots within *resguardos* or natural parks. Guerrilla would move inside but would carefully respect borders when it came to cultivations” (Interview Augusto, 2023; see also Fig. 20). While the department, as detailed above, lost almost 8% of its rainforest cover between 2001 and 2023, in the same time span the

percentage loss within the Nükak *resguardo* is less than half (36,084 hectares equal to 3.85%, see Cotes-Ontibón and Uribe, 2024; this is also evident from Fig. 25). However, in the last few years, especially after the 2016 watershed, an increase in coca cultivations and a surge in cattle were registered. It is estimated that over 200,000 cattle from the Nukak *resguardo* have reached the market from 2019 to 2024 (Botero, 2025). In one single estate called Barsovia, a group of newly-arrived settlers reared over 13,500 cows between 2017 and 2023 (Molinares, 2024). As a proposed beef-tracking law has struggled to make its way through the Colombian congress, 'cattle laundering' is still a common practice: cows are often born, vaccinated, and reared in *resguardos* and natural parks, then moved at least three times before being slaughtered, so that their origin gets lost (FCDS, 2024; Duica-Amaya et al., 2025). Similar methods are used to 'launder' oil palm fruits (Rutas del Conflicto, 2024). Indigenous leaders have witnessed this countless times: "Encroaching peasants, five, six, ten, fifteen families, unite to form community boards [*Juntas de Acción Comunal*]. And then the government, the mayor, regularise them. [...] The same applies to cattle ranching. Everyone knows that there is illegal cattle ranching, deforestation, but the government tells the tale that they have to vaccinate all the cattle [for epidemic prevention] and that is how they turn it legal" (Interview Marco, 2024).

Once economic activities are established in what used to be thick forest, infrastructure is required for commercialisation: "Just beyond Charras, an old FARC trail crossing the Nükak *resguardo* from North to South under the canopy [has been enlarged]. Old coca plantations have a faster access to the road, and new plots herald new encroachments. It is truly terrifying to see the amount of coca plots inside the *resguardo*, like termites munching away at a stick, enclosing, fragmenting and degrading Nükak territory" (Botero, 2024a). Once infrastructure is consolidated, it – in turn – makes way for further economic ventures, for instance the export of illegal products to neighbouring Amazonian countries through previously unexplored trade routes: "The Nükak *resguardo* is not only a large-scale coca enclave. Due to its geographical position and its connectivity through certain rivers, [guerrilla] can use it to manage other markets that do not go through the centre of the country, and therefore face different interdiction systems. Hence, the *resguardo* has also a borderland component to it" (Parques como vamos, 2024).

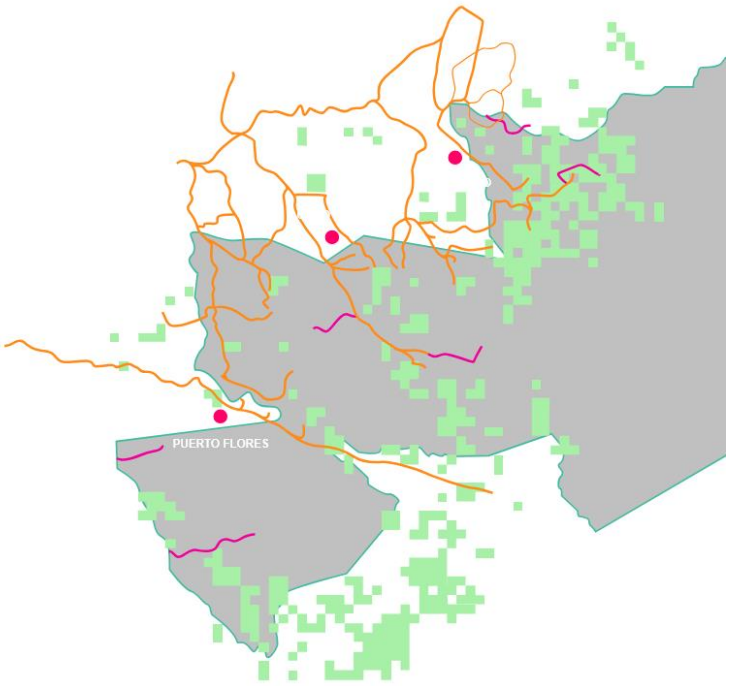


Figure 28: Illegal roads (orange) and coca plots (green) inside the Nükak resguardo *(source: Parra and Granados, 2022).*

For the Nükak, this is not merely an environmental concern, indirectly related to their well-being, but rather a material and cultural breakdown:

> "When the forest is cut down and turned into pasture, everything is destroyed. [...] The wealth of species that the Nükak used for everything, for medicines, food, clothes, construction, is all but gone. They entirely depend on the forest, it is their supermarket. When the forest is deteriorated, when it is plundered, although not everything is cut down, biological corridors are fragmented, the things that are valuable to them are taken away, they are left with nothing. [...] If they no longer have their ancestral medicines, they end up depending on white medicine. [...] On top of that, the animal species that they used to consume are greatly diminished, and with them the Nükak's ability to hunt coypus and other animals. [...] Coca contamination is another issue. They are not big-river fishers, they live around *caños*, which means they are the first to be affected by contamination, the first fish to die off is small fish" (Interview Alejandra, 2024).

For the companies in the climate change mitigation business, the same circumstances have a remarkably different meaning: to them, all these deforestation and degradation drivers are crucial inputs for REDD+ project design documents. A threatened forest is a potentially depleted carbon stock in need of safeguarding, a vulnerable community a convenient scapegoat. In short, a business opportunity. Unsurprisingly, several REDD+ projects have been attempted in the Nükak *resguardo*. Their history is presented in what follows.

The political ecology of REDD+ in the Nükak *resguardo*

After the Santos government, in 2016, imposed a carbon tax and allowed companies to claim a tax break through carbon offsetting, it did not take long for would-be carbon project developers to lay their eyes on the Nükak *resguardo*: one of the largest in Colombia, mostly covered by lush rainforest ecosystems, owned by a malleable indigenous population in desperate need for economic and material aid, it checked all the boxes for a profitable project. Surely, a principled approach to such a vulnerable population would have suggested a great deal of precautions, which – presumably – kept well-meaning developers at bay. Those who did approach Nükak leaders, as will be detailed below, do not appear to have been encumbered by such qualms.

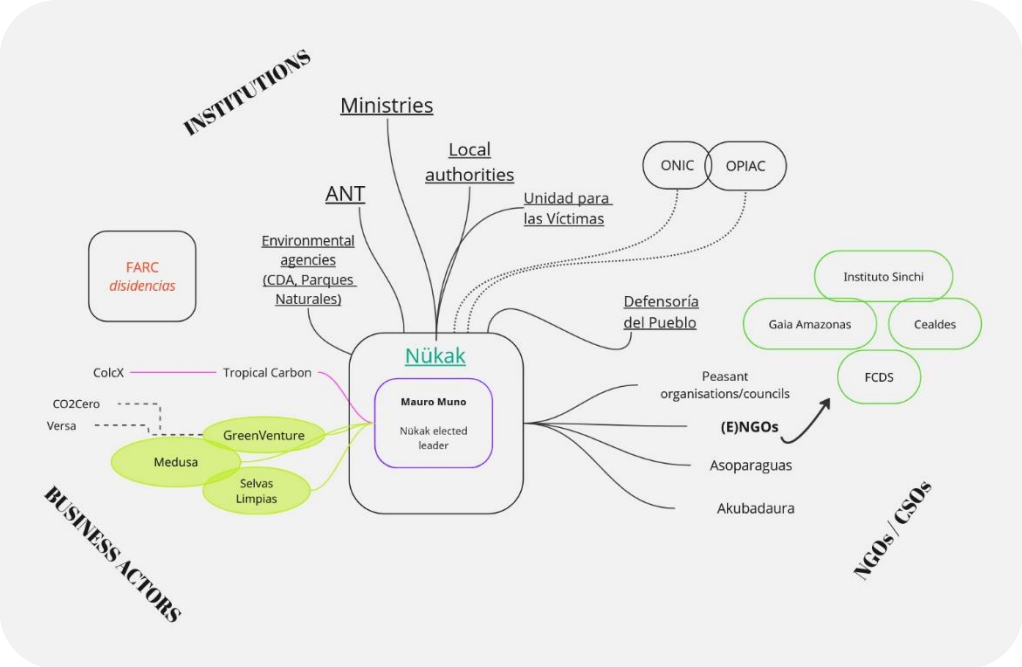


Figure 29: Actor map representing the galaxy of organisations and institutions surrounding the Nükak. Locations on the map, connections, as well as colouring and blob sizes are arbitrary and are not meant to precisely mirror stances or alliances, but merely to identify and distinguish the actors that have some bearing on the community's life, particularly in relation to environmental matters. Please refer to the text and to the appendix for more information on the actors represented (author's elaboration with Miro.com).

The genesis of the multiple REDD+ attempts, with its mysteries and turning points, is nothing short of a political thriller (see Fig. 29 above and project timeline below)[78]. It all began in mid-2019, when Waldrättung, a Colombian company claiming to the subsidiary of a German company[79], approached the Nükak through an intermediary called Nelson Erazo, the manager of a consulting firm called "Compañía Vida Verde". After inviting some Nükak to a local establishment and – based on the account of at least three Nükak leaders – serving abundant food and alcohol, Erazo talked them into signing a preliminary agreement for a REDD+ project with a planned duration of 100 years. The resulting offsets – the contract stipulated – would be marketed through the Verra VCS registry (Verra, n.d.b) and the company would be entitled to 48% of the revenues, leaving 52% to the Nükak, to be received through the company. The then leader of the Nükak affirmed: "They told us that they were going to pay us for taking care of the oxygen. There was no time to think it through, they came up with the document and I signed it because I thought it was viable, but they did not give any details" (Mongabay, 2022). Besides minor details such as the company's name (see footnote 79), several elements in its methods raised suspicions since the beginning. First and foremost, the company (or at least its representative) seemed completely oblivious

[78] As discussed in the methodology, this section relies heavily on fieldwork findings. Information without explicit sources or references is to be considered the product of field conversations and investigative ethnography (see chapter 2.4). However, an effort was made to provide written or circumstantial evidence for all statements.

[79] In an e-mail exchange, the company manager claimed that the mother company Waldrettung GmbH is registered in "Renania Palatinaba" (Mongabay, 2022), although no trace of this company could be found. In Spanish, the German *Land* is actually called *Renania-Palatinado*. *Waldrättung* too is the misspelled version of a German word, *Waldrettung*, roughly translatable as 'forest rescue'. In late 2021, the company changed its name to "Waldrettung".

to the Nükak traditional decision-making process, which – as explained above – does not grant a full mandate to what is merely a legal representative towards Colombian authorities. Second, Erazo insisted that everything be done as secretly as possible and that the contract needed to include confidentiality clauses. When local authorities and NGOs learned about this, some started raising concerns: "I am greatly concerned about this because indigenous peoples are being taken advantage of, the Nükak were manipulated into signing a 100-year concession over their territory. And other peoples have done the same" (Interview Juan Camilo, 2024). Among the most active detractors were legal consultancy NGO Akubadaura and indigenous organisation ONIC, which immediately started questioning the project. Eventually, citing lack of trust in Nükak leaders but presumably giving in to civil society and institutional scrutiny, Waldrättung refrained from signing the contract they submitted in 2019 and, by early 2021, abandoned the project. Curiously, it was an ONIC member that took on the baton: in July, the manager of a company called "GreenVenture" drove some Nükak leaders to Villavicencio, the capital of the neighbouring department of Meta and a gateway to the Amazon from the highlands, to meet with the manager of an environmental services company called "Tropical Carbon". By then, the Nükak had already elected a new leader, who was part of this delegation together with the old leader.

GreenVenture is a rather mysterious entity: the company appears not to be registered in Colombia's business registry and it is unclear when and how exactly it got acquainted with the Nükak. In some documents, the company is associated with an ID number belonging to a different company, established in 2021 and legally represented by the brother of a former high-ranking OPIAC official. This second company was never mentioned by any of the interviewees, but GreenVenture's manager later claimed to be acting on behalf of this entity as well. GreenVenture's Facebook page was apparently created in 2016 and used to share links to media reports and one FARC-EP press release. It remained inactive from 2016 until 2022, when company information and photos were added (GreenVenture, De-identified 1). One member of GreenVenture mentioned a 'sister' NGO, "Selvas Limpias", who was to acquire more relevance at a later stage (see below). The man claiming to be the manager of GreenVenture, while not a native of Guaviare, is an indigenous person who started frequent visits to the area in 2020 as the Department President of an indigenous party (GreenVenture, De-identified 2). He also claimed to be ONIC's official representative in Guaviare, although this was denied by ONIC spokespeople who specified that ONIC does not have a departmental office in Guaviare (personal communication, 2024). A search on the ONIC website returned no hits for his name. None of the interviewees were able or willing to shed any more light on these issues. One of them, nonetheless, was very outspoken when asked about the expertise of GreenVenture staff: "Stealing. All they want to do is steal all the money from the Nükak. They started with that carbon offsetting thing. They tricked the Nükak, their main leaders. And they let themselves be corrupted, they got corrupted deep in their heart. [...] The only thing that matters to GreenVenture and Tropical Carbon is that the Nükak die off, so that they can steal their money" (Interview Sonia, 2024).

Less than two months after the trip to Villavicencio, an extraordinary assembly of the Mauro Muno council was convened in Caño Makú, just outside the northwestern border of the *resguardo*, in the presence of GreenVenture and Tropical Carbon representatives, for "local consultation on the REDD+ project" (Tropical Carbon, 2021). According to both company documents and peasants interviewed, during this meeting, and village visits around the same time, agreements were reached and material benefits were distributed in the form of payouts of millions of pesos (hundreds of euros) to Nükak men and women. In this regard, it is important to keep in mind that the convening of such 'general' assemblies of all regional groups in one specific location is not a traditional Nükak practice; moreover – and perhaps more significantly – the Nükak do not have the financial capacity nor the bureaucratic know-how required to organise formal meetings of this kind. This means that all formal Nükak meetings described in this dissertation have been sponsored and organised by formal institutions and/or NGOs with a more or less specific agenda.

Two months after the assembly, in mid-December 2021, a 'temporary association' contract was signed (and registered by notarial deed) between Tropical Carbon, represented by its manager, and the Nükak indigenous *resguardo*, represented by the elected Nükak leader[80]. The object of the agreement, covering the whole Nükak territory and a time span of 30 years, was the "management and implementation of a REDD+ project with a view to achieving the validation, verification, certification and marketing of carbon credits" (Tropical Carbon, 2021). The contract of what would take the name of "Deiyiabena REDD+ Nükak Baká"[81] project included precise revenue-sharing – or rather credit-sharing – provisions: the *resguardo* would retain the ownership of 60% of the carbon credits, whereas Tropical Carbon would receive the remaining 40%.

This contract was compounded by extra-contractual terms that will be examined below. The REDD+ contract itself, however, presents a number of problematic provisions that mirrored the flaws of the Waldrättung project: first, the Nükak *resguardo* falls within the area covered by the Vision Amazonía programme, a jurisdictional REDD+ scheme requiring all carbon forestry projects developed within that area to be 'nested' into the programme and to determine deforestation baselines in line with the country's Forest Reference Emissions Level (FREL), a governmental document establishing the expected deforestation rates (Carbon Market Watch, 2021). Yet, the project documents analysed and the available webpages, including RENARE, make no reference to the terms of integration into the wider national scheme, which implies a considerable risk of 'double counting', i.e. the multiple sale of offsets from the same territory, for example through both the VCM and a potential Colombia-wide jurisdictional scheme. Second, the Tropical Carbon contract includes confidentiality clauses prohibiting the parties from sharing any information surrounding the project. While a confidentiality requirement was denied by Waldrättung

[80] While the term 'leader' does not suit the Nükak social structure, it is used henceforth, for the sake of readability, to refer to the Nükak elected legal representative.

[81] Similarly to the Waldrettung/Waldrättung case, the developer itself appeared insecure about the project's name. The contract presents three different spellings for "Deiyiabena". The name of the project has since changed (see chapter 5.2).

(a warning to this effect was reported by the Nükak involved but not inscribed in the contract), both projects were characterised by an exclusionary, at times menacing attitude towards the institutions and NGOs that dared question its purposes or feasibility. Several cases of oral or material threat were reported by interviewees. Third, the contract also states that free, prior, and informed consent is not required as, since the Nükak community "is the owner of the territory, it is also the project owner" (Tropical Carbon, 2021). Similarly, the conditions under which the preliminary contract for the Waldrättung project were signed, after a lavish lunch at a hotel with little explanations as to the technicalities of the project, can hardly be regarded as a form of informed consent. This abuse of the knowledge asymmetry between the community and project promoters, who themselves might not know exactly how it works (testified by the difficulties in getting the project off the ground), openly contradicts Colombian laws and jurisprudence on the protection of indigenous self-determination and can have dire consequences on the socio-political stability and well-being of the community, as is extensively discussed below. Fourth – and perhaps more decisively from a technical perspective – both projects started without specific stipulations on environmental management and oversight. Both contracts made muddled references to a future PDD (see chapter 1.2) to be produced by the project developer or drafted in collaboration with the Nükak. While stating that the Nükak are "project owners", the Deiyiabena REDD+ contract stipulated that the company retained ownership over the PDD, which could be "consulted" by community upon request. GreenVenture and Tropical Carbon always delayed or deflected requests of PDD consultation by this researcher. The absence of a compelling PDD might be among the reasons why the project was not certified by the Colombian institute for technical standards ICONTEC, which also cited the restricted access of the Nükak to their *resguardo*. In late 2024, Tropical Carbon officially accused GreenVenture of plagiarising its PDD with a view to developing a project of its own.

In addition, both contracts include references to the so-called "*plan de vida*", a clause that has more to it than it meets the eye: the "life plan" is an official document describing the cultural foundations of an indigenous community, detailing its principles in relation to cultural, social, economic, environmental, and political issues and its territorial organisation (Gaia Amazonas, 2020). For example, a community may organise its territory in such a way that its sacred sites are spared by infrastructural projects and investments are made in accordance with its cosmovision. This document is a key step for a community to be able to manage the financial resources allocated by the state through the so-called General Participation System. Another key step is the constitution of a so-called Indigenous Territorial Entity (*Entidad Territorial Indigena*, ETI), required for an indigenous community to formally interact with state institutions: "Because of the lack of a single head [ETI], it has not been possible to transfer the resources that the state has for them" (Interview Alejandra, 2024). According to media reports and to the project developer himself, the Nükak have almost 1.5 million USD waiting for them in state coffers, and almost as much in municipal coffers between San José and El Retorno (Lozano, 2022). This amount grows by approximately 70,000 USD every year, and is in addition to the money earmarked by the so-called

Victims Unit (technically the "Unit for the Attention and Integral Reparation to the Victims"). The rushed drafting of the "Nükak internal regulation", orchestrated by GreenVenture in mid-2024, and the search for new investors for the *plan de vida* in early 2025 (see below), may be read under this light, although in May 2024 the project developer claimed he had already managed to unblock the General Participation funds (personal communication).

The extent of the machinations occurring on the back of the carbon forestry project can be fully grasped only by reading the REDD+ contract in combination with other stipulations that were clarified in a letter sent in early October 2022 to the Directorate for Indigenous, Roma and Minorities Affairs (DAIRM), subordinated to the Ministry of the Interior. The letter, allegedly written by the Nükak elected leader on behalf of the whole community, contained the following six requests:1) for the sender to be registered by the DAIRM as the community's legal representative; 2) to facilitate the implementation of the REDD+ project by designating a DAIRM "permanent observer"; 3) to facilitate the resumption of the community relocation plan; 4) to inform the sender about the existence of a formal "Safeguard Plan"[82] for the Nükak within the Ministry; 5) to receive the contact details of the Guaviare ministerial delegate; and 6) for the Ministry to recognise the Nükak governance process through the Mauro Muno council. The second half of the letter is almost entirely devoted to the details of the REDD+ agreement, most strikingly to a side agreement providing for the Nükak's 60% revenue share to be "co-administered" by GreenVenture (94%) and Tropical Carbon 6%. A GreenVenture employee affirmed: "We told them that the carbon money cannot be simply distributed among them, it needs to be allocated to projects. There will be nine different areas of action: healthcare, housing, education, women, food security, culture, and so on" (Interview Alex, 2024). Although Tropical Carbon is not among the signatories or addressees of this letter, surely it cannot claim ignorance of this side agreement given that it is entrusted with the co-administration of 6% of 60% (i.e. 3.6%) of total revenues, in addition to its 40% revenue share. Curiously, the contract with Tropical Carbon stipulated that "monitoring, inspection and control of the execution of the activities [...] planned for the purposes of benefit distribution will be the responsibility of a REDD+ Indigenous Oversight Body (*Veedurìa*) that will be constituted by the *resguardo*. [...] Such body will be autonomous and independent" (Tropical Carbon, 2021). A similar provision in the Waldrättung contract provided for the formation of a "REDD+ Council" (Waldrättung, 2019).

The letter can be better understood against a background of delays in project certification and growing scepticism among local authorities and NGOs, which had grown wary of such projects also based on the bad experience with Waldrättung. "The Nükak said 'this is our decision'. If we mess up, it is our problem, you shut up. That day I decided I was not going to get involved, because we knew those people could not be trusted. [...] I know that they will ditch the Nükak, it has happened before, but I am not going

[82] The Integral Safeguard Plan (*Plan Integral de Salvaguarda*) is a set of plans the Colombian government is to carry out, following a 2009 ruling by the Constitutional Court, to prevent the physical and cultural extinction of 34 indigenous peoples, including the Nükak.

any further because a person close to us was threatened and had to leave Colombia. This is not the future I envision for my life" (Interview Sonia, 2024). After some Nükak gathered with authorities (including members of the Governor's Office, the Mayor's Office, the CDA and the Ombudsman's Office) in April 2022, between June and July GreenVenture organised first a field trip to Nükak settlements and then a public consultation meeting in San José del Guaviare (GreenVenture, De-identified 3). The manager of Tropical Carbon, who also participated, ensured that the project was at a validation stage, which is in strong contradiction with the subsequent evolution of events (see below). Less than three months later, the above letter was sent urging the DAIRM to help speeding up the process.

