UNIVERSITÀ DEGLI STUDI DI PADOVA
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How much does the Indigenous community actually benefit from REDD+ programs?

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Abbreviations and acronyms

AIDER	Association for Research and Integrated Development
CATISEMA	Association of Councils and Indigenous Authorities of the Matavén Jungle
C & I	Criteria and indicators
CCB	Community & Biodiversity Standards
CERD	UN Committee for the Elimination of Racial Discrimination
CRCF	EU Carbon Removal Certification Framework
COP	Conference of the Parties
DRC	Democratic Republic of the Congo
EU	Europian Union
FPIC	Free, prior, and informed consent
ICROA	The International Carbon Reduction and Offsetting Accreditation
ICVCM	Integrity Council for the Voluntary Carbon Market
MRV	Measurement, reporting and verification
NBS	Nature-based Solutions
NGO	Non-governmental organizations
PV	Plan Vivo
REDD+	Reducing emissions from deforestation and forest degradation in developing countries. The '+' stands for additional forest-related activities that protect the climate, namely sustainable management of forests and the conservation and enhancement of forest carbon stocks.
SBTi	Science-Based Targets initiative
SD VISta	Sustainable Development Verified Impact Standard
SFCP	Suruí Forest Carbon Project
SFM	Sustainable Forest Management
TNC	The Nature Conservancy
TSVCM	Taskforce on Scaling Voluntary Carbon Markets
UNCED	The United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
VCS	Verified Carbon Standard
VCR	Valdivian Coastal Reserve
VCMI	Voluntary Carbon Market Integrity Initiative

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Summary

Carbon credit mechanisms have gained considerable attention as a market-based approach to reducing greenhouse gas emissions. Indigenous communities demonstrate potential in mitigating climate change since they possess a significant portion of Earth's territories, including intact forest landscapes with high biodiversity. However, there are divergent views on how REDD+ (Reducing Emissions from Deforestation and Forest Degradation) may affect the rights of forest-based communities. Indigenous peoples and scientists have voiced distinct opinions on REDD+ due to its associated risks and opportunities. This research conducted a literature review on the actual benefits of REDD+ carbon credit offset projects for Indigenous people, collecting qualitative data from 10 selected initiatives. The analysis compared these specifics among themselves and against REDD+ criteria, revealing significant differences between the Plan Vivo and VCS standards. Plan Vivo appears to be a more favorable option for initiatives aimed at supporting and empowering Indigenous populations. The pervasive lack of transparency in voluntary carbon credit transactions is a critical and urgent issue that undermines the effectiveness of these initiatives. Without transparency, it is impossible to thoroughly analyze projects or establish meaningful connections among all stakeholders. This deficiency is further evidenced by poor grades in benefit distribution, suspicious deforestation rates, and inadequate Indigenous stakeholder engagement in analyzed projects.

1. Introduction

1.1 Background

Carbon credit mechanisms have gained considerable attention as a market-based approach to reducing greenhouse gas emissions. The market for voluntary carbon credits has expanded dramatically in the past decade (World Bank, 2020). These mechanisms aim to create economic incentives for industries to implement emission reduction projects, ultimately contributing to global climate change mitigation efforts. The goal of a carbon market is to reduce greenhouse gas emissions by providing a financial incentive for companies to reduce their carbon footprint. A green economy is a widespread form of ecological modernization that involves accounting for environmental externalities, or the unintended costs or benefits of economic activity, for individuals, businesses, and governments (Mol, 2002). The impact is not only on the environment but also on the economy. It can create jobs and bring revenue to support its efforts to reduce deforestation and promote renewable energy, incentivizing sustainable practices and promoting environmental conservation for the countries' participants. Carbon credits can reduce global warming and given they are tradable, promote the welfare of the common good (Arava et al., 2010). Governmental and private investments that reduce greenhouse gas emissions, increase energy and resource efficiency, prevent the loss of biodiversity, and provide ecological benefits ought to boost the production of income and jobs in a green economy (Gaffar Hossain Shah & Chandra Voumik, 2014).