Given the level of education (in Western terms) of the signatory Nükak leader, he is unlikely to have written the letter himself. This is not a denial of the agency of the Nükak as much as the recognition of an undeniable epistemic distance between the Nükak and bureaucratic procedures. This was confirmed by NGO workers typically acting as an interface between the Nükak and formal authorities, although none of them was aware of the letter until much later. Be it an initiative of Nükak leaders or someone else's brainchild, the letter demanded implementation support, not an opinion, indicating that the Nükak were convinced about the project (as the minutes from the assembly mentioned below seem to confirm). If one, however, were to assume that someone else, among those behind the REDD+ project, conceived the letter, this would beg the question: if contractual terms were so vexatious, why would GreenVenture be so adamant to reveal them to the Ministry? A hypothesis in this regard will emerge at a later stage.

An additional layer of complication in the galaxy of actors surrounding the Nükak was added in 2023. In early June, a new Nükak general assembly was convened. This time, the location chosen was a rather remote one, a settlement called Filo de Hambre along the so-called *trocha ganadera* (literally "cattle trail", a dirt road used to open up the cattle ranching frontier). A person running social projects with the Nükak recalled: "That year we had achieved a lot, [...] but then they started holding meetings in remote settlements so that we could not go. [...] Filo de Hambre is the developer's showroom" (Interview Sonia, 2024). Some Nükak too were under the impression that GreenVenture had something in store for Filo de Hambre: "In November 2023 they promised us that they were going to build a community centre in Filo de Hambre, but we have not seen anything yet" (Interview Sara, 2024). Both Tropical Carbon and GreenVenture were represented at the assembly, but a third company made its appearance: Resultoria Estratégica Medusa. A consulting firm officially registered in sectors as diverse as education, musical entertainment, and organisation of conventions and business events, as it turned out it had been awarded a departmental contract worth almost 37,000 USD for the generic purpose of "reinforcing the community's social well-being", which in practice resulted in the company managing the assembly logistics. Oddly enough, the company was represented by a person who had until then acted as a GreenVenture employee. A local interlocutor explained:

> "The Land Restitution Unit issued an official notice affirming that the carbon company was involved in this and that. The Victims Unit too urged the Ministry of the Interior to look into it because we saw a potential fraud. After that, the Ministry issued an official notice informing that Medusa was going to handle the logistics. [...] They appeared out of the blue. I looked them up and found that the only other contract they had was with resources from the Organisation of Ibero-American States. [...] They had no previous experience with the Nükak, it was like Chinese boxes" (Interview Cristina, 2024).

At this point, the fog surrounding the companies involved in the carbon deal and the 2022 letter to the Ministry of the Interior began to dissipate. "GreenVenture is the figurehead company. GreenVenture and Tropical Carbon are the ones that in theory will manage carbon revenues specifically, but they opened a parallel company to manage the other funds. They want to take it all. [...] Medusa is an operator opened by the Ministry of the Interior to [work] in conjunction with Tropical Carbon. This comes from the deep into the Ministry, that is why I am telling you, here in Colombia no one will dare denounce this" (Interview Sonia, 2024). While this account is not entirely accurate (according to the Colombian business register, Medusa was established long before, in 2008), the use of the company as an 'empty box' and GreeVenture's connections deep within the DAIRM were corroborated by other interviewees and subsequent events. The "other resources" hinted at in the quote will be discussed below.

The most noteworthy official outcome of the 2023 assembly was that the incumbent Nükak leader was re-elected for a second two-year term. Not much else is known about the event, as most institutions were not invited and NGOs were not allowed to participate. "The only institution was the Ombudsman's Office [but] they refused to tell us what went on there. [...] Rumour has it that [a local Ombudsman official] is in on the carbon deal. [...] It is like, *blanco es si gallina lo pone*[83], as if they had told this person 'we will let you in, you draw your own conclusions'" (Interview Sonia, 2024). Be it due to corruption or out of fear, the Ombudsman's office was forgoing its role as a guarantor of constitutional rights, much to the chagrin of more spirited social workers: "[The Ombudsman official] said 'I am afraid'. Then let someone else take over your position. [...] If institutions are afraid to act, we are we left with?" (Interview Sonia, 2024).

While the assembly served as a valuable 'photo-op' for Tropical Carbon, some cracks started showing in its relationship with GreenVenture-Medusa. Having a weaker local foothold and being seemingly short of staff (in Guaviare it was almost always represented by its manager), since the beginning Tropical Carbon needed a local partner for project development and implementation. This is quite common in the carbon forestry business, as also shown by the partnership between Waldrättung and Compañía Vida Verde (Waldrättung, 2019). Conversely, GreenVenture, through its political connections

[83] This untranslatable Colombian idiom refers to a situation in which something is self-evident.

within national indigenous network, was very quick to gain the Nükak's trust, but had little understanding of the carbon offsetting industry (which remains largely true today). Some findings suggest that, after a while, GreenVenture realised that they might be able to do without Tropical Carbon and hence gain more control over carbon revenues. This hypothesis is reinforced by some contractual details: the Tropical Carbon contract provided for the creation of a Joint Committee, tasked with a number of functions around project implementation and revenue management, which would include two Nükak and one Tropical Carbon delegate. In the 2022 letter to DAIRM, however, the Nükak leaders asked the body's support in – among the other things – the creation of a Joint Committee made up of six Nükak, one Ombudsman official and one Tropical Carbon delegate, which, especially considering the doubtful allegiance of Ombudsman officials, would put Tropical Carbon in a much more disadvantaged position.

In early 2024, the Nükak leader informed Tropical Carbon that the community wished to cancel the project due to the company's inability to meet its contractual commitment to "deliver results" within 18 months, a term later extended to October 2023 (Tropical Carbon, 2024; Resguardo Indígena Nükak Baká, 2024). One GreenVenture member alleged that Tropical Carbon "ran out of money" (personal communication). Whichever the cause, as we shall see below, the last word on Tropical Carbon had not been uttered. By this time, the more and more pervasive presence of GreenVenture-Medusa was obvious to all the parties involved. This 'multifaceted' enterprise, however, was unlikely to take over so much space without facing resistance by equally ambitious adversaries. In early 2024, an indirect institutional 'showdown' took place over the awarding of a rich government contract for the Nükak ethnic education: suddenly, rumours started racing about embezzlement by the recently re-elected Nükak leader, accused of pursuing personal gains on the back of his own people. He was summoned by formal and informal authorities, including local guerrilla commanders, in order to verify these claims and prevent political turmoil within and around the community. "Here the functioning authority is the guerrilla, they are the government. [...] The Nükak are living in their territory [sic], so these things can become a problem for them" (Interview Sonia, 2024). Where had these rumours originated? According to a non-Nükak interviewee, this is how things unfolded:

> "Medusa wanted an agreement with the Nükak on education. They promised them heaven and earth, more money, more everything, the Nükak got cocky and said 'great, let us apply together as Mauro Muno council'. On the opposite side was the president of education NGO Asoparaguas, he too with his own vested interest, who also applied through Resguardo La Fuga. La Fuga first presented its proposal to the secretariat, with forged documents, then [GreenVenture's manager] presented the proposal by the Nükak *resguardo*. [...] One day I heard that the authorities were trying to find [the Nükak leader] to corroborate an injunction allegedly filed by him. [...] That injunction said that La Fuga's manager was overstepping Nükak autonomy. [The Nükak leader] knew nothing

> about the injunction, so he signed a letter saying that the signature on the injunction had been forged. The court then dismissed the injunction [...] and initiated an investigation for forgery. I believe that [GreenVenture's manager] was angry with [the Nükak leader] because he did not choose him, but instead went for La Fuga, so he began spreading the rumour that he had stolen 40 million pesos [almost 10,000 euros]" (Interview Cristina, 2024).

At first glance, several details in this story appear counterintuitive. Why would a different *resguardo* manage the education of the Nükak *resguardo*? In reality, the man behind the application had been in charge of Nükak education for years with Asoparaguas, but something changed in 2023: "The departmental Secretariat of Education decided to stop working with Asoparaguas because last year [an Asoparaguas employee] denied them their usual bribe. They were doing things well, and between giving the Secretariate a cut of the cake or spending those millions of pesos for education, [the Asoparaguas employee] would rather do the latter" (Interview Sonia, 2024). As this stream had dried up, the education entrepreneur needed a different legal entity to participate in the tender, which he found in La Fuga (a *resguardo* he collaborated with in the past). His efforts were successful, as Resguardo La Fuga eventually won the tender. Outsmarted, GreenVenture's manager apparently decided to take one last gamble by requesting a court order on behalf of the Nükak leader. This is documented by official complaints filed by the Nükak leader himself in March (Juzgado Segundo Administrativo de San José del Guaviare, 2024a) and by an official in late July by the Villavicencio lawyer who, ostensibly unaware of the fraudulent impersonation, had processed the injunction request (Juzgado Segundo Administrativo de San José del Guaviare, 2024b).

To sum up, different companies have been competing over public contracts and private investments supposedly assigned to the Nükak, each calling in the help of its own corruption network within different institutions. Besides facilitating access to public contracts, these connections scare off critics: "I try to know as little as possible about carbon credits because it is dangerous. [...] I prefer to sit down and talk to guerrillas than to these people, because corruption kills more than guerrilla" (Interview Sonia, 2024). Clearly, the genuine interest of these businesspeople in the well-being of the Nükak is at the very least questionable, although well-meaning employees may try to carve out spaces of effective assistance by making do with the breadcrumbs. According to several interviewees, one of these businesspeople tried to swindle the Nükak leader in order to put his hands on the education contract, and then slandered him to the point that plans were being made in early 2024 for an early election of a new Nükak leader. Most interviewees, both those directly involved in the carbon business and those who oppose or are somewhat sidelined by it, claim that they are the ones who really care for the indigenous community, and that all they do is to try and take them away from ill-intentioned adversaries. This speaks

to both an infantilisation of the Nükak and to the exploitation of REDD+ as a Trojan horse for broader aims. These reflections will be expanded on below.

Since March 2024, as Guaviare started overcoming an extremely dry winter and river levels started rising again, insecurity started rising too (Marandua Stereo, 2024b; Caracol Radio, 2024). In March 2024, the national Ombudsman's Office mentioned the issue of "forced payments" in relation to carbon offsetting in an official report for the first time (Defensoría del Pueblo, 2024). While the issue raised eyebrows on the national and international carbon trading scene, it came as no surprise in Guaviare, where carbon developers' compliance with *vacuna* duties are not lost on anyone: "They must have paid a lot of money, because going to Guanapalo and along the Inírida river is very hard right now" (Interview Cristina, 2024). This may be why, apparently unscathed by reputational hazards and unpreoccupied by social unrest, GreenVenture-Medusa started developing yet another carbon forestry project in the Nükak *resguardo*, the third in less than five years: with Tropical Carbon now out of the picture (the ColcX registry downgraded the previous project from "pre-registered" to "not registered"), the new venture, covering 640,000 ha of the *resguardo*, would have applied the REDD+ methodology in addition to a small reforestation component in the area of Puerto Flores (see Fig. 4). This additional element proves a certain carbon market-savviness on the part of GreenVenture: since a barrage of media and scholarly criticism sent corporate confidence in avoided-deforestation methods (REDD+ being the flagship one) plummeting in 2023, offset buyers' preferences shifted towards less controversial afforestation/reforestation projects, which can do without the insidious avoided-emissions narrative. The new "Mauro Ye Baka" project (a reference to Mauro, a mythical Nükak figure, and *ye baka*, translatable as "world"), expected to yield 6,5 million REDD+ credits and 2,8 million ARR credits, would be developed with the help of well-established Colombian developer CO2Cero (CO2Cero, n.d.) and Colombian certifier Versa (Versa, n.d.).

In June, GreenVenture-Medusa set out for fortnight-long field visit to nearly all Nükak settlements along the Inírida river and along the *trocha ganadera*. The trip, funded by the Ministry of the Interior, had several objectives: collecting Nükak ID data for the upcoming assembly (which was eventually postponed because "the Nükak said they do not need it", according to a GreenVenture employee), checking the progress of a *maloca* (a large communal dwelling designed to be the location of future assemblies) under construction in Caño Cristal, near Puerto Flores (see Fig. 4) and, above all, collecting information for the drafting of the "Nükak internal regulation", a document enshrining the community's organisational structure, social and spiritual principles, and conflict-resolution practices. For this purpose, an anthropologist was brought on board (quite literally on the long boat ride to the Golondrinas settlement), although a GreenVenture employee was in charge of the organisational, financial and at times even scientific coordination of the trip. The regulation, funded by the Ministry of the Interior and by Colombian development bank Findeter, was released in September. Supposedly the result of an endogenous 'constitutional' process of the Nükak, it is in fact a normative, exogenous legal codification effort seeking to establish fixed norms and procedures based on fairly brief consultations with some Nükak elders. For

example, the regulation crystallises a somewhat pyramidal government structure and stipulates the creation of a Nükak Indigenous Guard, a law enforcement tool that, though common among other indigenous communities, the Nükak have never used. The community's intention to establish this body was first publicly voiced in late 2023 by the community's leader (Marandua Stereo, 2023). The text also introduces a punishment regime by stating that "It is necessary to create a supreme judicial organ for the interpretation and implementation of community law, investigation, and imposition of sentences", and lists a number of rights and duties in domains such as family formation, knowledge acquisition, and environmental protection. Astonishingly, previous anthropological and grey literature on the Nükak was ignored or only cursorily consulted, which becomes apparent in the numerous mistakes (including misspelled Nükak terms), simplifications, and inconsistencies of the regulation. Given that the input collection and writing process were heavily influenced by GreenVenture, it is hard to tell where the realm of incompetence ends and where the real of mystification begins. On a deeper level, such a rigid codification of social rules is absolutely alien to the history and customs of the Nükak, whose social structures, reciprocity norms, and conflict resolution strategies have followed very different principles from the ones that define Western political and legal systems. The relation between the internal regulation and the REDD+ project was not immediately clear. Subsequent events and interviews, however, reinforced the idea that the carbon forestry project was starting to be (or had been since the beginning) only a piece of a much larger mosaic of community co-optation.

This project suffered a series of setbacks in late 2024: in October, changes in the higher echelons of DAIRM meant that GreenVenture lost key allies at the intersection of state governance and indigenous governance. In November, Tropical Carbon's manager filed a lawsuit against the Nükak leader for violating the fundamental right to prior consultation and smearing the good name of the initiative. Formally supported by the former Nükak elected leader, a Nükak translator and one more elder, the lawsuit mentioned and hence directly implicated GreenVenture's manager in the alleged swindle of the current Nükak leader. Among other things, GreenVenture's manager was accused of autonomously managing Nükak affairs up to the point that he sent e-mails on the *resguardo*'s behalf from his personal mobile phone (Tropical Carbon, 2024). In early 2025, Tropical Carbon's manager reappeared in San José del Guaviare and visited some Nükak settlements to distribute grocery products and collect ID numbers, presumably to carry on the development of the previous REDD+ project on his own (this was also suggested by small but significant changes to the project website, including a new REDD+ methodology). In this conjuncture, GreenVenture finalised a draft PDD (which Tropical Carbon claims is a plagiarism of its PDD) and appeared eager to establish new business connections, presumably looking to differentiate funding streams. In a rather rare occurrence, the Nükak leader was brought all the way to Bogotá to participate in business meetings (some of which, though private, were proudly advertised on social media by both the leader and GreenVenture members).

In this climate of uncertainty, more webs were being spun: in early 2024, a then GreenVenture employee had founded a new company called “Selvas Limpias”. In early 2025, this employee voiced discontent towards GreenVenture’s manager, who was allegedly “not delivering” (personal communication), possibly because of the ongoing lawsuit. He/she then appeared determined to do without GreenVenture and carry on the work autonomously, including the carbon forestry project in partnership with Tropical Carbon. According to other sources, a different Colombian carbon trading company was considering developing a project in partnership with the Nükak. In May 2025, the Nükak Indigenous Guard was first presented, its members – accompanied by Medusa staff – equipped with branded vests, hats, and stretchers. In another ambiguous development, in September 2025 the Nükak issued a manifesto “in Defence of its Autonomy and Legitimate Authority” (Resguardo Indígena Nükak Baká, 2025). It was not immediately obvious who this statement was indirectly referring to, whether GreenVenture, Tropical Carbon, another entity, or all of them. A reference to the fact that “no external actor may claim to represent or use the name of the Nükak people without our authorisation”, however, suggests that GreenVenture was among the intended targets.

For the purposes of this dissertation, as of October 2025 this is the status quo of REDD-related affairs in the Nükak *resguardo*. One would be right to wonder were the agency of the Nükak is left in such a scenario of manipulation and deceit. Whether the issuing of the manifesto means that the REDD+ project has had the unintended benefit of ‘inoculating’ the community against co-optation and enhancing its resistance to predatory development schemes, is a question for future research to answer. The following sections focus on how the Nükak resisted and negotiated attempts of co-optation within the temporal scope of this research, but also how these processes have moulded their subjectivity, threatening their sovereignty, and – ultimately – jeopardising their future subsistence.

A timeline of REDD+ projects in the Nükak *resguardo*

Mid-2019	Start of talks for the first REDD+ project (developer: Waldrättung). Nükak leaders sign a 100-year agreement at a hotel near San José del Guaviare
Early 2021	Waldrättung does not sign the agreement. REDD+ project falls through
02/2021	Nükak elect a new leader (legal representative)
07/2021	Local operator GreenVenture appears
	Start of the talks for the second REDD+ project (developer: Tropical Carbon). The old and the new leader are driven to Villavicencio by GreenVenture personnel
09/2021	Nükak extraordinary assembly to decide on the REDD+ project
12/2021	Signing of the Deiyiabena REDD+ Nükak Baká project with Tropical Carbon
04/2022	Meeting with Nükak representatives attended by members of the Governor's Office, the Mayor's Office, CDA and the Ombudsman's Office. Concerns over the REDD+ project are raised
06/2022	GreenVenture visits Nükak settlements along the Inírida river
07/2022	Open assembly on the REDD+ project in San José del Guaviare. According to the developer, the project is at a validation stage
09/2022	Nükak leader requests additional information on REDD+ from the Ministry of the Interior
06/2023	Nükak leader is re-elected
	Nükak assembly with Tropical Carbon and GreenVenture. Local institutions and NGOs are not admitted (except for the Ombudsman's Office)
	The Medusa corporation appears as logistics operator hired by the Ministry of the Interior
01/2024	Nükak leader requests to cancel the Deiyiabena REDD+ Nükak Baká project
03/2024	National Ombudsman's Office denounces forced payments in carbon forestry projects for the first time
04/2024	A new Nükak assembly is scheduled for May to elect a new leader
	A third REDD+ (and A/R) project with a different name (Mauro Ye Baka) and different operators (CO2Cero and Versa) is supposedly in the works
06/2024	GreenVenture and Medusa visit all Nükak riverine and land communities. The main objective is to collect inputs for the Nükak "internal regulation"
	Nükak assembly postponed for unclear reasons
09/2024	The Nükak internal regulation is published
11/2024	Tropical Carbon manager sues Nükak leader (and GreenVenture)
01/2025	Tropical Carbon reappears in San José del Guaviare
04/2025	GreenVenture employee carries on carbon project with Tropical Carbon
05/2025	Nükak Indigenous Guard presented
09/2025	"Manifesto of the Nükak People in Defence of its Autonomy and Legitimate Authority" issued

Subtle green grabbing

This section mobilises the concepts introduced in chapter 1, intervening in the green grabbing debate to illustrate how carbon forestry projects, particularly the Nükak REDD+ project, constitute a subtle and hence particularly diabolical form of green grabbing. Relatedly, the next section examines the processes of subject-making that are required for the offsetting paradigm to keep up the appearances.

As illustrated above, different users have a different conception of what a forest is or should be. Upon carbon forestry frontiers in the Amazon, the plural ontology of rainforests is shoehorned into the singular dimension of a carbon stock. In these "pluriversal contact zones" (De la Cadena and Escobar, 2023), one system of knowledge prevails over all others, an epistemic discrimination well-known to Amazonian people: "We approach indigenous knowledge systems as a science, like social sciences, legal sciences, political sciences, environmental sciences, and so on. [carbon forestry] mechanisms should validate both types of systems. We cannot only play by the rules of the Western knowledge system" (Interview Marco, 2024), a member of OPIAC contended. Yet, as Porto-Gonçalves (2012) notes, the wealth of knowledge produced by indigenous peoples, "built largely in a relationship *with, rather than against*, nature [...] opens up prospects for dialogue, especially at a time when the body of scientific and technological knowledge produced under the primacy of the *domination of nature* is being called into question" (p. 31). Not coincidentally, indigenous people "have become central to contemporary critical and governmental imaginaries as the West tries to cope with planetary crises" (Chandler and Reid, 2020:485).

As land tenure and carbon tenure do not necessarily coincide, in a country rife with land struggles carbon forestry does not diminish, in fact reinforces the relevance of land contestations by adding one more layer with carbon tenure. To many indigenous people, as was illustrated in chapter 1, dealing in carbon equates to dealing in air or wind. Colombian communities are no exception: as research by Gutiérrez-Escobar et al. (2025) has revealed, the Piaroa involved in the large-scale Matavén project in eastern Colombia initially believed the project was about selling air. This is also true for the Nükak, most of whom appeared not to be entirely cognizant of the role of forest carbon sequestration in climate cycles. An ENGO worker conceded: "I do not even think it is clear to the leaders who are negotiating, but surely most families do not have the slightest idea. To them, there is no logic to it. Their world is damaged by the white people, by the cows, by the coca, by the things that we do. That the forest has carbon, that it retains it, that it releases it, that makes little sense to them" (Interview Alejandra, 2024). To its credit, Tropical Carbon prepared didactic material with text and drawings to illustrate the rationale of the REDD+ project, but the extent to which a few slides managed to close the large epistemic gap between the acrobatic arithmetic of neoliberal climate governance and the Nükak's intimate, relational conception of the environment is anyone's guess. A company employee referred:

> "They understand that trees are alive, because they give them fruits, they offer protection. They understand that that is where freshness comes from in the forest. If trees die, there is no food. They see the need to protect the forest. [...] They did ask me 'how do they take the carbon? Will they bring bottles?'. I initially thought the same. We explained that by explaining that leaves produce chlorophyl and absorb pollution. [...] We said that trees absorb carbon throughout a process, we likened it to producing chicha[84]. [...] They understand that trees are alive beings and that is why they feel fresh. And why, in deforested areas, they feel really hot" (Interview Alex, 2024).

As discussed above, for a REDD+ project to be effective, project activities must be designed so as to address the real deforestation drivers and monitor them over the course of the entire project (in the case of the Nükak, 30 years). What exactly is considered to be a source of deforestation, or even simply forest degradation, has been a source of debate. The Western conservation discourse has long blamed local forest-dependent communities, pointing to minor extractive activities such as hunting, wood harvesting, or shifting agriculture (Ingalls and Dwyer, 2016; Scheidel, 2018; Skutsch and Turnhout, 2020; Collins, 2024, ch. 3). As is the case in Colombia, this is often a misrepresentation of the reality on the ground, one in which large-scale deforestation is rather driven by timber extraction, cattle farming, plantation agriculture, and illicit cultivations (see chapter 4). While local individuals might be involved in such activities and their attitude towards biodiversity protection should not be romanticised (Adger et al., 2001), it is not the livelihood strategies of local impoverished communities that are to blame, but rather the industrial forest uses that have largely replaced those very subsistence strategies, sometimes generating waves of dispossession that, in turn, forced local inhabitants to turn into waged labourers. The industries driving large-scale deforestation, however, are beyond the reach of carbon developers because they are too profitable (i.e. they outcompete climate finance, which makes a compensation economically inefficient), structural (i.e. linked to the political economy of a whole region or country) or downright illegal (hence influenced to an appreciable extent only by wider socio-political dynamics, see Rodríguez-de-Francisco, 2021). Indigenous livelihood activities, then, are the low-hanging fruit carbon companies can easily reach for, especially when these are deemed "unproductive". Just like Guha (1999 [1983]) deduces insurgent subaltern practices by looking at what practices are considered barbaric, looking at indigenous practices banned (or limited) under REDD+ conservation schemes, such as wood harvesting and shifting cultivation, can offer insights into what the dominant decarbonisation paradigm considers backwards and undesirable.

[84] *Chicha* is mildly alcoholic drink made from maize. On an unrelated but curious note, in a seminal paper on unequal exchange Hornborg (1998) uses a similitude of 'exploitation' through chicha to explain unequal exchange.

In the case of Guaviare's rainforest, not only are the Nükak not a substantial threat to forest degradation, but they are not even in a position to halt deforestation. As illustrated above, they have limited presence in and even less control over their own territory, which – in practice – is controlled by large landowners and guerrilla groups, more often than not in cahoots. As mentioned above, scholars have underscored the common gap between legal tenure and resource control (Ribot and Peluso, 2003; Anthias, 2021). The employee of a Colombian NGO effectively summarised the irrationality of REDD+ in Nükak territory as follows: "The agreement was made with those who do not deforest, not with those who deforest. Of course they are the owners of the 'house', and one has to make the agreement with the owners. But they are not the ones who control the house" (Interview Alejandra, 2024). It is in this discursive inversion of the elemental drivers of deforestation, "need and greed" (Sponsel et al., 1996), and in the consequent disciplining of forest access and use, that the true essence of subtle green grabbing through carbon offsetting really lies.

These circumstances make the Nükak a particularly attractive conservation partner for profiteers: first, the economic opportunity cost is very low. Since today the Nükak are more dependent on aid and occasional jobs than they are on forest extraction for their subsistence, and since the real deforestation drivers are obscured by the project narrative, there are barely any livelihood activities the developer would be expected to compensate financially. Second, the Nükak's extremely precarious economic conditions and their limited acquaintance with monetary accounting makes it relatively easy for a prospective developer to ensure their loyalty. "The person who is managing the education project buys them off with 200,000 pesos [less than 50 euros] for each time they show up" (Interview Sonia, 2024). According to the project developer himself, in turn accusing other entities of co-optation, Nükak leaders can be 'brought in line' with the equivalent of 20 euros. While these claims could not be verified and can thus not be generalised, they situate the project's avoided-deforestation claim even more at odds with scientific consensus, as "it is not households with extreme asset poverty that drive forest clearance for engaging in agriculture" (Nunan et al., 2023). On some occasions, Nükak leaders were driven to the largest nearby city, Villavicencio, or even to Bogota, for business meetings and nights out. If Waldrättung claimed a German business connection, at one point some Nükak were promised a trip to Spain in relation to the Deiyiabena REDD+ project. While the purpose of such trip was not clear, to young indigenous people discovering a world unknown to their elders probably sounded like an enticing prospect. One clause of the Deiyiabena REDD+ agreement, confirmed in the 2022 letter to the DAIRM, provided for GreenVenture to manage nearly all project revenues on behalf of the Nükak (see details above), a provision that is likely to be replicated in the new REDD+ project. While this can be interpreted as a way to circumvent the Nükak's inability to manage potential revenues due to their not fully formalised institutional structure, the resulting ability of the company to control the revenues is highly problematic, all the more considering that GreenVenture is not a formal project developer. Even if the funds were used genuinely for the benefit

of the Nükak, the resulting dependence of the community on external actors, be it GreenVenture or a ministry, is in itself concerning and sheds serious doubts on the initiative's emancipatory potential.

As was explained above, the Nükak see the forest as much more than a resource stock to occasionally draw on. It is no exaggeration to say that, from a cultural as well as material perspective, it is – or at least was – everything to them. "To them, it is everything: their land, their home, their food, their life" (Interview Sonia, 2024). Subsistence forest uses do imply minor extractive activities, yet both scholarship and empirical findings suggest that no large-scale degradation can be caused by a small, impoverished community. Blaming them means perpetuating the "territorial coloniality" (Betancourt, 2021) of the Colombian society and of the neoliberal conservation paradigm: "This department is still in a process of colonisation. Its ancestral landowners are being persecuted because they go fishing in places that have been under their domain for centuries" (Interview Juan Camilo, 2024).

An important question remains to be answered: to what extent were the Nükak 'on board' with the project?[85] In other words, were they instructed not to carry out activities that could be associated with deforestation? Did they agree on their effectiveness and feasibility? As mentioned above, the project developer produced didactic material, but it is unclear how this content was presented, and it is hard to tell whether the messages got through. The use of technical wording such as "carbon stock" in the contract raises further doubts in this respect. In at least one settlement along river Inírida (Caño Cristal), supposedly located inside the *resguardo*, a Nükak interpreter maintained that the local community had been warned about deforestation restrictions. Conversely, asked directly about tree felling, residents of the Charrasquera settlements affirmed being allowed to cut trees inside the *resguardo*, even with a machete. In the Agua Bonita and Villa Alejandra settlements near San José del Guaviare, inhabited by displaced Nükak, local leaders reported being puzzled by the request not to deforest, as they did not perceive themselves as deforesters. Part of the problem lies in inconsistent cartography: maps of rural areas in different institutions present small but significant discrepancies (see Fig. 4 and Fig. 22), not to speak of the personal appraisals of peasants and indigenous people as to where their land begins and ends. The legal uncertainty about the exact borders of the *resguardo* means that some communities might find themselves in a legal limbo. Others might be allowed to employ extractive forestry techniques as they reside outside of the REDD+ area, thereby paradoxically generating an incentive, for Nükak communities looking to enjoy laxer forest management regulations, to leave their own land. On the other hand, in the (at present unlikely) event that the project does generate considerable revenues, the opposite injustice might befall those Nükak (up to 80%, depending on the estimate) that were driven out from or chose not to live in the *resguardo* (the first case being more frequent), who might be denied carbon income as they are living outside the project area.

[85] While I begin to answer this question in the following lines, I recognise that it remains partly unanswered due to both practical and epistemological research limitations. Please refer to chapter 2 for a broader discussion on these limitations.

Understanding the convoluted mechanism of carbon offsetting is a tall order for everyone, regardless of cultural background and level of education. Surely, however, awareness of the underlying climate breakdown is a prerequisite to understand the need for climate policies. Based on field conversations with both Nükak and NGO workers, while the Nükak are highly aware of climate anomalies, they seem not to consider climate change caused by anthropogenic changes in the composition of the atmosphere: "They perceive changes, and they mention them: 'this used to be different, this water stream did not dry up in the past, this heat is not normal, the sun burns a lot', also the timing and quantity of plant harvests… They perceive all this within the logic of their relationship with the environment, but it is not clear to them that it is a process of climate change" (Interview Alejandra, 2024). Among the didactic cards prepared by Tropical Carbon, one illustrated biodiversity, with a translation in the Nükak language. Since it was not possible to address the community directly about those cards, one can only speculate to what extent they resonated with the Nükak, who hold a complex dialectic relationship with the biotic realm rationalised through the Western concept of biodiversity. The cards included other concepts unfamiliar to most Nükak (at least in their modern Western meaning) like "economy" and "governance".

The tortuous narrative of carbon offsetting in Guaviare implied that the project design did not just recognise the Nükak's secular role in forest management, but – crucially, and in partial contradiction – required them to adapt their forest uses. In other words, to align their behaviours processes to the neoliberal climate governance paradigm. The Tropical Carbon contract stipulated that the Nükak are allowed to carry out any activities in their territory "as along as such activities do not interfere with the management and obligations of [the company] for the issuance and trading of carbon credits" (Tropical Carbon, 2021). Since cutting trees and hunting certain animals is anathema to the REDD+ paradigm, such clauses clearly jeopardise the cultural and material reproduction of the community, as well as a potential process of sedentarisation the community might opt for. The employee of a government agency reported: "When people start talking to them about deforestation, which is such a complex issue, the Nükak feel threatened. I do not know whether directly or indirectly" (Interview Cristina, 2024).

One former guerrilla distrustful of REDD+ warned: "If someone comes and says, I am going to pay you for the oxygen you produce, but you cannot cut trees, while indigenous people are used to making [a different use of the forest], sovereignty is lost" (Interview Rodrigo, 2024). In reality, for the Nükak territorial sovereignty is a mirage, since – as explained above – many of them rarely have a chance to access the project area. Nevertheless, this means that, even if the Nükak were to regain full territorial control over their land, the carbon forestry deal would prevent them from using it freely according to their ancestral customs, as they would be expected to comply with Western sustainability dogmas. As Schmid and Castro Osorio's (2025) effectively put it, "the previous collective resource-governance system switches to become a collaborative system" (p. 4) in which the community no longer retains ultimate decision-making authority. This "loss of autonomy" (Ojeda, 2016:34) in deciding over one own's territory amounts to a clear instance of dispossession. An exemplary episode, although not directly involving the Nükak,

occurred in early 2025, when two indigenous men were arrested for carrying eight dead woolly monkeys and one red-footed tortoise on a boat on river Guaviare (Marandua Stereo, 2025). While the purpose of the 'shipment' was not immediately clarified, the arrest was harshly criticised as Amazonian indigenous communities have been sustainably hunting these species for millennia. The hypocrisy – and epistemic injustice – of prosecuting and publicly shaming indigenous people for transporting very few specimens of a protected species while their ancestral land is increasingly appropriated by agrobusiness capital and flooded with alien bovine species is for everyone to see.

The attention drawn by scholars to the significance of behaviour change in carbon forestry (see for example Milne, 2012 and Mukono, 2024) proves this is no isolated case. In similar REDD+ projects in South-East Asia, indigenous communities have reported feeling like "chickens in a cage", fearful of being punished for small-scale forest clearing (C. Lang, 2025c). The contradiction between indigenous forest harvesting and neoliberal conservation has been observed in Colombia as well: researchers from Instituto Sinchi documented how a zero-deforestation programme mandated communities to reduce *chagras* by 30% (Díaz and Ruiz-Nieto, 2023). The *chagra* is an ancestral Amazonian agroforestry system that, besides being the seminal method for the material and cultural reproduction of many indigenous communities, possesses a remarkable biological value owing to its ability to strengthen the recovery of degraded ecosystems and enhance soil fertility (Garzón et al., 2023). Furthermore, since agricultural labour is mostly entrusted to women (men being typically more involved in hunting and fishing), *chagras* represent a space of political enunciation for indigenous women. By taking part of this space away, REDD+ projects eat into women's political presence, thereby contributing to their marginalisation and disempowerment. This runs counter to the stated goals of REDD+, especially those schemes that commit to CCB (Climate, Community and Biodiversity) and SD VIsta (Sustainable Development Verified Impact) Standards, which ostensibly contribute to the UN Sustainable Development Goals (Verra, n.d.c). As nomads, the Nükak typically do not rely on *chagras* for their subsistence, although in recent years semi-sedentarised groups have been developing small-scale agroforestry systems. Nevertheless, the *chagra* is but one example of how the culture-blind and power-relation-blind implementation of environmental policies such as REDD+ risks reproducing patriarchal dynamics and (further) unbalancing the gender playing field.

Based on Colombian law, and in line with international standards, all projects involving indigenous communities are subject to a process of free, prior and informed consent (FPIC), ensuring that the community is fully aware of what the project entails. In 2023, the National Directorate of the National Authority for Prior Consultation of the Colombian Ministry of the Interior established, upon request of the Nükak leader, that the Deiyiabena REDD+ project was not exempt of the FPIC process (Dirección de la Autoridad Nacional de Consulta Previa, 2023), yet according to the 2021 Tropical Carbon contract FPIC was not required since the Nükak community, as landowner, "is also the project owner" (Tropical Carbon, 2021). Upon request by this researcher, the Ministry of the Interior confirmed that the project was in fact subject to FPIC (Dirección de la Autoridad Nacional de Consulta Previa, 2024). This violation of indigenous

sovereignty was among the reasons cited by the Nükak leader in support of contract termination in 2024. Curiously, the disregard for FPIC was also among the charges brought by Tropical Carbon's manager against GreenVenture's manager, accused of manipulating the Nükak leader to his own advantage thereby bypassing the informed consent process (which Tropical Carbon's manager seemed to interpret merely as a community assembly 'rubber-stamping' a proposal). In fact, FPIC is a much more holistic process than the simpler prior consultation process, involving the active and effective participation of the communities concerned in an extensive intercultural dialogue (Ilich Bacca et al., 2022). In its 2023 assessment the Authority for Prior Consultation, perhaps sensing the risk of manipulation of community chieftains, underlined that FPIC "seeks to guarantee the fundamental right of participation of all the inhabitants of the *resguardo* and not only of its representative institution" (Dirección de la Autoridad Nacional de Consulta Previa, 2023). Concerns over the abuse of FPIC are often raised by experts, who maintain that FPIC simply ends up legitimising ongoing projects (CooperAcción, 2018). On a broader level, scholars have shown how development imperatives can easily overwhelm the will of communities, who end up yielding to socio-economic pressure (Aoki Inoue et al., 2024).

Ultimately, then, besides the more obvious livelihood impact (or lack thereof), carbon projects come with a deeply political charge. When this is combined with the fact that – as shown above – indigenous livelihood activities are often not the real driver of forest degradation or deforestation, carbon offsetting emerges as a particularly Machiavellian method to impinge in indigenous resource sovereignty and influence the social reproduction of indigenous groups.

This section has investigated the political economy of REDD+ in Colombia, with a specific focus on the Deiyiabena REDD+ Nükak project, and has touched upon the cultural and epistemic dimensions of REDD+ policies geared at conditioning the behaviours of forest communities towards the stated goal of emissions mitigation. As Agrawal (2005) contends, governmentality strategies "achieve their effects, to the extent they do so, by becoming anchors for processes that reshape the individuals who are a part and the object of governmental regulation" (p. 219). The ways in which carbon actors seek to discipline the Nükak into REDD+ stewards will be further elaborated in the next section.

"*Qué es eso de la Amazonia?*": The making of environmental subjects

After delving into the political economy of the REDD+ case analysed, this section turns more specifically to the suprastructural, epistemic – and thus possibly even subtler – repercussions of carbon forestry policies and practices. It addresses the ongoing construction of the Nükak as environmental subjects and the contradictory narratives built by and around them, reflecting partly contrasting interests and worldviews.

Beneath the veneer of win-win conservation policies, and undergirding the neocolonial appropriation of economic value through carbon trading, a deeper epistemic process is at play in the development of REDD+ projects like the ones initiated on Nükak territory: a reconfiguration of indigenous

subjectivities consisting in the discursive production of 'the environment' through policies and practices aimed at bringing the community's vision for itself in line with the hegemonic conservation paradigm. This disciplining process can be best understood through the conceptual framework of "environmentality" (Agrawal, 2005) that, openly drawing on biopolitics, attends to the ways in which technologies of government are applied to secure the conduct of conduct, in this case within the environmental sphere of life and thought[86].

As the preceding sections have elucidated, the contact with the Western society has been transformative – in many ways, traumatically – for the Nükak. Their epistemic distance from 'national' Colombians is revealed – in its most aphoristic example – by the fact that they do not conceive of themselves as living in the more or less bounded ecosystem Spanish conquerors (and later geographers) have named "Amazon". In 2023, while chatting with a Nükak leader who had been involved in several institutional and non-governmental processes, including environmental ones, one of the scholars interviewed was bewildered by his question "*qué es eso de la Amazonia?*" (literally "what is this Amazon thing?", although a more true-to-sense translation would be "what is this Amazon I keep hearing about?"). The inexorable shift from an ancestral worldview to the supposedly objective topography of the Amazonian geographical space and its status of a fragile, endangered biome is required of the Nükak to be able to become its 'stewards'; in other words, they must care about 'the environment' in its modern Western sense by subscribing to the discourses, practices, technologies, and representations that characterise it (Ulloa, 2004). This conceptual subsumption of *ye* into the Eurocentric 'Amazon' (which derives its name from a Greek myth) is emblematic of a wider process of epistemicide (De Sousa Santos, 2011) in which one knowledge system succumbs to another or at least integrates new, potentially disruptive elements. One of these elements is *carbono*, CO_2, which, despite carbon actors' rhetoric, does not seem to be on the minds of community members, nor to guide their actions. This quote by one interviewee confirms field appraisals: "Far from the sight of carbon project developers, we asked the Nükak 'what do you think about carbon offsets?' [...] The Nükak hardly know what the Amazon is, they live it but they do not conceptualise it. They said 'what company? What offsets?'. That is where [developers'] narrative starts to crumble" (Interview Cristina, 2024).

In contrast to what happened to other indigenous peoples, whose conversion into environmental subjects "for whom the environment constitutes a critical domain of thought and action" (Agrawal, 2005:16) came after a gradual process of incorporation into the colonial centralist society, for the Nükak this transition is embedded in a makeshift decarbonisation pedagogy and goes hand in hand with rugged parallel processes of 'ethnicisation' and hierarchisation. While the Nükak have recognised each other as part of a common people, distinguishable from other indigenous groups and from the 'whites', at least since the seventeenth century (see above), they have never held themselves as a homogeneous ethnic

[86] For a discussion of the main tenets of this theory, see chapter 1.

group with shared interests to be defended vis-a-vis the national society. During a conversion in the field, one of them introduced himself in Spanish as "part of the *Wayari muno* ethnic group" to the giggling of fellow settlement residents. The jeering triggered by the term *etnia*, evoked solely for the benefit of the foreign interlocutor, gives a clue about its perception among the Nükak, including the youth. As Ortiz (1995) argues in his classic work on post-colonial Latin America, however, a cultural transition on this scale is not an innocent process, necessarily entailing a certain degree of *de*-culturation: "Transculturation better expresses the different phases of the process of transition from one culture to another because this does not consist merely in acquiring another culture, which is what the English word acculturation really implies, but the process also necessarily involves the loss of uprooting of a previous culture, which could be defined as a deculturation" (p. 98). Some of the Colombian institutions acting as an interface in this transition appear at best ill-equipped, at worst ill-intentioned:

> "It turned out that, if they were to be all taken care of, they had to come together in one place. No! Education has to walk with the Nükak. They have 23 settlements and we have to seek to relocate them in their ancestral territory. [...] Each of them has to recover their position in the *ye baka*. They need to reorganise the 'body structure' of the territory: the *Wayari muno* [group] represent an arm of the river, *Checa muno* the other arm, *Takayu* is the chest, *Mipa* is the brain. [Institutions] told them that they have to settle in a 10-hectare farm to be tended to and that they should be satisfied with that farm. It is going to end up like Agua Bonita[87]. 'Stay on the farm and we will come, we have very good intentions'" (Interview Sonia, 2024).

An ANT official openly supported the view according to which the Nükak should be given some land and settle for it: "If there are 10 families [and] one hectare per family is not enough, let us give them 20, that would have meant 200 hectares. In fact, [the Nükak] were given 500,000" (Interview Catarina, 2024). Again, a tension emerges between conflicting views on the valorisation of territory and labour, or, to paraphrase James C. Scott (1998), between "seeing like a state" and seeing like a carbon developer: from the perspective of the ANT and other institutions, relocating the Nükak in a clearly-demarcated estate would be an efficient way to bring order in rural areas while freeing up land for landless peasants, whereas to carbon cowboys a dispersed indigenous group with a huge reserve is more valuable than tiny indigenous communities with relatively small plots of land. None of the above, however, matches the Nükak's subjective 'atlas' of the Amazon (see chapters 2.4 and 5.1).

Clearly, carbon was not introduced into the Nükak's conceptual universe with pedagogic purposes. Rather, it made its impetuous appearance together with carbon forestry and the revenue

[87] Here, the interviewee is referring to the situation of the Agua Bonita settlement, effectively a refugee camp inhabited by displaced Nükak who live in dire social, economic, and health conditions.

stream it warrants. “The Nükak have become interesting, 10 years ago nobody gave a damn about them [...] Now they are beautiful because they have money. As soon as the money runs out, they will become lousy *indios* again. Not even other indigenous people will care about them” (Interview Cristina, 2024). Once the Nükak are supposedly made aware of the role played by carbon and biodiversity for the well-being of humanity, they must be made into allies for mitigation, “individuals who see the generalized need for environmental protection in some form and whose practices and words bear the mark of this acceptance” (Agrawal, 2005:18). That is, conveniently ignoring their insignificant historical responsibility in the global environmental breakdown they are called upon to help solving. This is the task at hand not only for carbon businesspeople but also for government agencies, which – especially in Colombia – have made resounding commitments to conservation by articulating indigeneity with the environmental discourse. As Bryant (2002) noted, “NGO-led conservation agendas [...] share a common underlying purpose: persuading indigenous people to internalize state control through self-regulation” (p. 268). In the global conservation industry, in which ESG is a key consideration, coercion is not an option: indigenous communities *have to want* it. Sometimes, funding by international donors is conditional on the involvement of local actors (see Agrawal, 2005:19). The Deiyiabena REDD+ project is no exception, as the contract provides for the establishment of two different bodies: a “Joint Committee” composed by two Nükak and one company representative, tasked with coordinating the work towards the drafting of a PDD, approving investment plans for project revenues and nothing less than “leading and planning the project in all its aspects” (Tropical Carbon, 2021); and a “Nonprofit Association” constituted by the *resguardo* for revenue management and administrative needs (Tropical Carbon, 2021). As a result, the Nükak would be made responsible for their own monitoring and ultimately for the success of the project – that is, for surveillance and profit maximisation – supposedly with methods of their choosing. For these purposes, a Nükak Indigenous Guard was created, hardly as a reflection of Nükak ancestral methods but as a fairly established method among Colombian indigenous communities. As Chilisa (2019) notes, Western evaluation theory lays special “emphasis on translating evaluation instruments to local languages and indigenizing techniques of gathering data without addressing fundamental questions on worldviews” (p. 29). Within this configuration, no one would have more stakes in forest conservation that the Nükak themselves. On a practical level, as shown above, external companies would retain the control of all revenues.

As Agrawal underscores, the making of environmental subjects is an invariably dialectical process that not all community members fully subscribe to. Within the community, “variations in subject positions are closely tied to practices and involvement in new regimes of monitoring, enforcement, and regulation” (Agrawal, 2025). This echoes Comaroff and Comaroff’s (1997) definition of ethnic identity as a “fluid interweaving of signs and practices [...] forged not only in conversation, but also in the minutiae of everyday actions, [...] in the process of struggles, contestation and creativity of self-affirmation” (p. 389). The remaking of the Nükak ecological identity is inscribed in problematic dynamics of hierarchisation,

responding more to the dogmas of representative democracy rooted in the Western tradition than to the needs of a traditionally decentralised community. Besides being an ineffective way to address the community's plights, the establishment of the Mauro Muno council and the election of a single leader can have profound political repercussions, as they end up constituting a 'technocratic' elite the community depends on for its interactions with institutions and NGOs (Luke, 1999). A fledgling 'environmental aristocracy', let in on the expert knowledge that warrants them a seat at the 'table' of socio-environmental politics. One interviewee drew attention to the inadequacy and unfairness of this process of hierarchisation, including for those it might seem to favour: "Everything is done with [elected leader]. This elevates him to a position of chieftainship that is very unfair, not only towards the community, but towards him as well. He finds himself entangled in a lot of things that should not happen because that is not their organisational form" (Interview Cristina, 2024).

Far from countering this trend, the REDD+ project has been fuelling it, as companies have systematically sought to legitimise and delegitimise Nükak leaders as needed: "Nükak leaders stand to gain because they go to all the meetings where [GreenVenture employee] buys them off, [...] but the bulk of the population continues to go hungry, continues to suffer from diseases, malnutrition and addiction, remains without productive projects, without education for the youth" (Interview Sonia, 2024). What is more, Nükak leaders have been involved in arm-wrestling between the companies involved: the lawsuit filed in late 2024 by Tropical Carbon's manager formally accused the Nükak leader of breach of contract, and while GreenVenture's manager is explicitly named as the person orchestrating the plot behind the scenes, he was not sued directly. Additionally, Tropical Carbon's manager cites three other Nükak elders in his support, thereby pitting Nükak leaders against each other. This came in the wake of accusations of embezzlement of community funds wielded against the same Nükak leader few months before. The Nükak, however, are not used to solving controversies in court of law and, failing their ancestral conflict resolution methods, tensions and social enmity can turn quite violent: "When something similar happened, in 2006, the then leader Mao Be ended up committing suicide. The social pressure on the leader is very strong" (Interview Cristina, 2024).

Agrawal (2005) convincingly shows how pro-environmental behaviour stems from embodied practices more than from discourse or petty material benefits. As discussed above at some length, the Nükak are not expected to make substantial changes to their behaviours (and appear – understandably – uninclined to do so). Rather, they are expected to enact an essentialised version of themselves as ancestral forest stewards, or "to be truly themselves" (Li, 2007), regardless of their future aspirations, at least for the duration of the contract. In light of this, the Nükak can hardly be regarded as fully-fledged environmental subjects, assuming that such a status can ever be obtained. At most, an embryonal form of environmentality can be observed: while they do not yet present the features of a "governmentalised locality", especially as concerns the internal diversification of the population in terms of involvement in regulatory practices and beliefs on forest protection (Agrawal, 2005:166), some of them have started to

redefine their relation to 'the environment', albeit mostly in exchange for real or promised incentives and positions of power (for example, membership in the Indigenous Guard). From a different angle, the reason why the Nükak elude a straightforward subjectification as environmental actors may coincide with the reason why they cannot be easily shoehorned into the role of deforestation drivers: the Nükak have always been environmental actors in that the environment has been essential to how they think and act (Agrawal, 2005); in a sense, their forest has always been political (Gabrys et al., 2022) and not a mere natural backdrop. Thus, neoliberal conceptualisations of nature are having a hard time superseding their holistic and relational conception of the *ye*.

What is for sure is that they are increasingly *portrayed* as environmental subjects in forest conservation narratives: in REDD+ promotional videos (Tropical Carbon, 2023), a key component of the educational process required to forge environmentally-aware subjectivities (see Müller, 2020), they appear with their traditional attire and body painting in a performance of the "ecological native" (Ulloa, 2004); in REDD+ animated videos, blackfaced Nükak[88] tell their social history to the audience. Regardless of this bizarre misrepresentation (it is hard to tell whether it can be attributed to carelessness, deep-seated coloniality, or simply video-editing budget limitations), the performative element that characterises promotional material and community assemblies, highlighted in similar studies (Lock, 2021), suggests that carbon actors cast indigenous people as environmental 'pawns', rather than environmental subjects. Yet, as this dissertation helps elucidate, the everyday reality of the carbon project challenges this framing, as the Nükak effectively negotiate spaces of enunciation and short-term benefits, albeit along a path that is partly pre-determined by the asymmetric power relations governing the modernist conservation landscape (Collins, 2024; Garcia and Sanford, 2024). To use Agarwal's vocabulary, an "imagined autonomy". Under this light, the Mauro Muno council of authorities, and FPIC more generally, appear as a gimmick for ex-post legitimation: "It is a way to legitimise top-down decisions. The issue is one of method, more than anything else. How free and informed can consent be if all the community members participating in the meeting are being paid 200,000 pesos?" (Interview Sonia, 2024).

"*Aquì es un todos contra todos*": Coloniality and internal colonialism in Guaviare

As was illustrated in chapters 4 and 5, the carbon offsetting landscape in Colombia appears rather multifaceted: while testifying to the neocolonial drifts of the offsetting paradigm, it also displays country-specific dynamics that advise against an overly simplistic narrative of North-South neocolonialism. In Colombia, and in Guaviare more specifically, squarely neocolonial phenomena are intertwined with patterns of internal colonialism, including among indigenous groups, which bear witness to the coloniality of power still permeating the national society.

[88] While the Nükak have a different skin tone from *criollo* Colombians, their skin colour is clearly distinguishable from the darker tones of – for instance – Afro-Colombians.

So far, this chapter has focused on the shady ploys of the organisations directly involved in the REDD+ project, based both on informant insights and observational data. Picturing them as two 'rotten apples' in a galaxy of well-meaning institutions and NGOs (see Fig. 29), however, would be highly inaccurate. To an extent, the reason why REDD+ actors were so fast to gain the confidence of the Nükak is to be found in the poor track record of local actors that have been failing the Nükak for years – in some cases, decades. "Everybody uses the Nükak for whatever. For research, for projects, and nothing ever happens. The Nükak are on the verge of disappearing. [...] Each one of the institutions puts up a wall so that nobody can see that they are incompetent, that they are not complying with court orders, that they also steal everything that is given to them. [...] Even with grocery supplies, they do satanic things to the Nükak" (Interview Sonia, 2024). In Guaviare, institutions, NGOs, and development organisations cannot be accused of being absent – in fact, they are omnipresent. Yet, their actions seem to be steered by economic interests rather than social purpose. A social worker bitterly observed: "Take away the money and no one will care about the fact that they are indigenous or Amazon forest stewards. Where were they in the past? Where were [education NGO] Asoparaguas or [unclear NGO] in the most critical times for the Nükak, when they were being recruited by the guerrilla, struggling for food, for survival, for their human rights?" (Interview Cristina, 2024). Another interviewee affirmed: "Nobody is really interested in getting the Nükak out of where they are. The poorer they are, the more they are starving, the more aid will be directed towards institutions and NGOs" (Interview Sonia, 2024). One Nükak leader expressed strong disappointment toward several governmental and non-governmental organisations:

> "SENA [National Training Service] promised us a high school course, but that was four months ago and we have not heard from them since. [...] Everyone comes here only to take pictures, including missionaries, they only take and give nothing back. [...] We are not happy with education projects either. We do not know how much money goes lost on the way, the [education NGO] manager has its own vested interests. [GreenVenture employee] is the only one actually helping us" (Interview María, 2024)[89].

The above accounts expose deeply-entrenched hierarchical social structures reproduced in national as well as local power relations. Such dynamics of territorial coloniality take – among others – the form of internal colonialism in the name of new development imperatives claiming to prioritise sustainability and local populations. While primarily affecting indigenous people, these pressures are

[89] At times, even if no malpractice is involved, public resources and cooperation funds are invested in questionable projects. On one occasion, USAID funded a helicopter flight over remote areas of the *resguardo* the Nükak have not accessed in years. Four Nükak elders were invited on the flight, together with aid workers. Although this was a personal highlight the elders were enthusiastic about, a helicopter flight burning hundreds of litres of fossil fuels over the rainforest while a large portion of the community is struggling to eat twice a day and receive medical care, and the forest itself is being endangered by – among other things – the fossil economy, is hardly the most efficient way to allocate thousands of dollars.

perceived by rural inhabitants more generally. A peasant affirmed: "We *do* want to protect the environment, we do not want to do away with [biodiversity], we know that we are ending the world. But we also know that countries are contributing millions of pesos to preserve nature, and where does that money end up? With the state. [...] I believe another decree is coming, not even from Colombia, it comes from I do not know where and it is going to come for us. They [foreign actors] reproach the state and what does the state do? It attacks the peasants" (Interview Juan David, 2024).

Similar hierarchies of coloniality, criss-crossing the 'indigenous/non-indigenous divide', affect the Nükak in different forms. Until the peace agreement and the establishment of an internal carbon market, their territory had remained at least partly off the radar of neocolonial ventures. In the late 2010s, however, carbon developers were among the harbingers of a new flood of fortune seekers coming to Guaviare. Some were so eager to grab the opportunity that they sought to gain a 'right of way' with the Nükak foregoing a proper prior assessment. The legal representative of Waldrättung, the developing company that first jumped on the Nükak's pollution rights, affirmed: "We did not sign the contract because, after performing due diligence, [we realised] we could not trust the legal representative of the *resguardo* and it was very difficult to work with the community because of their nomadic status" (Mongabay, 2022). Presumably, this lack of trust referred to the fact that, despite the company's best efforts, details of the contract filtered out to the public, triggering resistance and eventually dissuading Waldrättung from pursuing the project.

Later, GreenVenture and Tropical Carbon succeeded where Waldrättung had failed. Crucially, the interpersonal relationships between carbon companies and the Nükak leader went much beyond the friendly collaboration between a community representative and a company providing assistance. "[Nükak leader] was like, 'My great friend [Tropical Carbon manager]. I could not even take a picture with him anymore. 'First I have to ask my boss for permission'. Who would that be? [Tropical Carbon manager]? He is not your boss!" (Interview Sonia, 2024). At one point, at the height of the embezzlement scandal (see above), the Nükak leader was reportedly offered to be hired by GreenVenture if he stepped down as elected leader. An experience indigenous leader working for OPIAC explained the situation as follows: "The Mauro Muno council, which is associated with OPIAC, to them is worthless. They are more about camaraderie and trust. If you know them, [...] they will listen. You may bring them the best of proposals, but if you are not friends with them they will not take it" (Interview Marco, 2024).

This demonstrates how, almost four decades after their incorporation in the national society, the Nükak are still bearing the brunt of a colonial mentality driven by a civilising ideology. Forms of internal colonialism are enacted not only by 'white' urban Colombians, but also within the wider national indigenous community. GreenVenture staff are themselves members of different indigenous communities, and so is its manager, who openly recognises that his position as an indigenous person played a role in how the events leading to the discontinuation of the Waldrättung project unfolded:

> "We became aware of the credit issue through support we offered as ONIC. [...] I thought, okay, the Nükak are free, but their territory has come under the spotlight, it is almost 1,000,000 hectares. This action [project discontinuation] is going to generate a reaction and many companies are going to say, I am going in. So as we were stopping the previous project we started appearing on the stage at an assembly with translators, before public servants such as mayors, governors, and the Ombudsman's Office. In this scenario we are guarantor observers, making the process visible, questioning whether we were doing things wrong. [...] In REDD+ projects there are the so-called socio-environmental safeguards. I cannot build a socio-environmental safeguard if I am not building agreements with the community. Not with one member, but with the whole community. By building those agreements I can generate debate. One may say 'no, I do not want to do it, I feel that I am selling my territory'. Another may say 'I do not want to do it because it may imply that we cannot go hunting or fishing" (Interview Jesús, 2024).

The second part of this statement reveals how, though many of his actions suggest otherwise, GreenVenture's manager appears to be genuinely believing he is doing it for the good of the community. This might be why he is so open about his methods:

> "In late 2019, as [GreenVenture] we directly accompanied the discontinuation process with Waldrättung. [...] We did everything through the *resguardo*, we directly officialised it, it was not even [GreenVenture]. We did the whole document management for the *resguardo*, its logo, its letterhead, its official e-mail and the ID of its authority. [...] These have been our achievements. Who guarantees that it is the authority that is signing a document? [...] It is not just a signature: since it is such a simple signature, I may sign for you. No. [Through a] notary, I legitimise the signature. What [GreenVenture employee] does is to scan it and send it from the *resguardo* mailbox" (Interview Jesús, 2024).

GreenVenture's manager, who claims he was sent by ONIC to Guaviare, also claims he was sent by the Gods to help fellow indigenous people: "If targeted actions are not taken, [...] they will cease to be nomadic, they will become extinct. I believe that the spirits of the Amazon have brought us here to help our Nükak brothers" (Interview Jesús, 2024). While the source of his protection may not be quite so up above, it appears that the powers that be did play a role – at least according to some of the interviewees: "I found out that it came from the Ministry of the Interior, and the Ministry of the Interior is the Nükak's black hole. Everything that arrives there gets no further. We know all too well that they are in cahoots with

indigenous organisations and they are scrambling over Nükak's money" (Interview Sonia, 2024). Indeed, when the DAIRM director changed, the allegiance of the DAIRM appeared to shift from ONIC to OPIAC, which has since been prioritising its own Amazonian Regional Table (MRA) platform for assisting indigenous peoples in all processes, including REDD+. Yet GreenVenture keeps claiming they can deliver even without the blessing of – in their view – corrupt state officials: "[GreenVenture] is saying that they are not going to collaborate with the government because the government is asking for bribes. They said it openly during the meeting. [...] Yet they say that they are going to access rural areas, to bring healthcare and education projects. How are they going to do that? How are they going to set up a health centre in each of the settlements [without government approval]?" (Interview Sonia, 2024).

The evidence presented so far suggests that GreenVenture is 'freelancing' only to an extent, its activity being better understood as inserted into a wider web of competing power systems that can be traced back to different institutions and to the two main Colombian indigenous organisations: ONIC and OPIAC. "The paradox is that there are people from indigenous communities themselves [promoting the project]. It is those indigenous people who are privileged, who realise what business is like" (Interview Juan Camilo, 2024). Another local interlocutor voiced pessimism: "If OPIAC took this over it would not be a much better scenario, unless the focus is on the autonomous management of funds. Which is not going to happen" (Interview Cristina, 2024). In the Nükak's daily life and overall perception, indigenous representatives play a similar role to 'white' Colombian authorities or NGO workers. Their methods and elusiveness make some Nükak distrustful. A Nükak from the Agua Bonita settlement complained: "OPIAC takes us to San José and puts us in a 3-star hotel for the meeting, but they never came to see us here" (María, 2024). Even OPIAC indigenous leaders occasionally let slip quite essentialising thoughts: "The Nükak are formally part of OPIAC, but *they are very difficult to work with*" (Interview Marco, 2024, italics added).

This, of course, does not entail that all individuals within these organisations are trying to appropriate indigenous resources. Even though from a somewhat paternalistic perspective, some of them appear genuine in their aspiration to the emancipation of indigenous communities. Still, especially those indigenous leaders who have long frequented urban centres and political positions tend to subscribe to a "conditional inclusion" (Rivera Cusicanqui, 2012) in a national society built around modernist, capitalist axioms: "Indigenous institutions must be made to understand that you are not a beneficiary, because you are a sector of the economy, you are part of ordinary capitalism. So you are a developer, I am a community, but I am not a beneficiary, we are partners in this. I put in my natural asset, which is the forest, and you put in the money" (Interview Marco, 2024). The emphasis on a fair business partnership rather than on questioning its capitalist foundations reflects how, as Benally (2023) notes, "[i]ndigenous organizations measure their accomplishments based on how well they're recognized, funded, and included in colonial order" (p. 159). Ultimately, perhaps, the most eloquent comment in this regard is GreenVenture's



Figure 30: Entrance to the Agua Bonita settlement (photo by the author, 2024).

manager candid admission referred to managing Nükak affairs: "*Aquì es un todos contra todos*" ("Here it is all against all"). Again, the Israeli settler's infamous warning "If I don't steal your home, someone else will" (Al Jazeera, 2021) echoes loud and clear in GreenVenture's colonial approach.

Importantly, the intrigues recapitulated throughout this chapter are not meant to portray the Nükak as passive recipients of exogenous plots. Even though REDD+ projects are top-down schemes that are almost never initiated by indigenous communities, post-colonial scholars have long sought to show how no colonial process – as brutal and asymmetrical as it may be – is completely unilateral, as subaltern groups elicit spaces for negotiation and agency in ways that end up co-constituting ostensibly one-sided processes (Bhabha, 1984; Moraña et al., 2008; Jazeel, 2019). This is particularly true in the REDD+ landscape, as some indigenous peoples seek to co-shape climate policies by 'self-construing' as forest stewards whose ancestral socio-environmental metabolism has produced and preserved the ecosystems now coveted by the global mitigation industry. This "self-fashioning" as environmental subjects, Agrawal (2005) notes, "emerge[s] as a result of involvement in struggles over resources and in relation to new institutions and changing calculations of self-interest and notions of the self. These three conceptual elements—politics, institutions, and identities—are intimately linked" (p. 3). In this case, as indigenous people (especially their representatives involved in NGO circles) get acquainted with the function of rainforests as a carbon stock and biodiversity hotspot, they come to appreciate the economic importance of something they used to take for granted and develop an autonomous ecological identity

that entitles them to enter the neoliberal environmental debate and lay their sovereign claim over the commodified expression of their traditional 'labour' (see chapter 1).

This co-constitutive process, testifying to the dialectical nature of environmentality, is also the terrain on which a fundamental dispute over knowledge supremacy is fought:

> "At an environmental fair I was asked if [indigenous] science is really science. I answered: when an elder decides to build a *maloca*, first he has to choose a firm ground, not sandy, not in a ravine, and so on. To do that he does not take the soil to a lab, he does it by examining it with his own wisdom. For you, he would be a geologist. Then he establishes where to plant the poles and how high the *maloca* is going to be. For you, he would be an architect. Then he chooses the trees, not only the species but the size, etc. For you, he would be a forester or a biologist. Then he establishes how to position all the elements so that they can carry the weight of the thatch roof, so that the *maloca* is not taken down by the wind or in a downpour, etc. For you, he would be an engineer. Then he places the entrance towards the sunrise, the exit towards the sunset, and a triangular window so that sunrays always tell him what time it is. For you, he would be an astronomer" (Interview Marco, 2024).

These are no mere philosophical musings: it is an affirmation of epistemic dignity, a rejection of a pre-defined blueprint and a negotiation of an impending subjectivation.

Often heard narratives see densely forested countries in developing countries as ideal targets for REDD+. While this is normalised by much literature, it is in fact counterintuitive: if a country is still largely forested it means that its vegetation has been preserved, typically through the ancestral forest management techniques of its indigenous dwellers. Now, external 'experts' are commanding these communities to subscribe to a modern conservation paradigm to save their forests. "At international cooperation meetings they often talk to me about theory of change, but for us it is of no use. They tell us that we have to change because we have been like this for centuries, but the ones who have to change are the outsiders, those who are destroying the environment" (Interview Marco, 2024). Clearly, what is at stake here is not simply the implementation of mitigation policies, but the sovereign control over biodiversity as a resource and – by extension – territorial control. At times, calls for self-determination based on forest-stewardship skills reach the boundaries of autonomy that modern state-centred forest conservation paradigms can afford to allow: "It is our knowledge system that helps preserve the forest. It is difficult to explain, like explaining the Muslim religion [without] reading their sacred text. […] That is why we told the state: do not try to understand, look at the outcomes. We will preserve the environment. If you so wish, we can make an inventory, a cadastre. But if you come back in 20, 30 or 40 years, you will see that

the forest is still standing" (Interview Marco, 2024). In other words: let us do our thing and do not come meddling.

Another contradiction inherent to self-subjectivation, and of interactions between 'peripheral' people and the state more generally (Scott, 1998), lies in the Faustian bargain of visibility. In this chapter, echoing Agrawal (2005), the word subject is used to indicate actors or agents who, at the same time, inevitably *subject* themselves to certain forms of authority or surveillance, "the foundation of subsequent steps to normalize social-ecological behavior" (p. 147). In sectors like forest conservation, this might mean letting the gaze of (state) power penetrate areas that were beyond its purview, especially in post(?)-conflict countries like Colombia. As Collins (2024) puts it, buttressed by several studies at the intersection of rural 'development[90]' and state policy, "visibility is also the flip side of control" (p. 88). What is the front side of the coin, then? Among subaltern communities, visibility can be a calculated risk for the pursuit of a higher good: "invisibility guaranteed our way of life. Self-recognition came from the need to defend our territory" (Haesbaert and Mason-Deese, 2020:261), acknowledged a flower picker from Minas Gerais (Brazil). Among the Nükak, as discussed above, processes of self-subjectivation as a reaction to the stimuli of the environmental community are still in at an early stage, their evolution hard to envision. Environmental protection seems to be far removed from a "critical domain of thought and action" (Agrawal, 2005) for them, yet that is not out of disregard for nature as much as due to the reasons expounded above: first, since the Nükak do not subscribe to the Western dichotomy between humans and nature, nor to the "'glocal' understanding of nature-society relations" (Müller, 2020) REDD+ policies promote, as fetishising 'the environment' as a *thing* in need of protection requires a certain degree of cognitive reconfiguration (or transculturation, see above); second, on a more material level, there is little they can do to reduce deforestation in their *resguardo*, as they are not its main driver; third – and relatedly – most of them are living in dire conditions outside of their territory, which pushes ecosystem protection down the list of their priorities. Rather, since Colombian laws afford special protection to so-called "communities at a stage of initial contact", some Nükak appear to have adopted the strategy of leveraging vulnerability as a strategy for protection, and are often heard saying: *"Nosotros somos de contacto inicial"*. On the vulnerability of peripheral communities, Haalboom and Natcher (2012) rightly warn that "the label 'vulnerable' is often generated by those who are more or less unfamiliar with the complexities of local culture [which] may ultimately hinder their efforts to gain greater autonomy" (p. 319). Discussing the involvement of 'subalterns' in educational practices surrounding REDD+, Müller (2020) argues that the "discovery of 'the vulnerable' results in new ambivalent roles" (p. 431). Yet, it can be argued that Nükak are doing exactly what others are doing with environmental subjectivation: repurposing an exogenous agenda in order to create a platform for community mobilisation, with a view to improving their own material conditions and securing a higher degree of self-determination.

[90] Here, inverted commas reflect a critical approach to the very concept of development (see Escobar, 1995 and Li, 2007).

In Agrawal's framework and related scholarship (Müller, 2020; Hjort, 2021), glimpses of effective emancipation transpire, albeit – as is typical of biopolitics – within the boundaries set by the hegemonic system. In the folds of the overarching design, genuine benefits stand to be gained in acknowledging the vulnerability of ecosystems to human activities, not through a depoliticisation and fetishisation of sites of climate harm as much as through an expanded understanding of environmental commons. This, however, does not quite apply to the Nükak, who have little control over their territory and the unfolding of the REDD+ project. Ultimately, then, it can be argued that what is being enacted in Guaviare is more a 'pantomime' of environmentality than a deeply-seated process of environmental subject-making.

The interactions between the Nükak and the organisations and scholars that surrounded them present other peculiar features that cast doubts on the empowering potential of the current conjuncture, at least in the short run: first, even well-meaning social workers and activists, especially those that came 'to the rescue' primarily out of empathy, display a tendency towards the victimisation – bordering infantilisation – of community members:

> "If they go on like this, the Nükak will not survive as a culture, because the elders are dying of depression, alcohol and lack of power. [...] I hope my words do not sound horrible, but they are a species that must be preserved, like monkey, jaguars, orchids, because they [...] are helping the forest recover. [...] Once, as I was on a gathering round with them, the forest floor was white with seeds they were spreading. And I thought to me, this is what the forest feeds on. [...] Monkeys do not eat the same fruits, they spread different types of seeds. The task of a bee will never be fulfilled by a dog. We need to understand that they as a species have to be preserved and that we have to give them back their territory" (Interview Sonia, 2024).

This attitude, reflecting an essentialisation that borders dehumanisation, is sometimes coupled with a certain degree of infantilisation: "Last year, they [GreenVenture] took them to a Mauro Muno assembly [...] and when they brought them *to me*, the 250 Nükak *I received* here in San José were sick, they came *to me* with the flu. [...] Those [obscenity] did not give them a single pill, not even a juice. [...] They should be sued" (Interview Sonia, 2024, italics added). According to a GreenVenture employee, the problem arose when many more Nükak turned out at the meeting than had officially been invited. While the assembly's mismanagement might warrant some scrutiny, the language used in this ("brought *to me*", "came *to me*", etc.) and previous statement reveal a paternalistic attitude that, though not always detectable in direct interactions with community members, reflects a perceived asymmetry that has long been problematised by anthropologists (Spivak, 1994; Fabian, 2014). One of the longest-standing experts in interactions with indigenous peoples in Colombia, Martín Von Hildebrand, stresses the importance of recognising full intellectual dignity to indigenous people, even in cases in which their lack of familiarity

with modern[91] bureaucratic processes makes them seem ill-equipped to fend for themselves: "The indigenous people, who are as old as we are [...] on this planet and who have the same intelligence and intuition, have a deep knowledge of the forest, biodiversity, the biological system and human relations. They have evolved at the margins of our technologies, the ones they discovered have been enough for them. [...] They decided to do it differently. Their skills have been focused on something else" (Arbelaez, 2024). Contrary to this, some seem to take the Nükak's inaptitude to 'Western' social life as a given and risk inadvertently reproducing colonial tropes about the laziness of indigenous people: "There is an ongoing discussion in the healthcare project platform, because some Nükak were hired, but the Nükak do not work. They come on payday though" (Interview Cristina, 2024). Sometimes, pro-indigenous advocates tend to project on the Nükak what they believe they should think or do:

> "Their only mission has to be to take back their damn territory, that is the only fight they have to put up. The plastic, the I do not know what, blah blah blah. I tell them, if you were a little bit smarter what you would ask for is support for productive projects. When you go foraging asaí [*Euterpe oleracea* fruit] or patawa [*Oenocarpus bataua* fruit], come and sell it. [...] In addition, they could make a living not only by exploiting the forest, but also by turning their settlements into tourist attractions. [...] So they would not go begging for 20,000 pesos for a whole day's work. And they immediately spend those 20,000 pesos, but then they do not have transportation, nor food or water, and go about like [obscenity] here asking for grocery, selling themselves off for 200,000 pesos, then go and spend it all on alcohol. [...] They lazy about playing with your mobile phones and the elders doze off because you are not even able to hire a translator. And on top of that translators are in cahoots with the leaders, so instead of translating well they translate whatever they want. Just sign here and give me your fingerprint" (Interview Sonia, 2024).

This spirited approach is partly spurred by the understandable concern, among institutions and NGOs, that any self-interested decision by leaders, any compromise to their traditional way of living, any short-sighted choice will steer the Nükak further away from their ancestral lifestyle and towards a full integration into capitalist modernity. The question, however, is whether a qualitative assessment of this transition – assuming it can be averted at all – is up to non-Nükak individuals, and to what extent they should feel entitled to influence it. Carbon actors, undoubtedly with their own agenda, highlight the tensions this approach generates: "At one meeting, USAID offered 11 billion pesos [2.5 million euros] for a project, but [a Nükak representative] stood up and left. They wanted to pay for agricultural projects, but the Nükak want housing. [NGOs] worry that the Nükak will lose their culture if they live in houses, but their

[91] Here and throughout the dissertation, the adjective 'modern' generally refers to Western capitalist modernity and, therefore, does not necessarily have a positive connotation.

culture is their language" (Interview Alex, 2024). Peasants who have been co-existing with the Nükak for decades have a more disenchanted view about the needs of the Nükak: "There are people who have children with them, they are closer and closer, some of them already have a family and a home" (Interview Ferney, 2024). In fact, co-existence has not always been so idyllic, both because of individual accidents and of structural reasons linked to the expansion of the agrarian frontier and the exploitation of the Nükak as cheap labour for coca harvesting in times of low prices (as was the case during fieldwork for this dissertation). For this lack of harmony, peasants blame scholars:

> "What spoiled it were some anthropologists who arrived around 2010. They treated the Nükak in a certain way, said that they had to be preserved. [...] The Nükak no longer want to stay in the jungle, most of them are coca harvesters, they work, they already drive motorboats, ride around on motorbikes, they want a civilisation just like the one we have been developing. I have been asking those who know best if anywhere in the Colombian political constitution, or in the political constitution of the world [sic], there is a law that says that the free evolution of the world is rejected. I do not think there is" (Interview Ferney, 2024).

While *campesinos* clearly have their own agenda and therefore their arguments cannot be taken at face value, they hit a raw nerve by laying bare the potential superimposition of NGO agendas over the Nükak's own will and needs.

The second – related – feature lies in an egotistic attitude that could be prosaically defined as a 'lone avenger syndrome'. At times, civil society workers and committed academics appear to treat the Nükak as a kind of personal mission and, leveraging their role as gatekeepers, put up high interaction fences around the community. When it is not justified by a legitimate precautionary principle, this cumbersome mediation speaks to a form of jealousy over one's special relation with the community. And is particularly problematic when it goes against the intentions – and at times the immediate interest – of community members, who, conversely, are very open to new acquaintances and not so naïve and conflictual as some social workers claim them to be. "[Employees of a specific NGO] act like they are half Nükak, but they were not so indigenist a few years ago" (Interview Timoteo, 2023), an interviewee well-versed in the Colombian NGO landscape asserted. Others, with no anthropological training, purport a deep understanding of the community and of the methods to be used in interacting with it, and patronisingly question or disregard the motives of any newcomer, be it a foreigner or a Colombian national. Those who do have a relevant training tend to take the community's well-being as their career and life goal, rather than ensuring the continuity of assistance and research. In Colombia, it is common for established academics to set up the so-called *semilleros* (literally seedbeds, incubators) to raise a new generation of scholars versed in a specific field, yet this was not the case among the scholars who

have long studied the Nükak culture: “They have done a great job, but they have not established a school, they have not left a legacy. It has been their project all along” (Interview Augusto, 2024), one knowledgeable interviewee affirmed. While often motivated by a protective drive, this adamant gatekeeping runs the risk of stifling constructive engagement with key issues. And, once more, it raises the question as to whether this should be the call of non-Nükak gatekeepers who, by effectively acting as informal tutors, are again infantilising community members and making them dependent on the tutors’ assessment of what is in their best interest. Uncompromising gatekeeping has been a hinderance – if not unsurmountable – to this dissertation as well, as was laid out in the methodology section.

REDD+ as a Trojan horse

Forty years into their socio-political limbo as “initial-contact” people, the Nükak cannot yet be considered as fully subsumed into the capitalist society, as the social relations that govern their co-existence (with *kawene* and especially among themselves) are mostly not determined by capitalist rationality. Under this light, the interactions surrounding the REDD+ project can be seen as a key node in a process of articulation between the Nükak’s social formation and the Colombian national society. This process, as discussed in chapter 1 in reference to Hall (1980), is functional to the conquering of a new “outside” of capital (Luxemburg, 1951), which, in the case of the Nükak *resguardo*, can apply both to the social space of the indigenous community and to the physical space of its rainforest that, though formally part of the Colombian state territory since the nineteenth century, had been only intermittently subjugated by capital before being devoured by the green market as one big carbon stock. Once this ‘door’ has been pried open and capitalist social relations have become generalised, there is no going back: the road has been paved for a host of different capitalist ventures to come in alongside commodified carbon trading (see also chapter 4.3). This corroborates and reinforces the argument that carbon offsetting ends up facilitating the further accumulation of capital by corporations in both the Global North and in the Global South (Corbera and Martin, 2015).

In Guaviare, of course, REDD+ did not come in a void. Rather, it added to and accelerated a fraught process of monetarisation and commodification the Nükak community has already been undergoing for decades, with far-reaching repercussions on their reciprocity norms and solidarity networks (Mahecha, 2024). This resonates with Amin (1976), who noted that “traditional social structures hinder the spread of commodity exchange: the vitality of the village community [...] makes ineffective the simple mechanisms of competition that played a determining role in the transition from feudalism to central capitalist economy in Europe. This is why [...] a colonial authority concerns itself with stimulating monetarization of the primitive economy” (p. 204). While local companies might not have grand colonising or civilising schemes in mind, driven by greed they become unwitting foot soldiers of capital: “The Nükak’s modesty borders on innocence. Changing their mindset is very easy. And [companies] take advantage of that. The Nükak never had money. The problem is that, if you never had something, you never feel the need for it,

but when you have it, then you need it" (Interview Rodrigo, 2024). Albeit condescending, this view nonetheless captures a key aspect – the fostering of a monetarised economy. Carbon companies, then, predate on these processes through the super-exploitation afforded to them but the wide knowledge gap in the comprehension of monetary dynamics under capitalism: "The capital relation is the following: what percentage of the earnings do they give to the community for bringing poverty here? Who earns well? Company employees earn 8-10 million pesos [approximately 2,000 euros] per month, but it is not them who are doing the conservation work" (Interview Rodrigo, 2024).

The monetarisation of social relations through carbon offsetting takes two different forms: on the one hand, the prospect of carbon rents that have not yet materialised; on the other, cash payouts to the community members who take part in meetings and assemblies. "The [carbon company] has them bought off with 200,000 pesos [approximately 45 euros] every time they come" (Interview Sonia, 2024). A GreenVenture employee openly admits it and provides a persuasive capitalist rationale: "All the Nükak who take part in activities receive a payment. We tell them not to spend it all on beer, to buy groceries first. [...] When they come to a meeting, sometimes they lose two-three days of work" (Interview Alex, 2024). The idea of compensating for lost workdays warrants further clarification, as the Nükak's main activity, i.e. going for gathering or hunting rounds, generates only the use value of the food and materials collected and is therefore difficult to quantify in terms of exchange value. There is another type of labour, however, that carbon meetings have to compete with, and whose value can be easily quantified: "Some of them work as day labourers for coca harvesting" (Interview Alex, 2024).

The reason why the GreenVenture employee did not feel the need to justify payouts on moral or anthropological grounds is that, long before the era of carbon forestry, NGOs have used the Nükak to receive payments in exchange for participation in any activity, including those that directly benefit them. In place of painstaking work to persuade them, some resorted to buying off their presence:

> "The Nükak assumed that everything that has to do with the state has to be paid for. That message is already ingrained in their lives. That is really bad because then they will not even grow a crop. Are you hungry? Okay, I will give you seeds, I will give you the tools. But then you expect to be paid to plant them? Well, that is where things go awry. Do you want to buy industrialised products? All right, it is your call. I can support a process of income generation so that you have money to buy rice and everything else you want to. But then you expect to be paid to generate those processes on top of the money you earn from them?" (Interview Cristina, 2024).

Representation has been given a price, and Nükak leaders understandably see little difference between tokenistic and substantial representation. Yet for the purposes of environmental conservation, Agrawal (2005) warns, "access to material benefit [...] is at best a poor predictor of people's concerns

about the environment or their willingness to protect it. The rational calculus of costs and benefits travels only a short distance in explaining the constitution of the subject itself" (p. 18).

The Nükak's complex relationship with the monetised economy suggests a cautious approach to direct fund management, which might stimulate corruptive dynamics while delivering little in terms of collective well-being. On the other hand, any form of mediation would inevitably pose a risk of dispossession or misuse with neocolonial undertones. A labyrinth in which all exits lead to a perilous outcome. The Nükak's uneasy process of monetarisation and commodification, however, is a dialectical one that is not doomed to bring about utter social destruction: "They need to be trained in that, in what work implies, in what money implies. We have to work on financial education because, whether we like it or not, they are already more inside [the capitalist system] than outside" (Interview Cristina, 2024). Such a training would at least partly inoculate the Nükak against circumvention by external actors carrying a hidden agenda, be it for environmental purposes or otherwise. Indeed, while GreenVenture burst into Guaviare heralding carbon offsetting (the Nükak still mainly associate its employees with *bonos de carbono*, although GreenVenture has never been the formal developer), it soon proved determined to take over as many private and public contracts as possible, from education to infrastructure, all cloaked under a veneer of inter-indigenous solidarity. "Last year's Mauro Muno assembly, funded by the Ministry, came upon request by the Nükak, but it was also used to approve the carbon project. And now they are doing a Mauro Muno assembly again, formally to talk about a damn *maloca*, but at the same time they are negotiating the education project. Public resources are being used for private ends" (Interview Cristina, 2024). In this sense, REDD+, accompanied by its emancipatory green narrative, has acted as a 'Trojan horse' both for the entrenchment of capitalist social relations and – more directly and wittingly – for gaining the community's trust in order to command concurrent financial flows. This effort proved effective when the 2023 assembly awarded official legitimation to the project: "The elders affirmed that GreenVenture's [manager] has always been a good friend of the Nükak, he has been walking with us and helping us without the institutions' money. This is why he deserves this opportunity, as he knows how the Nükak live, he is familiar with their settlements and their problems" (Resguardo Indígena Nükak Baká, 2023).

It is worth reminding that, at this stage, the Nükak's 'good old friend' had only come into the picture two years earlier and had only spent time with the Nükak on occasional visits. When talking about the community, he appeared to have a very anecdotal, superficial conception of its history and culture:

> "The most fascinating peculiarity of this people is that it is the only people with two mother tongues, which are *Wayari muno* and *Meu muno*. *Wayari muno* are river people, whereas *Meu muno* are land people. Additionally, they are divided up in clans, there are four clans which form the Mauro structure. Why is it called *Mauro muno*? Because

> Mauro was the first Nükak god. Where he came out of the earth, then Nükak boys and girls started emerging" (Interview Jesús, 2024).

This and other statements, disproven by previous rigorous anthropological research (see especially Mahecha, 2024), as well as by fieldwork evidence collected by this scholar, indicate that, although ostensibly preoccupied with the community's well-being, GreenVenture's manager has not deemed necessary to draw on previous knowledge production to inform his sensitive work. Nor has he reached out to the scholars and NGO workers who have been 'walking' with the Nükak and studying their culture for decades. On one occasion, he claimed that the overall population count of the Nükak does not exceed 900 (a recent census put the figure at a minimum of 1,020). In San José del Guaviare, most interlocutors confessed being distrustful or even afraid of GreenVenture staff, with some reporting unspecified threats. One stated plainly: "I am scared of that, in all aspects. And believe me I am very brave, if I see a snake in the middle of the road I do not run. But [the carbon project issue] scares me" (Interview Cristina, 2024). The same interviewee alleged fraudulent behaviour: "I heard of a case in [place name] where they made [...] an inter-administrative agreement between the *resguardo* and GreenVenture for the management of General Participation funds. They threw a party, paid for the damn party and ran away with what was left" (Interview Cristina, 2024). A member of OPIAC (an organisation which – it is worth reminding here – is promoting its own REDD+ policy) echoed these concerns: "If the government were serious about it, it would tell the developer 'You know what? I will not accept this REDD+ project'. If the Nükak have not been able to employ simpler resources, how will they manage with carbon money?" (Interview Marco, 2024).

As allegations such as those above remain unsubstantiated, GreenVenture and other "fraudulent counsellors"[92] seem to be there to stay. All the more because, besides being well acquainted with formal institutions (as was detailed above), it appears to be well connected with informal ones, namely guerrilla groups controlling most of the department. "One wonders whether illegal armed groups too may be interested in forest business. [...] There have been long periods in which all possibility to enter their territory was denied, they just did not allow it. But in the meantime there is a whole host of things going on over there" (Interview Juan Camilo, 2024). Indeed, in 2024, in a period in which almost all NGOs – not to speak of government agencies – were banned from accessing rural Guaviare following alleged violations of FARC rules by one of them, GreenVenture-Medusa was allowed to travel the territory for weeks, to access all Nükak settlements and to bring with them collaborators unknown to the FARC (including this researcher). One of the reasons for the relative success of GreenVenture and Tropical Carbon over Waldrättung was precisely that the latter required the Nükak themselves to obtain access permits

[92] In the Divine Comedy, Dante places Ulysses among the "counsellors of fraud" in the eighth bolgia owing to the Trojan horse deceit.

(Waldrättung, 2019). Although the *resguardo* is technically their territory, the Nükak do not have the financial means to pay their way through guerrilla checkpoints nor the political bargaining power to demand anything from the FARC, an obstacle that the first developer surprisingly seems to have overlooked. GreenVenture's ability to juggle different geographies and scales of power and the entrepreneurial transmutation skills of its management have been the key to its survival in the Amazon: "The problem is not the company itself, the problem is the individual interests behind it. [...] The company transmuted into something called Medusa because it suited their interests better. Which, by the way, is illegal, because to be able to work with the Nükak one should be required to have experience with them. There are vested interests behind that may be linked to carbon now, but if that project falls through they are going to manage General Participation resources" (Interview Sonia, 2024). Should the ongoing attempt to develop REDD+ collapse, in other words, the company would just shift its core business. What would happen to the community, though, and to the forest? As problematic as REDD+ projects might be, the collapse of the "economy of expectations" (Borup et al., 2006) built around development projects can have far-reaching repercussions that are severely understudied in the academic literature, at least as far as carbon forestry is concerned. Scholars have shown that communities often rely on REDD+ for funding streams (Mukono, 2024) and possibly tenure clarification (Milne et al., 2019), which substantiates the environmental risk that "if the payments stop, the mangroves will be cut down in a day" (Huff, 2021:2218). The fading of private funding from credit sale, and the consequent overreliance of REDD+ on international development funding, has been termed "aid-ification of REDD+" (Angelsen, 2017). From a different angle, it aligns with the boom-and-bust cycles typical of resource extractivism, a problem deeply entrenched in the Amazon's colonial history at least since the rubber boom that "repeated the pattern of original colonization–the rapid enrichment of a small group followed by a sudden collapse and enduring poverty" (Bunker, 1984:1032). GreenVenture's manager himself assured that "we do not want to spread false expectations among the Nükak as others have done in the last few years" (Interview Jesús, 2024). Whether this concern is genuine, in light of the above, is questionable; however, the statement may suggest that, sensing some frustration among the Nükak, he felt compelled to deliver at least some initial results in order not to lose his position of advantage: "Apparently the carbon forestry project is collapsing because there has been so much pressure, but [carbon developers] are aware of the resources allocated for the Nükak, so they are not going to give up on them" (Interview Cristina, 2024).

To add insult to injury, the emission reductions expected from the Nükak REDD+ project, somewhat sidelined in this dissertation given its social – rather than biological – focus, might never actually take place if the project falls through, or not be additional if it is developed on the shaky grounds illustrated above. Either way, for mitigation purposes this makes little difference (as climate reporter Rachel Donald likes to say, "physics does not fall for accounting tricks"). Yet, the 'genie' of commodification is out of the bottle and the havoc it wreaks is bound to stay with the community for a long time: "If [this project] is carried out by a different developer, it is going to be just as harmful. Because

of the way it works as a market, the stable relationships between the Nükak and nature are commodified. [...] This is no solution, so whether [carbon actors] are there or not is not going to change the lives of the Nükak. Soon some of them will no longer get any money" (Interview Cristina, 2024). Much beyond false hopes, the Deiyiabena REDD+ project has already left a long tail of social conflict: the lawsuit brought by developer Tropical Carbon against GreenVenture and the signatory Nükak leader (see above), although only the latter is formally indicted, is pitting four Nükak against each other in a legal battle that could end up in court. As was the case elsewhere (see chapter 4.3), even when a carbon forestry project has a neglectable material impact in terms of climate mitigation and environmental conservation, indigenous livelihoods are irreversibly altered and most of the value extracted from the socio-ecological relations underpinning credit issuance is captured further down the commodity chain. The local community, swept by the promises of an ephemeral extractive bonanza, is left to deal with its spoils.

This chapter has presented a thoroughly contextualised account of the dissertation's case study, thereby giving empirical substance to the theoretical reflections and arguments introduced in previous chapters. While the first sub-chapter has offered a brief but exhaustive overview of the recent history of the Nükak people and of their relation to nature and conservation, the second sub-chapter has presented the main findings on the case study at hand and outlined the theoretical reflections stimulated by field insights. While the arguments set forth in this sub-chapter cannot be unproblematically generalised, in essence it has highlighted the risk of a 'double alienation' of rural people from both their means of production (through what I called subtle green grabbing) and their means of social reproduction (through the disciplining of their behaviours and practices) through carbon forestry. The next chapter will recapitulate the conclusions drawn throughout the dissertation, further enucleate some key insights, and open a window onto potential future scenarios.

6. CONCLUSIONS: A HISTORICAL ENVIRONMENTAL JUSTICE PERSPECTIVE ON CARBON OFFSETTING

"One day, a tiger said to a panguana*: «Bring your children, I will look after them. My fist is like cotton wool». The* panguana *replied: «No, because behind the fist are the claws»*

(Witoto myth)

Shifting away from the dominant socio-economic system, with its inbuilt patterns of exploitation of humans and more-than-humans that are at the root of the current socio-environmental polycrisis, will inevitably require substantial transformations, encompassing not only significant shifts in production and consumption patterns but also a reconsideration of the time horizons and cultural values that underpin our relationship with the ecosystems we depend upon. At the heart of these reflections lies the strategic question of how to go about producing a transformation of such magnitude, which – it is fair to say – would require nothing less than a revolutionary undertaking.

This dissertation, through theoretical arguments and empirical evidence, has put into question neoliberal governance solutions to climate mitigation. Particularly, REDD+ has been exposed as a subtle territorial ordering and disciplining framework perpetuating multi-scalar dispossession and exploitation at the expense of vulnerable social groups. Upon carbon commodity frontiers, climate capital is penetrating a new "outside" (Luxemburg, 1951) that not only represents the constitutive 'other' of the capitalistic world – an ecological fix to an ongoing crisis – but paradoxically reinforces existing extractive frontiers in counterintuitive ways. This conclusive chapter summarises the main arguments and findings outlined throughout the dissertation, inserts them into a wider geographical and disciplinary context, and puts them in relation with future prospects both in terms of avenues for societal change and – more modestly – in terms of future research.

6.1. REDD+: Green colonialism or instrument of resource sovereignty?

At the outset of this doctoral project, one of my concerns was that research on carbon offsetting might be irrelevant in three years' time, as mounting scientific evidence and withering market confidence were promising to spell the end of carbon offsetting, or at least carbon forestry. Over a decade ago, Reyes (2011) already associated the image of "zombie carbon" to certain new mechanisms supposed to revive the ailing carbon markets. In other words, the risk was that, more than being a geography dissertation, it would end up being a history dissertation. Contrary to these expectations and in spite of scientific

evidence – but very much in line with neoliberal climate governance – as of late 2025 carbon offsetting has 'come back in style' through Article 6 schemes and, paired with its fledgling 'brother' carbon removal, is again shaping the mitigation agenda of countries, corporations, and institutions. Such a trend is by no means exclusive to climate governance: regressive ideologies, debunked theories, and non-scientific policymaking are making a comeback in several sectors of social life, and there is no telling how deep this regression will go.

Carbon offsetting appears particularly resilient in Latin America, with Colombia arguably as one of its main hubs. As recently as in March 2025, a Colombian MP was heard stating in a parliamentary hearing: "Without a doubt, the issue of carbon markets is becoming increasingly prominent in Colombia" (Canal Congreso Colombia, 2025). This sub-chapter sums up fieldwork findings from the fieldwork and explores some of the socio-political outlooks and implications of carbon forestry.

"*No estamos caminando bien juntos*": Carbon forestry and indigenous livelihoods

Colombian activists have long drawn attention to the ways in which urban dwellers have been almost literally 'eating up' indigenous ecosystems and ways of being, including the Nükak's, through the consumption of 'laundered' meat coming from cattle reared in protected territories (FCDS, 2025). As the preceding chapters have shown, something similar – albeit in a much subtler way – has been happening through carbon offsets, as corporate and individual offset buyers have fuelled mechanisms of subtle green grabbing that, while not directly affecting land rights, influence land uses and shape land imaginaries that are congruent with the neoliberal principle of natural carbon storage. As chapter 5 has illustrated, such mechanisms can have far-reaching implications on the social cohesion and self-determination of indigenous communities, reflecting unequal power relations between the alleged "project owner" (in this case, the Nükak) and the organisations holding the reins of the project. Besides the more conspicuous consequences in terms of social conflict, including lawsuits, there is an attempt to reframe the Nükak's political subjectivity through a selective instrumentalisation of their customary forest practices, casting them as environmental actors responsible for conservation outcomes within the neoliberal paradigm. Once the neoliberal conception of nature sets a foot in the door, once the forest is given a financial value and indigenous social relations are monetised, a process is unleashed that risks disrupting social balances in unpredictable ways.

So far, this work has elucidated some of the potential localised social effects of nature-based offsetting by assuming that deforestation drivers could theoretically be addressed. The matter gets even more convoluted when considering that, in contexts like the Amazon, deforestation is widely known to be driven by illegal or informal activities. This raises questions about the ability of an official UN-sanctioned programme, depending on institutional frameworks and formal agreements, to address unlawful forest practices. Nevertheless, carbon forestry schemes are uncritically implemented across the globe and engender profound situated effects. In Colombia, these manifest as internal (neo)colonialism facilitated

by the global decarbonisation agenda. Indeed, while in certain instances green grabbing – be it subtle or overt – can be directly attributable to international 'green' policies, the Colombian experience with the carbon trading paradigm suggests more nuanced conclusions. To date, phenomena resembling green grabbing have occurred mostly on a national scale, inadvertently encouraged by national legislation allowing entities to legally bring down carbon tax bills by acquiring offsets with no requirement for international oversight and a merely formal alignment with international standards (Carbon Market Watch, 2021). However, as research has at the intersection of law and political ecology suggests (Tienhaara, 2012; Esteve-Jordà and Scheidel, 2025), it would be wrong to see these processes in isolation from the global climate governance paradigm – the very paradigm that has construed carbon as a resource in the last few decades. Global links may not be immediately traceable along a neat commodity chain, yet a carbon forestry industry at any scale is imaginable only within a context that accepts offsetting as a viable way to meet climate goals. From this perspective, internal colonialism is enabled by a global configuration in which Colombia, still entangled in webs of dependency, is expected to provide poorly valued, "unprocessed" raw materials (the ability to preserve ecosystems) that are then turned into semi-processed goods (carbon credits purportedly abating emissions), and finally fed into the production of goods and services worldwide.

Within this landscape, president Gustavo Petro's environmental concern ironically catalyzes an industry with a debatable contribution to mitigation but increasingly tangible social effects. Indeed, a place-based study of nature-based offsetting offers clear insights as to "[h]ow globalised green grabbing possibilities become localized" (Fairhead et al., 2012:247), revealing how carbon forestry is constituted not only by virtual markets but also by eminently material manifestations, involving "old" actors (authorities at various scales), new actors (ENGOs, standardization bodies, certifiers, consultants, etc.), and more or less willing indigenous communities. The latter are somehow left "at the doorstep" of the "complex encounters between science, technology and politics" (Fairhead et al., 2012:241) that produce the carbon commodity, although, given than REDD+ often implies – or at least promises – financial inflows and a decentralisation of forest governance, many communities are willing to cross that doorstep (see the next sub-chapter).

Besides the local articulations of global policies, the field research for this work has revealed one more carbon-forestry-related risk, which might or might not be limited to this particular context. As chapter 5 has detailed, the REDD+ project has been effectively used as a "Trojan horse", particularly by one of the companies involved, to gain the community's trust and be in pole position to access parallel streams of (mostly public) funding. The companies spared no effort, including allegedly illegal ones, to achieve their goals, yet at the time of writing the REDD+ project, despite having been in the works for years, is far from producing carbon credits and might never complete the registration phase. If the project has not yet materialised, project-related issues certainly have loomed: amid leader co-optation, broken promises, and community infights (including legal disputes), the nebulous carbon forestry project has not

gone unnoticed among the Nükak, with consequences potentially reaching far into the future and further complicating a harmonious 'welding' of Nükak and Colombian national society.

A Nükak man with a long history of interaction with 'white' Colombians assessed the situation as follows: "We are not walking well together. We still do not understand your civilisation. The *kawene*[93] understand each other, but we do not. The elders have not yet decided what to do" (Interview Leandro, 2024). Besides the recognition of an unresolved tension, this statement reveals a stark difference in the temporalities of societal change – temporalities that are incompatible with the accelerated tempo of capitalism. The rapid advance of green capital into fragile social environments quashes rural communities through the logic of violent accumulation and capitalist rationality, causing unsolvable onto-epistemological conflicts. This is especially true for subsistence-based indigenous communities like the Nükak. As key actors in stewarding the forest (in fact, producing it, see chapter 5.1), their well-being and the forest's health are inextricably linked – whatever affects one, affects the other: "If the forest does not exist, the Nükak do not exist, it is as simple as that" (Interview Sonia, 2024).

In chapter 2, I discussed how the fieldwork ultimately fell short of being as decolonial as initially envisioned, particularly because the research methods and objectives were not co-designed with the community. This challenge proved insurmountable, not only due to logistical and safety constraints but also because of the significant epistemic gap between myself as the researcher and the partner community – one that could not be bridged within the limited duration of doctoral fieldwork. Repeated hesitations and deferring from gatekeepers, partly attributable to the region's legacy of violence mapping onto the geography of carbon forestry, complicated matters further[94]. In recognising these limitations in scope and efficacy, I ultimately concluded that an alternative means of impacting reality might be to pursue change from within familiar contexts, inspired by the Zapatista's philosophy of intergalactic encounters (Sarabia, 2011). This approach, which I will revisit later in the chapter, acknowledges the value of engaging with the spaces, relationships, and systems to which one already belongs, offering a pragmatic response to the constraints encountered in pursuing decolonial research.

Despite the (partly) failed decolonial fieldwork, this work was partly shaped by my sustained interaction with the Nükak's lived experiences and worldview. Particularly, despite the struggles in genuinely co-designing research, I tried to let my methods and conclusions be guided by the needs expressed by the Nükak themselves and to take their views seriously even when they were articulated in ways that were not immediately legible within a conventional scientific framework: "What we want? To live happily, perhaps to buy a small plot of land" (Interview Sara, 2024), affirmed a young Nükak woman. For most Nükak, the hurdles to such an apparently basic life goal are enormous, not only due to poverty,

[93] Non-Nükak.

[94] These hurdles notwithstanding, I wish to emphasise that any shortcomings or errors in this dissertation are the sole responsibility of the researcher (see also chapter 2).

poor health and education[95], but also due to FARC-imposed restrictions, a problem further complicated by the recent recrudescence in the conflict between FARC *disidencias* and the national government. "The FARC prevent everyone from selling land to the Nükak" (Interview Sara, 2024), she lamented. Although a knowledgeable informant denied this[96], guerrilla groups are surely determined to maintain their territorial control, a vital source of revenue. A 'business plan' based on coca windfalls and extortion from rural livelihoods, however, might prove short-sighted in a changing world, as an interviewee bluntly but effectively preconised:

> "Let us sit down [with guerrillas] and talk economics. [...] You are controlling the land in order to grow coca leaf, seriously? All you have left is a couple of years. In case you have not heard, with all the synthetic drugs out there, coca is bound to disappear. What are you going to live on? Who are you going to make a racket around? Get smart and look to the future. This jungle can provide for all: farmers, Nükak, and [armed] actors alike. [...] But we need to get our acts together because the party will soon be over if we let all this be deforested. [...] Carry on with this stupid war, fine. But if life and ecosystems are not preserved, no one will survive" (Interview Sonia, 2024).

Others, according to this interviewee, have already cast their sight on the Amazon as a future-oriented resource. Most notably, one of the wealthiest men on earth, who named a company after the Amazon rainforest: "Jeff Bezos already came to fly over the area with former President Duque. [...] They did not just come to visit the beautiful Chiribiquete[97]. They came to see if there is water, if there are mountains, if there is air" (Interview Sonia, 2024).

In the age of climate change, ecosystems and their 'services' – including carbon storage – become crucial tools for legitimising continued economic expansion. Scrambling for resources rendered artificially scarce, after all, is a defining feature of capitalism. The neocolonial scramble for emission rights, as this dissertation has shown and the next section will summarise, is yet another iteration of this cyclical process.

Unconscious vampires? A neocolonial division of mitigation labour

In a 1919 column in "Ordine Nuovo", discussing the plundering of colonies particularly during the first World War, Antonio Gramsci asserted that for years "we Europeans have lived at the expense of the death of the coloured peoples: unconscious vampires that we are, we have fed off their innocent blood"

[95] It is worth stressing that this refers to formal 'Western' education, which enables the Nükak to better navigate the Colombian institutional and market landscape. Most Nükak are highly skilled by their own knowledge standards.
[96] I was not able to reliably verify whether such a ban is in force.
[97] National park in Western Guaviare. US tycoon Jeff Bezos, together with his partner Lauren Sanchez, Andrew Steer, and the Bezos Earth Fund team, visited the area in March 2022 (Bezos Earth Fund, 2022).

(Gramsci, 2000 [1919]:113). With a similarly gruesome metaphor, Karl Marx described capital as "dead labor, which, vampire-like, lives only by sucking living labor, and lives the more, the more labor it sucks" (Marx, 1992 [1867]). Adapting Gramsci's metaphor to the global mitigation paradigm in light of what this dissertation has sought to substantiate, it is hardly far-fetched to argue that offset buyers, especially bulk buyers like the above-mentioned tech giants, are themselves "unconscious vampires", using up the planetary carbon budget at the expense of black, indigenous, and more generally impoverished communities from the Global South who, at the same time, carry out most of the mitigation work and bear the heaviest brunt of climate change. Recent academic literature has termed this "appropriation of emission rights" (Bruna, 2022). A carbon developer from Colombia shared a relevant personal experience (though not underscoring its neocolonial aspects): "There is a large pharmaceutical corporation from [a European country] that has been seeking to compensate the emissions for each drug they issue. But it turns out that Europe has no land available. So they are now looking to Latin America because there is land here. And the last remaining lands to be made visible are in Colombia" (Interview Jesús, 2024).

On top of this, carbon forestry projects often fail to address the real underlying drivers of deforestation. Indigenous groups are cast essentially as scapegoats, or implicated actors (Clarke and Montini, 1993), held responsible for a global problem that originated elsewhere – both spatially and historically – while simultaneously subjected to more or less overt forms of enclosure at the local level (what I defined "subtle green grabbing"). This process is not rammed through merely through the power of capital, but enabled by a sophisticated political and scientific architecture engendering the global carbon trading paradigm. In the words of Moore (2015), "the processes of identifying, mapping and rationalizing [...] new sources of unpaid work/energy cannot be explained by economic forces alone; they depend upon state and science to make them work. Thus, primitive accumulation and the geographical expansion of capitalism are about more than the transfer of wealth from the non-capitalist to the capitalist world" (p. 15).

Nevertheless, the geographical expansion of capitalism remains *above all* about the transfer of wealth from certain parts of society to others. To provide quantitative backing for this argument, chapter 4 has sought to scrutinise the social desirability of the trade in carbon *regardless* of its biogeochemical effectiveness, and demonstrated how carbon trading gives rise to an understudied form of unequal exchange. The chapter showed how carbon markets are built on a fictitious commodity overwhelmingly produced in the Global South and, like many other 'unprocessed' raw materials (see also chapter 2.3), fed into the industrial production complex in the Global North. Visible transfers of value, however, conceal a hidden transfer that can conservatively be estimated at 4 billion USD in for the period 2020-2023 (Colombia alone was deprived of 200 million USD). While this monetary value is relatively modest compared to trillions in 'traditional' raw materials, it is worth reiterating that this picture is partial, and the figures most likely underestimated, due to – among other things – data paucity, current Article 6 developments expanding the market, and further hidden financial benefits from the sale of credits

accruing to companies located in the Global North. Moreover, the quantification itself does not account for the secondary costs associated with value drain, for instance loss of access to land for farming, erosion of traditional land-use practices, negative effects on the social cohesion of local communities (deepened social conflict, corruption, coercion, undermining of indigenous rights), and heightened risk of violence through the involvement of armed actors. If these were accounted for, the economic and social costs would be much higher.

If neocolonialism, according to Global South intellectuals like former president of Ghana Kwame Nkrumah, is "the last stage of imperialism" (Nkrumah, 1965), then carbon-based neocolonialism emerges as part of a broader imperial project, rooted materially and epistemically in sixteenth-century military colonialism and in continuity with twentieth-century extractive neocolonialism. "With petroleum, as with coffee or meat, rich countries profit more from the work of consuming it than do poor countries from the work of producing it" (Galeano, 1997:157), relates Eduardo Galeano. His remark, that could perfectly apply to carbon offsetting, also reminds us that colonial extractivism has always employed local labour for the hardest toil involved in raw material production. Once more, this corroborates the argument that the alleged biogeochemical efficacy of carbon offsetting is beside the point: long before being a false solution, carbon markets are fundamentally a *wrong* one.

If there is no rationally and historically sound justification for global carbon markets, an even weaker case can be made – as this dissertation has sought to show – for nature-based offsetting in countries with illegal deforestation and political instability more generally. This has led activists to bring forward a moratorium on carbon offsetting, a topic I turn to next.

The case for a REDD+ moratorium

When president Gustavo Petro paid an official visit to San José del Guaviare in June 2025, he devoted part of his speech to carbon offsets and involuntarily summarised some of the findings of this dissertation. He affirmed: "Carbon credits are a neoliberal way of solving the climate crisis caused by neoliberalism and the market, by greed and by the consumption of more and more things powered by fossil fuels. [...] They are getting indigenous leaders in San José del Guaviare to sign [carbon deals] although [these leaders] know little about what is behind it. [...] They give the community fifty cents per ton and, since that tiny sum of money is still more than the state has ever given them, the community signs. Yet it turns out that [the price of offsets] is seven dollars per ton. They are being swindled. And to run this business, as is often the case here in Colombia, [carbon actors] use weapons: anyone who stands up against this, dies" (Presidencia de la República de Colombia, 2025). In his speech, Petro also mentioned "The Vortex", a book whose relevance to this work has already been pointed out. One excerpt from the book on rubber latex intermediaries particularly resonates with current practices of carbon trading as described by President Petro (and in this dissertation, particularly in chapter 3): "And the man who's brought ten liters gets credit for only five, that day, in the company accounts. The overseer takes

the other five for himself, trading it for [...] whatever the itinerant peddler [from another region] has for sale" (Rivera, 2018 [1924]:117). Two centuries later, the sought-after resource may have changed, the modes of extraction and exploitation may have been refined, yet the processes of appropriation and unequal exchange bear an uncanny resemblance.

While this dissertation's case study is rather unique in many of its features, the overall patterns of dispossession and exploitations are by no means an exclusive prerogative of the Nükak REDD+ project, nor of the Colombian carbon offsetting landscape. When taken all together, the cases of fraudulent, extractive, or mismanaged nature-based carbon ventures worldwide suggest the highest precaution, if not distrust (Greenfield, 2023a; Probst et al., 2024; Cabello, 2025). Indeed, for all the promises of cash inflow and development opportunities, carbon projects have so far delivered very little and, in cases like the Nükak's, stirred social conflict even before implementation. These hazards support a strong case against carbon offsetting, particularly against national, ill-designed carbon markets. As discussed above, the value plunder and social disruption caused by carbon offsetting are less the product of direct colonisation than the poisoned byproduct of the global climate governance regime, whereby international climate policies and national efforts (even well-intentioned ones, such as Colombia's carbon tax and Petros' environmentalism) collude to the detriment of socio-environmental justice. Since in Colombia (and elsewhere the Global South) deforestation is ultimately a matter of state policy vis-à-vis agrobusiness and non-state actors, expecting agreements among private actors – with no enforcement authority – to effectively address the issue is unreasonable and risks reinforcing corruption, illegality, and informality.

In the short or medium-term, a case could be made for a moratorium on carbon offsetting, especially on those nature-based schemes that have a considerable territorial footprint such as REDD+. Suggestions to this effect have come from the UN Special Rapporteur on the rights of Indigenous Peoples (C. Lang, 2024e) and German CSOs (Presseportal, 2024), among others. Such moratoriums could start at national level, although it would take a government brave enough to face the potential backlash associated with the foregone inflow of green finance. In early 2024, Laos suspended the approval of new REDD+ projects to give itself a chance to effectively regulate its carbon market (World Bank, 2024). In Latin America, Bolivia put forward a moratorium in 2023 (Gibson, 2023), although the country, caught in a complex political phase, later started developing the largest carbon forestry scheme in the world with a view to issuing sovereign carbon credits in 2026 (Padin-Dujon, 2025; Ministerio de Medio Ambiente y Agua, 2025) despite the unprecedented wildfires that engulfed the country in 2024 (Fundación Tierra, 2025). In Colombia a moratorium is not on the table, although the need for a regulatory intervention is felt by many. A former guerrilla asserted: "I believe that the state should intervene. [...] It cannot give free rein to international organisations that come to make these investments. [...] We are losing bits of sovereignty here" (Interview Rodrigo, 2024). A 2025 presidential decree enshrined the right of "cultural objection" by indigenous people, allowing them, "based on their own knowledge systems, to object to an initiative or

activity that a third party intends to carry out in their territory" (Secretaría Jurídica Distrital de la Alcaldía Mayor de Bogotá D.C., 2025). This right however, which would apply to carbon projects as well, seems to suggest that in the past communities were restricted from objecting unless they possessed a formally recognised justification.

Given all that carbon projects have set in motion and given that not all rural communities are adamant on getting rid of carbon forestry altogether (see chapter 1.3), what is clear is that, rather than by imposing a universal ban, the issue should be approached through locally articulated strategies grounded in a precautionary principle: what will remain after projects are banned? The next sub-chapter will explore cases in which a blanket top-down ban might not be the most desirable option.

6.2. RED-Die hard: What is the way to go?

As discussed in previous chapters (and more extensively in Rizzi, 2025a), REDD+ and carbon offsetting more generally have proven to be remarkably impervious to criticism and keep "failing forward" (Fletcher, 2023) despite their social and environmental shortcomings, pushed by climate pundits and profiteers. While partly attributable to ineffective academic and media criticism, the policy persistence of failed climate policies (Asiyanbi and Lund, 2020) may, to an extent, be said to rest on popular support (and partly academic support, see for example Angelsen et al. 2017) based on what REDD+ *could* potentially deliver – or has delivered – to *some* of the stakeholders involved. Either way, carbon forestry appears to be there to stay. Portrayed as a win-win climate solution and wielded by indigenous peoples as a means for economic emancipation and sovereignty, it emerges as the ultimate instrument to temper potential resistance: going against it is to go against the undeferrable imperatives of biodiversity conservation and climate change mitigation, as well as – so goes the rhetoric – against the empowerment of forest communities. Against this "TINA"[98] background, the most realistic future scenario, especially in the light of the continued lack of internationally-agreed regulation, might be one in which governments and local authorities intervene in the legal-technical arrangements of carbon trading and try to reign in market forces for the benefit of their constituents. This sub-chapter explores potential scenarios along these lines.

<u>REDD+: More to it than mitigation deterrence?</u>

That carbon offsetting has been nearly worthless for the purposes of emissions mitigation and a dangerous form of mitigation deterrence (Markusson et al., 2018) is now almost undeniable since, following media and scientific debunking, even carbon market agents have been feeling the need for

[98] The reference is to former British PM Margaret Thatcher's well-known "There is no alternative" political slogan.

stricter regulation and more realistic carbon accounting (see chapter 1). This, however, does not imply that carbon projects are completely worthless under all rubrics. Scholars have shown, for example, that communities often see REDD+ as an attractive source of funding (Huff, 2021; Mukono, 2024) and an instrument to achieve tenure clarification (Milne et al., 2019). Others claim that "REDD+ has clearly fostered opportunities to secure the land rights of local people" (Larson et al., 2013). Is REDD+ delivering *something*, then?

"A motorboat driver from the Inírida river told me that nowadays all [peasants] have maps and coordinates on their mobile phones, so they know where the line is and they do not cut down trees beyond it. […] That thing [the REDD+ project] caused a stir. Now they know that if they cut down trees inside the *resguardo*, there will be consequences. […] So something good has come out of all this. It will not solve the problem of deforestation but, at least within the *resguardo*, it does help" (Interview Cristina, 2024). Deforestation processes, however, are not only in the hands of individual *campesinos*, but rather influenced by the territorial designs and requirements of guerrilla groups, and the orders they issue to peasants. For all GreenVenture's promises and machinations, a new increase in deforestation in 2024 in the Nükak *resguardo* indicated that its leverage with the FARC might not be that strong after all. "I cannot tell if they paid the FARC [to reduce deforestation], but if they did, the guerrilla clearly have not kept their word" (Interview Alejandra, 2024).

Admittedly, as discussed above, the case of the Nükak REDD+ project is not the most representative one: while showcasing most of the key flaws of REDD+ projects, it cannot be considered to be the 'average' REDD+ project in Colombia nor in the Amazon. In most cases, local rural communities are to a certain extent involved in the project, yet they voice frustration over the lack of real project ownership and clear rules of engagement. In this scenario, the need to co-design carbon offsetting projects with all stakeholders involved looms large. This call was heeded by the Colombian Ministry of the Environment, and some progress was made (Ministerio de Ambiente y Desarrollo Sostenible, 2024f) at least until the recent cabinet reshuffles. Valuable inputs for carbon markets regulation and potentially emancipatory REDD+ have been offered by NGOs (see for example Orduz, 2024, and Guio, 2025), but at the time of writing a relevant draft resolution by the Ministry of the Environment (Ministerio de Ambiente y Desarrollo Sostenible, 2024e) is still sitting in ministerial drawers in Bogota. In countries like Colombia, in which indigenous land tenure is not as much an issue as in other countries[99] (most indigenous communities own collective property over a *resguardo*), this process should ideally include not only formal landowners, but also all those actors that have formal or informal claims over and influence on the territory. 'Realpolitikal' calls to involve *de facto* environmental actors like guerrilla groups – in other words, to turn guerrilla members into forest rangers – as a way to simultaneously target peace-building and carbon storage is often heard on the ground (see chapter 4.3) and has been suggested by scholars

[99] On this topic, see also Rights and Resources Initiative (2021).

(Castro-Nunez et al., 2017), although the challenge of harmonising this prospect with indigenous tenure opens up thorny questions that are yet to be explored (and could be a productive starting point for future scholarly engagements). In other Amazonian countries like Brazil, particularly in the run-up to COP30, steps are being taken to 'indigenise' carbon forestry (Ministério do Meio Ambiente e Mudança do Clima, 2025).

As complex as it may be, however, regulation comes up conspicuously short of ensuring historical and environmental justice. To begin with, the carbon commodification process requires specific institutional scaffolding, technical documents, and specialist expertise (forms of technology, broadly speaking) that are often beyond the skill set of rural populations. As dependency theorists were keen on stressing, "[t]echnological dependence is another aspect of unequal exchange" (Amin, 1976:154). Consequently, a case could be made for an unconditioned technology transfer to rural communities, which would make external developers redundant favouring a really emancipatory use of carbon forestry. In Colombia, OPIAC is advancing efforts this direction, as one of its representatives explained:

> "We are going to start with an information and training plan on REDD+ and much beyond REDD+. We are promoting a programme that we have called 'Escuela Amazónica REDD+'. [...] We will partner with universities, NGOs, the WWF and others to provide training at different levels. [...] We will begin to establish a specialisation module on REDD+. [...] The end goal is to create a sociocultural REDD+ standard. The standards that are currently in place can protect rivers, fauna, flora, and anything else, but not indigenous peoples. With the money inflow they may lose their *chagras*, they may lose their language. [...] We envision our sociocultural standard like a bonus for carbon offsets, to issue high-quality carbon offsets worth, for example, 20 or 30 dollars" (Interview Marco, 2024).

Initiatives of this nature, though still within a broadly neoliberal paradigm, point to a promising outlook for a more symmetric relationship between carbon offset producers and buyers[100]. At present, however, little more than blueprints and declarations exist. As previously discussed, it is important to recognise that indigenous associations are not inherently less susceptible to vested interests than other institutional or non-governmental actors. The assumption that indigenous actors will always prioritise nature above all else is, in fact, a deeply essentialising one, rooted in stereotypical conceptions that place indigenous peoples outside of space, time and – most importantly – material struggles in the capitalist web of life they too inhabit. To make the matter more intricate, even well-intentioned individuals, groups, and NGOs may inadvertently harm communities through their interventions, especially when these efforts

[100] Because OPIAC's vision for indigenous-owned REDD+ is a recent development, it is not analysed in depth in this work.

reinforce narratives of victimhood or infantilisation (see chapter 5). While cautioning against REDD+ with vulnerable communities, this research has not engaged sufficiently in embedded fieldwork to illuminate Nükak perspectives on how REDD+ might be conducted in line with their worldview and ancestral lifestyle. This is what OPIAC is trying to do, although with the caveats made explicit above. Resisting the temptation to adopt a prescriptive, patronising stance towards Global South communities is then perhaps the most constructive stance an external actor can take, be it as a Colombian or as a Westerner. In the spirit of solidarity with Global South communities, as opposed to interfering in their own decision-making processes, it may be possible to partly reclaim carbon-oriented conservation, with all its flaws, by removing some of its most problematic elements from both an environmental and a historical justice perspective. The next section will explore this prospect.

REDD+ as a climate contribution

To circumvent some of the shortcomings and hazards teased out in the preceding sections of this chapter, a relatively simple yet progressive regulatory reform would involve reframing carbon offsetting schemes as climate *contributions* rather than emissions compensation schemes. Under this approach, as Anderegg et al. (2025) propose, "instead of using carbon credits to report lower net emissions, a buyer would claim that they have only made a financial contribution to global climate mitigation" (p. 19, see also Romm et al., 2025). While staying within the modern Western paradigm of "selling nature to save it" (McAfee, 2012), taking away the carbon accounting component would make carbon forestry conceptually more akin to less controversial Payment for Ecosystem Services (PES) models. While donors of course expect results, decoupling forest conservation from offsetting would ease the pressure on developers to maximise protected areas and speed up the registration process, thereby reducing the incentives for non-viable conservation initiatives and hopefully keeping "carbon cowboys" at bay. This is the road being paved by some at EU level, starting from a distinction between "contribution claims" and "offset claims" (Council of the European Union, 2024), although political divergences and populist agendas risk derailing these efforts (ClientEarth, 2023; Climate Action Network, 2025). In a sense, even the VCMI[101] would support such a configuration, as its "Claims Code" posits that offsets should "increase overall greenhouse gas mitigation rather than just substituting for existing actions" (VCMI, 2025:6). While the VCMI is clearly favourable to the principle of offsetting, reading the code 'against-the-grain' might suggest that what the VCMI is endorsing is precisely a contributions – not a compensation – approach.

Admittedly, this scenario raises the risk that the already precarious financial flows directed toward carbon offsetting might dry up altogether, primarily due to a dwindling demand, making carbon forestry

[101] The Voluntary Carbon Markets Integrity Initiative (VCMI) is a non-profit organisation established in 2021 during COP26. Funded by several foundations including the Bezos Earth Fund and Google LLC, its mission is to "enable high-integrity voluntary carbon markets" (VCMI, n.d.). It works in close cooperation with the ICVCM (see above) and other industry bodies to boost the credibility of the VCM.

highly dependent on 'conventional' development aid. Scholars, however, have noted that, despite the use of REDD+ or similar acronyms, development finance has been the main mechanism through which major mitigation partnerships have operated (Angelsen et al., 2017). Many companies operating in the VCM, after all, "commenced their operations initially through community agro-forestry and cookstove projects [...] – the substance of international development programmes" (Lovell and Liverman, 2010). Such a shift would also be a healthy reality check on self-laudatory carbon market operators, who have tried to keep spirits high even through the media storms of the last few years. Indeed, despite their best efforts, capital *is* shifting away from offsets and moving to initiatives that are perceived as less ephemeral. Recently, the emphasis has been more and more on forest-based removals (Manuell, 2024; Assunção et al., 2025), direct removal (CDR) as well as afforestation and reforestation (ARR, see Johnstone et al., 2025a; Forest Trends' Ecosystem Marketplace, 2025).

Over the years, scholars grappling with these issues have proposed different strategies to harmonise environmental protection and societal benefits. Agrawal et al. (2022), for example, suggest "governance for sustainability", which "would place the goal of sustainability at the center of the governance research enterprise and in decision-making processes". Such cosmetic, academic, catchphrase-driven shifts are a far cry from the material changes required in the areas affected by neoliberal environmental governance and do not address the fundamental questions inherent in the current climate paradigm. The main overarching question is one of historical justice: on what grounds should Global South populations feel compelled to "save humanity"? Were it not for the promise of 'development' in exchange for carbon – the latest in a long history of developmental blackmails – why would rural communities in the Global South accept to give up their emission rights? Indeed, indigenous people in the Global South are growing weary of promises of 'green' development, often materialising over the rubble of failed development programs. When offered a carbon deal for an Amazonian region in 2015, a Witoto leader resorted to a traditional wisdom for guidance, and explained his refusal through an ancestral myth: "One day, a tiger said to a *panguana*: 'Bring your children, I will look after them. My fist is like cotton wool'. The *panguana* replied: 'No, because behind the fist are the claws'"[102].

Among practitioners and some NGOs, making forests "more profitable than beef" (Andreoni, 2024) has been hailed as the ultimate solution. Market-based strategies to solve the climate conundrum, however, have been failing across the board[103], as the case of Colombia – among others – has shown (see chapter 4.2). Undoubtedly, identifying mechanisms that make forest clearing economically disadvantageous could serve as a partial remedy, yet in the long run the race to avert socio-environmental collapse necessitates a change in mindset – a paramount yet absolutely necessary endeavour. Indeed, if

[102] Source: Abu Shihab (2025). Witotos are an Indigenous people living in Colombia and Peru. A *panguana* is an Amazonian bird similar to a partridge.

[103] A similar strategy has been proposed to speed up the deployment of renewable energy worldwide. So far, however, fossil investments have remained more profitable and capital is only slowly shifting towards renewables (Hermant et al., 2025).

conservation is seen merely as an investment, “we have to ask ourselves what their return is” (see M. Ogada in Survival International, 2021). Along this trajectory, indigenous views – notwithstanding their own contradictions – stand as a valuable source of inspiration: “We [OPIAC] think beyond carbon offsets as resources. Resources will not save the Amazon. They can help, but if the mindset does not change, resources are pointless” (Interview Marco, 2024).

Importantly, indigenous views are not there to be appropriated, ‘packaged’ and reduced to “mere conduits to better solutions” (Radcliffe, 2015:6). At the same time, as Westerners it would be mistaken to self-essentialise ourselves as neoliberal beings entirely insensitive towards the web of life, as the seeds for moving towards a less utilitarian, more holistic conception of life and ecosystems are still to be found in the crevices of our modern societies. In “Amore di confine”, Italian writer Mario Rigoni Stern narrates the story of the “*abete chioccia*” (literally, mother hen fir), a centuries-old tree that was cut down in 1953, against the will of locals residents, by order of a state forestry official: “Eleven cubic metres of timber and seven cartloads of firewood were obtained from her. But roe deer and capercaillies were not seen for some time; and we too are missing something” (Rigoni Stern, 1986). In the struggle against the “one-world world” (Law, 2015), ontological plurality and knowledge co-production (Nightingale et al. 2019) take centre stage; embracing multiple ontologies and “scientific pluralism” (Reinert, 2023) in the social sciences, particularly in social and economic planning, becomes an imperative.

From a more materialist standpoint, there have been increasing calls to directly address the historical plunder and devastation inflicted by colonial powers across much of the colonised world with a view to empowering Global South countries to reclaim resource sovereignty and agency over their economic and ecological futures. Proposals in this vein emphasise the need for tangible forms of redress, moving beyond symbolic gestures towards substantial policy changes that factor in centuries of resource extraction and environmental harm. These changes range from a restructuring of the global financial order hinging on the “unholy trinity” of IMF, World Bank, and WTO (Agnew, 2005) to initiatives such as the “debt-for-climate swap”, which involves creditor countries or financial institutions cancelling or restructuring the sovereign debts of Global South countries in exchange for commitments to invest in climate mitigation and adaptation (Lang et al., 2024). While this proposal has a long history (Bassan, 2022) and is being piloted on a limited scale by – among others – Portugal and Germany (Federal Ministry for Economic Cooperation and Development, 2023), a systematic global acknowledgment of a historical ecological debt remains distant. Realising that wealthy countries are highly unlikely to undertake this path out of good will, decolonial scholars have promoted the strategy of “delinking”, a unilateral disengagement from the unequal structures of the global economic system in the “pursuit of a system of rational criteria for economic options founded on a law of value on a national basis with popular relevance” (Amin, 1990:62). In its modern updates, it may involve a default on foreign debt and a reduction of material-technical dependency on the Global North in order to restore political, cultural, and military sovereignty and – among other things – advance environmental measures (Samba Sylla and Hickel, 2024; Al Mahdi, 2025).

In this dissertation, I have merely begun to uncover the layers of neocolonial green grabbing and appropriation through carbon trading. As discussed above, the approval of Article 6 of the Paris Agreement is promising to change the game in a much more profound ways than CDM trading, both in terms of scale and of ground-level qualitative impacts. In this context, critical scholarship has a role to play in continuously interrogating the structural problems with the commodification of nature and shedding light on bad practices and power asymmetries (starting from those denounced by scholars and activists from the Global South). Cross-breeding between quantitative and qualitative approaches, as this dissertation has sought to do, could help debunk spurious success stories by allowing scholars to draw quantitative conclusions on value distribution and on the use (or abuse) of climate finance, while getting into the 'nitty-gritty' of how carbon capital 'lands' in particular rural contexts and what local actors act as intermediaries at the points of friction of global capitalism (Tsing, 2005). Besides looking at the fledgling jurisdictional carbon market under Article 6, as suggested in Rizzi and Krause (2025) future research could adopt different proxies to reach more place-specific quantitative conclusions or track the carbon embedded in physical trade to account for the further undervaluing of Global South resources.

6.3. Accelerating the transition: Why not slowing down the breakdown instead?

"We believe that there is no material problem – whether created by nature or by technology – that cannot be solved with more technology", recites the "Techno-optimist manifesto" by US American venture capitalist Marc Andreessen (2023). His arguments are echoed by the "Ecomodernist manifesto"[104], which – among other things – reads: "we reject [the environmental ideal] that human societies must harmonize with nature to avoid economic and ecological collapse. [...] Given plentiful land and unlimited energy, substitutes for other material inputs to human well-being can easily be found if those inputs become scarce or expensive" (Asafu-Adjaye et al., 2015). Such manifestos can be held to reflect the perspectives of large segments of the business community and the general public, as well as a significant portion of academia. Unsurprisingly, they hold sway among global ruling classes.

While scholarship is still trying to make sense of the evolving phenomena that constitute the climate crisis and viable alternatives for a post-capitalist world are still to be allowed into the temples of socioeconomic orthodoxy, in this dissertation I sought to make a case for being wary of the feel-good narrative by which economic growth-driven technological innovation will solve our environmental and social predicaments. The matter is not, as is sometimes argued, merely one of time, political will, or

[104] To be fair to this manifesto, statements such as the following add nuance to its market fundamentalism, while leaving its uncritical belief in technological modernisation unchanged: "Too often, modernization is conflated [...] with capitalism, corporate power, and laissez-faire economic policies. We reject such reductions. What we refer to when we speak of modernization is the long-term evolution of social, economic, political, and technological arrangements in human societies toward vastly improved material well-being, public health, [...] and personal freedom" (Asafu-Adjaye et al., 2015).

scalability of alleged solutions. Rather, the primary challenge lies in an inherent contradiction within the green economy, namely that it "both promotes and depends upon economic growth" (McAfee, 2016:335). Unfortunately, empirical evidence supporting the decoupling of economic growth, intended as GDP growth, from societies' ecological footprint remains scarce (see Fig. 2). While some countries have made progress, as indicated in the introduction, this progress is largely insufficient to remain within the carbon budgets necessary for limiting warming to 1.5°C, or even 2°C. According to Malm and Carton (2024), an "overshoot mentality" informs policy at the highest levels: decarbonisation strategies and dominant scientific models, they argue, are premised on the underlying assumption that it is permissible to temporarily exceed critical climate thresholds on the basis that future technological interventions, such as solar radiation, geoengineering, and carbon removal, will be able to reverse or mitigate the consequences.

Across mainstream media and academic literature, there are frequent calls to "accelerate the transition" or "accelerate the path to net-zero", catchphrases that have become prominent in policy documents, grey literature, and academic scholarship alike (Denton et al., 2022; Murray, 2023; OECD, 2023; European Commission, 2024b; Poulter et al., 2025). The logic underlying the obsession for acceleration is grounded in a distinctly Western, linear conception of progress and constant development. A Colombian indigenous leader explained: "In the Western mindset, there is a linear progression from past, to present, to future. We have a circular vision [draws a roughly triangular shape]: this is my father, this is me, and this is my son. If my father passes on his knowledge to me, I assimilate it and pass it on to my son. This way, my son is very close to my father. He is not far away down the line, as in the linear Western vision" (Interview Marco, 2024).

What, then, if we were to reject the logic of acceleration and 'progress' inherent to Western modernity? If accelerating means speeding towards a precipice, slowing down suddenly becomes a sensible option. In this context, proposals for post-growth or degrowth emerge as a compelling avenue for exploring alternative futures, challenging the orthodoxy of growth and reimagining progress in ways that do not hinge on economic expansion.

While there is no universally accepted definition of post/-degrowth, nor a unified strand of growth-critical theories (Kallis et al., 2025), one of the most frequently cited definitions of degrowth is "a planned reduction of energy and resource use designed to bring the economy back into balance with the living world in a way that reduces inequality and improves human well-being" (Hickel, 2020c:2). Spawned from both civil society engagement and academic research, post-/degrowth principles critically examine the socio-ecological impacts of the capitalist system's reliance on continuous GDP growth and advocate for moving beyond the obsession for GDP, through structural and social reforms, towards a socio-economic system centred on human prosperity and low-carbon societies (D'Alessandro et al., 2020; Jackson et al., 2024). As Felli (2014) and many others have pointed out, "[u]nder capitalist relations of production, the law of value dictates the goal of production, and very little socio-political planning of production can take

place" (p. 257). Post-/degrowth theories propose a transition to a democratic planning on production geared toward the satisfaction of basic needs rather than capital accumulation (Kallis et al., 2025). Contrary to the misconception that degrowth means "having less", "going back to the stone age" or "going back to the bush" (Parrique, 2021), its proponents explicitly advocate for technological progress and, where necessary, an *increase* in resource use where necessary to satisfy basic needs. Post-/degrowth, of course, is not the only alternative paradigm being explored. Another prominent framework is Doughnut Economics (Fanning and Raworth, 2025), a holistic model in which economic activity is designed to operate within a safe and just space for humanity, balancing essential social foundations with ecological ceilings (drawing directly from Stockholm Resilience Centre's planetary boundaries, see Fig. 1).

In the formerly colonised world, the growing recognition of the irrelevance of the "North transition" to the Global South has led Southern academics and CSOs to reject wishful net-zero narratives (Amigos de la Tierra, 2021) and to actively advance alternative trajectories rooted in their own socio-ecological histories and priorities. Broadly speaking, and discounting a certain degree of hybridity and mutual learning, it can be argued that the alternatives to green growth proposed from the Global North tend to advocate alternative development scenarios, whereas in the Global South they tend to envision alternatives *to* development itself (Escobar, 1995; Kothari et al., 2019). Although scholars in the Global North have long critiqued the foundations and effectiveness of the development paradigm (Ziai, 2017), their proposed alternatives are typically grounded – it could not be otherwise – in an industrialised, urbanised society. By contrast, approaches from the Global South have evolved differently: while nineteenth-century decolonial proposals, well-grounded in situated historical material analysis, remain topical under many aspects (see for example the discussions on dependency in chapters 1 and 3), they retained a developmentalist, 'growthist' approach that is at odds with the current reality. Raúl Prebisch, a key figure in Latin America's developmentalist season, eventually came to recognise these limitations: "This was our great mistake. [...] We thought that an acceleration of the rate of growth would solve all problems. Now we know that does not happen. [...] The problem can only be solved through a complete transformation of the system" (Gauhar, 1980:18). Contemporary Southern alternatives are coming to terms with a reality of climate change and environmental degradation with a sense of urgency that, born from lived experience, often surpasses that of their Northern counterparts. As a result, recent proposals stress the need to demolish the "lighthouse of development [...] erected right after the Second World War" (Sachs, 1992:1) and are centred on epistemic decolonisation, intended as a project of liberation from the mental structures of "development". Some, among Latin American intellectuals, go as far as to invoke a "project of intellectual liberation from the social sciences" (Mignolo, 2008:232).

Partly in reaction to the homogenising gaze of the neoliberal socio-environmental governance, built "around the belief that contemporary capitalism can both be managed and rendered more sustainable and equitable" (Büscher and Fletcher, 2019:284), alternative proposals from the South are typically anchored in situated epistemologies and practices, rather than in sweeping macro-theories or

far-reaching alliances (McNelly and Franz, 2024). Indeed, as the literature on the subject stresses (Cusicanqui, 2012; Dhillon, 2021) – and the research experience with the Nükak corroborates – to indigenous people, tackling the unruliness of reality is much more about embodied practices and lived experiences than it is about theory, speculation, and planning (Grove, 2018). Among the most structured initiatives to emerge from the Latin America, however, is the Ecosocial and Intercultural Pact of the South, a collective of academics, eco-feminist CSOs, indigenous organisations, and committed individuals that came together under principles of equality, justice, care and reciprocity, democracy, self-determination, plurinationality, interculturality, and interspecies ethics. In 2023, it issued the "Bogotá Declaration"[105], proposing a socio-ecological transformation "which is both critical and alternative to the hegemonic proposals of ecological transition" (Pacto Ecosocial e Intercultural del Sur, 2023). The Pact is part of a broader tradition of Latin American organising, coming in the wake of key moments such as the Cochabamba Water Wars (Spronk and Crespo, 2008), but it also aligns with global mobilisations such as the "Yes to Life No to Mining" network (Yes to Life No to Mining, n.d.), illustrating the diverse yet interconnected efforts to resist extractivist models and promote alternatives rooted in local realities and collective action.

A future task for scholars and – on a more heuristic level – for social movements is to explore convergences among these proposals, as global totalising systems like capitalism are unlikely to be dismantled, and cannot possibly be replaced, by disconnected, isolated units. Principles outlined in Global South proposals, including but not limited to those referenced above, resonate with degrowth principles such as political decentralisation, resource sovereignty, and qualitative well-being indicators, alongside more generic ideals of equality, solidarity, and anti-capitalism. While degrowth scholarship clarifies that its focus is on the Global North and intentionally refrains from prescribing normative frameworks or standardised governance blueprints for the Global South[106], in recent years scholars have been increasingly exploring convergences between post-/degrowth and proposals from the South (Escobar, 2015; Rizzi, 2022; M. Lang, 2024; Ricci, 2025). A coherent synthesis of these alternatives is hard to envision and – in fact – is not pursued by many movements, which instead invoke a "Global Tapestry of Alternatives" (2025) in line with the Zapatistas' vision of "a world where many worlds fit" (Escobar, 2015).

The leap to a real-existing tapestry of alternatives appears less daunting when recognising that much of the challenge lies in terminological quibble rather than in substance. To many degrowth advocates, the label "degrowth" is not indispensable and was never intended be "used at the podium"

[105] Unfortunately, Bogota declarations do not have a good track record in terms of implementation. Consider for example the 1976 declaration, an attempt to assert sovereignty over the portions of the geostationary orbit that lie over the signatory countries' territory (Agama, 2017), the 2025 declaration by Amazonian countries on deforestation (Ministerio de Ambiente y Desarrollo Sostenible, 2025c), and the 2025 statement by The Hague Group (2025) on the Gaza genocide. In 2025, the Pact issued a new declaration on the civilisational polycrisis (Pacto Ecosocial e Intercultural del Sur, 2025).

[106] Some, including from within the degrowth movement, are grappling with the critique that degrowth may be Eurocentric. While certainly Europe-centred in terms of academic base and thus Eurocentric in terms of epistemic frames of reference, degrowth is arguably not Eurocentric in its aims and visions. This debate, however, is beyond the scope of this work. For more information, see among others Muradian (2019) and International Degrowth Network (n.d.).

(Novara Media, 2025) for electoral ends; alternative terms such as post-growth or ecosocialism (Miller-McDonald, 2021) might serve better depending on context (the letter term might face strong resistance, for example, in Eastern Europe, given the region's complex history with real-existing socialism). Similar to the debate surrounding "Anthropocene", much of the energy spent on discussions about nomenclature is lost for political strategising and for the politicisation of concepts, even if those concepts are not perfectly ironclad. Strategically employing terms for political ends, rather than seeking conceptual refinement, is precisely the intellectual ground on which some progressive scholars have been successfully battling, the most notable example being Kohei Saito with his influential work "Marx in the Anthropocene" (2023). Consistently, a perspective from the Amazon urges a constructive interpretation of the Anthropocene, one that moves beyond fabricated notions of 'wild' nature and acknowledges that, although "Anthropo-" attributes the responsibility to an undifferentiated humanity, crucially it does not do away with humans – all humans – in the solutions.

The post-/degrowth paradigm provides valuable insights in several other ways, including in the way it frames the dilemma humanity is facing. By considering the planetary-scale socio-environmental crisis, it poses the question of whether societies will choose a path of "degrowth by design" (the conscious and deliberate scaling down of production and consumption) or the inescapable alternative of "degrowth by disaster" (the involuntary contraction of economies and social systems triggered by socio-ecological collapse, often accompanied by instability and austerity measures, see also Victor, 2008). In this scenario, "disaster" is not only metaphoric. Far from being merely a 'gardening' issue, slowing down the 'capitalogenic' breakdown is an existential challenge: not only because humanity depends on its relationship with nature, but also because market fundamentalism, following Polanyi (2001 [1944]), has contributed to societal collapse before, ultimately setting the stage for fascism and World War II. In light of current affairs worldwide, it does not take too much of a stretch to imagine similar factors soon producing a similar conflagration.

Karl Marx foresaw that capitalism's internal contradictions would eventually bring about its fall. However, he may not have fully anticipated the extent of capital's ability to transform itself across different stages of history; a capacity exemplified by the neoliberal 'green' transition. The "tranquilizing dispositive" (Lander, 2011) of the green economy has built a powerful narrative that is proving hard to unhinge even in the face of recurring climate-related extreme events. Marxist scholars have contended that, in the era of climate breakdown, the task is "to seize and reconfigure the means of innovation" (Khalid Azeez and Symons, 2025) or "to seize the means of carbon removal" (Malm and Carton, 2021), pointing to the importance of organising toward a tangible future rather than retreating into politically sterile – if inspiring – nowtopias (Carlsson and Manning, 2010) or fighting merely on the ground of discourse. Seizing the 'means of imagination' may turn out to be equally crucial, not as a fantasising exercise as much as a concrete practice of prefigurative politics (Gramsci, 2000; Nelson, 2024). As philosopher Murray Bookchin (1982) asserted: "We can no longer afford to be unimaginative; we can no longer afford to do without

utopian thinking" (p. 75). Half a century ago, influential scholar Donella Meadows, among the authors of the "Limits of Growth" report (Meadows et al., 1972), took issue with the incoherence of persisting with ineffective hegemonic practices while dismissing radical alternatives as utopian: "We can in this culture complain, we can talk about everything we think will never work, but we cannot share our dreams, our hopes, our visions without being labelled naïve, idealist and unrealistic" (Parris, 2023)[107]. As discussed above, achieving this transformative change will take less than a revolution and it is not this dissertation's place to predict how it will unfold. Revolutionary momentum, however, appears to be brewing at the intersection of class, gender, race, and climate struggles – the authoritarian, militaristic turn of many governments, especially in the West, can be taken as confirmation. Climate politics, Malm and Carton (2025) argue, has "become revolutionary politics. More precisely, from now on – if not earlier – any attempt at meaningful mitigation of the crisis would have to waylay the dominant classes with a force and confrontational resolve unlike anything in the common memory or imagination" (p. 176).

In looking for further inspiration among the mainstays of academic scholarship, it may be intriguing – albeit somewhat paradoxical – to turn to mainstream economists Adam Smith and Milton Friedman. In Smith's view, "nations reach a stationary state where they can 'advance no further [than the] full complement of riches which the nature of its soil and climate [...] allowed it to require'" (cited in Reinert and Kvangraven, 2023:6). This, of course, does by no means imply that the father of capitalist theory was a degrowther. Yet this view, shared by other theorists of his ilk, complicates the prevailing narrative that champions infinite growth and unregulated markets and demonstrated that for the revered architects of classical economics never-ending growth was never a goal in itself. Yet the blind faith in the capitalist ideology has come so far that even reasonable limitations are dismissed due to irrational market fundamentalism. Friedman, he too certainly not regarded as a progressive thinker, offered an instructive analysis of times of change: "Only a crisis - actual or perceived - produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes the politically inevitable" (Friedman, 2002 [1962], xiv). In this interregnum, amidst interlocking social, political, and environmental crises, it is thus vital to develop robust alternatives that will be "lying around" when push comes to shove. As countries across the world, including in Europe, build up "readiness" for conflict at the expense of green agendas (European Commission, 2025b) and regressive calls for a suspension of carbon trading paradoxically come from right-wing policymakers (in the interest of corporate lobbies, see Gabrizova, 2026), this dissertation has sought to contribute – albeit modestly – to informing socially progressive forms of readiness for a warming world by challenging neoliberal solutions to climate change and foregrounding alternative visions.

[107] This quote comes from an audio clip played during a podcast episode (see Parris, 2023). According to the podcast host, Meadows's speech was pronounced at the International Society for Ecological Economics. A transcript of the speech could not be located online.

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APPENDIX 1

LIST OF INTERVIEWS AND OTHER INTERACTIONS

Notes: interviewees cited in the text are identified in the table below using the interviewee's name/pseudonym and organisational affiliation. Informants who are not quoted in the text are generally referred to using a generic identifier (e.g., "employee"). In instances where informants provided explicit consent and no ethical or safety risks were determined, real names and affiliations are used. Lastly, some of the organisations indicated as "governmental organisation" are not formally subordinated to the government but are to some degree affiliated to or dependent on it.

Interviewee name / role (* = pseudonym)	**Main affiliation** (* = pseudonym)	**Field**	**Interview period(s)**	**Method**
Employee	International Committee of the Red Cross	NGO	2023-2024 (multiple times)	Informal conversations
Augusto*	National parks agency	Governmental organisation	2023-2024 (multiple times)	Semi-structured interviews
Employee	Ombudsman's Office	Governmental organisation	2023-2024 (multiple times)	Informal conversations
Senior member	ONIC	Indigenous organisation	2023-2024 (multiple times)	Semi-structured interviews and informal conversations
Cristina*	Government agency	Governmental organisation	2023-2025 (multiple times)	Semi-structured interviews
Emiliano*	Fundación Gaia Amazonas	ENGO / Academia	2023-2025 (multiple times)	Semi-structured interview and informal conversations
Timoteo*	Colombian NGO	NGO	2023-2025 (multiple times)	Semi-structured interviews
Laura Gutiérrez-Escobar	Universidad Javeriana	Academia	2023-2025 (multiple times)	Informal conversations
Nelsa De la Hoz	Independent researcher	Academia	2023-2025 (multiple times)	Informal conversations
Employee	Respira International	Carbon trading company	2023-2025 (multiple times)	Semi-structured interviews
Catalina Quiroga	Lund University	Academia	October 2023	Informal conversation
Juan Antonio Samper	Lund University	Academia	October 2023	Informal conversations
Senior geographer	Universidad Nacional de Colombia	Academia	October 2023	Informal conversations

Employee	Akubadaura	Human rights NGO	October 2023	Semi-structured interview
Jonathan Crook	Carbon Market Watch	ENGO	October 2023	Semi-structured interview
Collaborator	FCDS	ENGO	October 2023	Semi-structured interview
Senior ministry official	Ministry of the Environment of Colombia	Ministry	November 2023	Written interview
Dany Mahecha	Universidad Nacional de Colombia	Academia	November 2023	Informal conversations
Employee	Asoparaguas*	NGO	November 2023	Informal conversation
Botanist	Universidad Nacional de Colombia	Academia	November 2023	Informal conversations
Several members	Tomachipán settlement	Nükak community	November 2023	Informal conversations
Several collaborators	CENSAT Agua Viva	ENGO	December 2023	Informal conversations
Alejandra*	Colombian NGO	ENGO	2024 (multiple times)	Semi-structured interviews
Sonia*	/	CSO	2024 (multiple times)	Semi-structured interview and informal conversations
Alex*	GreenVenture*	Environmental company	2024 (multiple times)	Semi-structured interviews
Jerónimo*	Agua Bonita settlement	Nükak community	2024 (multiple times)	Semi-structured interviews
Several members	El Capricho settlement	Nükak community	2024 (multiple times)	Informal conversations
Gilles Dufrasne	Carbon Market Watch	ENGO	January 2024	Semi-structured interview
Ferney*	Peasant community from Guaviare	CSO	March 2024	Semi-structured interview
Gerardo*	Peasant community from Guaviare	CSO	March 2024	Semi-structured interview
Peasant from Charras	Peasant community from Guaviare	CSO	March 2024	Semi-structured interview and informal conversations
Juan David*	Peasant community from Guaviare	CSO	March 2024	Semi-structured interview
Julio*	CDA	Governmental organisation	March 2024	Semi-structured interview
Several members	Guanapalo/Charrasquera settlement	Nükak community	March 2024	Pseudo-focus group, walking methods
Several members	Villa Alejandra settlement	Nükak community	March 2024	Pseudo-focus group
Sara*	Villa Alejandra Settlement	Nükak community	March 2024	Informal conversations

Catarina*	ANT	Governmental organisation	March 2024	Semi-structured interview
Samuel*	CDA	Governmental organisation	March 2024	Semi-structured interview and informal conversations
Member	Red de Control Social y Asesoría a Veedurías	CSO	April 2024	Semi-structured interviews
Environmental journalist	CLIP	Investigative media	April 2024	Informal conversations
Eriberto*	Asoprocegua	CSO	April 2024	Semi-structured interview
Francisco*	Instituto Amazónico Sinchi	NGO	April 2024	Semi-structured interview
Geographer	"Codazzi" Geographic Institute	Governmental organisation	April 2024	Semi-structured interview
Rodrigo*	Former FARC-EP	/	April 2024	Semi-structured interviews
Collaborator	Child Impact International	NGO	May 2024	Informal conversations
Manager	Tropical Carbon*	Carbon developer	May 2024	Informal conversations
Several members	Agua Bonita settlement	Nükak community	May 2024	Pseudo-focus group
Collaborator	Fondo Acción	Environmental investment fund	May 2024	Semi-structured interview
Juan Camilo*	Ombudsman's Office	Governmental organisation	May 2024	Semi-structured interview
Jesús*	GreenVenture*	Environmental company	May 2024	Semi-structured interview and informal conversations
Leandro*	Agua Bonita settlement	Nükak community	June 2024	Informal conversations
María*	Agua Bonita settlement	Nükak community	June 2024	Informal conversations
Several members	Golondrinas settlement	Nükak community	June 2024	Pseudo-focus group
Several members	Cheka Muj settlement	Nükak community	June 2024	Pseudo-focus group
Several members	Caño Makusito settlement	Nükak community	June 2024	Pseudo-focus group
Several members	Costeñita settlement	Nükak community	June 2024	Pseudo-focus group
Several members	Caño Cristal settlement	Nükak community	June 2024	Pseudo-focus group
Several members	Puerto Flores settlement	Nükak community	June 2024	Pseudo-focus group
Collaborator	CEALDES	NGO	June 2024	Informal conversation
Marco*	OPIAC	Indigenous organisation	June 2024	Semi-structured interview