Nature-based solutions (NBS) represent 40% of the voluntary market and are steadily increasing their contribution to the total carbon credit supply (Bravo et al., 2024). The 2023 Voluntary Carbon Market (VCM) Review reports several things are driving interest in NBS. First, the VCM can efficiently unleash the significant mitigation potential that NBS projects provide. Second, NBS credits frequently have a big positive impact on the environment and society. Thirdly, the only project category that provides economical removal credits at this time is NBS. Reducing Emissions from Deforestation and Forest Degradation (REDD+) is an acronym that encompasses the promotion of sustainable forest management, protection, and increase of forest carbon reserves. This approach addresses climate change by emphasizing the vital role that forests play. Among

the nature-based project categories, Reducing Emissions from Deforestation and Forest Degradation (REDD+) is one of the most notable project types (Burt, 2023). Over fifty nations are now implementing REDD+ and a wide range of interventions are being tested by various players, including national and municipal governments, NGOs (non-governmental organizations), and development organizations (G. Y. Wong et al., 2019). The creation of the REDD+ framework was motivated by the hope that it would greatly mitigate the effects of climate change at a comparatively cheap cost, benefiting both rich and developing nations (Golub et al., 2018). Demand-side policies, national or jurisdictional programs that assist governance improvements, and local investments in non-deforestation projects and nature-based solutions will all be incorporated into successful REDD+ initiatives (Streck, 2021). The offsets of carbon from REDD+ activities are awarded based on comparisons among the forest cover that has been recorded in the targeted regions and benchmark deforestation forecasts that are de facto impossible to monitor in the lack of REDD+ (FAO, 2020). Nevertheless, some researchers have been observing this is not reflected in previous projects, especially for the native population. Despite the increasing popularity of carbon credit schemes, their effectiveness and long-term sustainability remain topics of debate. Millions of forest carbon credits authorized by Verra, the top certifier worldwide, turned out to be mainly useless and potentially worsen the effects of climate change if utilized for offsetting (West et al., 2023). Debates about benefit sharing now take into account increased worries about how to get REDD+ financing, evaluate the effectiveness and outcomes of REDD+ policies, produce co-benefits, and settle concerns about equity and safeguards (G. Wong et al., 2016). Despite their potential short-term benefits, externally imposed methods frequently put Indigenous communities at risk for significant financial losses, power disparities, social unrest, and adverse trade-offs (Penteado et al., 2024).

1.2 Problem statement

Indigenous communities oversee a significant portion, roughly a quarter, of Earth's territories (Garnett et al., 2018), 36% of the intact forest landscape (Fa et al., 2020), and 80% of the world’s biodiversity (Sobrevila C., 2008)

underscoring their potential to mitigate climate change (Etchart, 2017). Divergent views have been expressed regarding reducing emissions from deforestation and forest degradation in developing countries (REDD+)'s possible effects on the rights of forest-based communities (Cavanagh et al., 2015). Given the potential risks and opportunities associated with REDD+, Indigenous peoples in particular have voiced distinct opinions on it (ERRICO, 2016). Forced evictions, property damage, and violence against Indigenous groups have all been documented in Cambodia's Southern Cardamom REDD+ Project (Téllez-Chávez, 2024). It is indispensable to examine the procedures in order to determine the reason for its inability to identify and guarantee settlements of human rights violations (Téllez-Chávez, 2024). If REDD+ is not reoriented to increase the rights of Indigenous Peoples, it runs the danger of escalating pre-existing tensions over territory and questions of unsecured rights in the circumstances in which it is being conducted (Sarmiento Barletti & Larson, 2017). Research indicates that the vague tenure rights of Indigenous Peoples will have a detrimental effect on REDD+ aims (Sarmiento Barletti & Larson, 2017).

1.3 Objectives and Research Questions

The general objectives of the research are:

The major goal of the study is to evaluate the REDD+ programs for the Indigenous communities by taking into account the Cancun safeguard criteria 3,4 and 7 combined with the United Nations Framework Convention on Climate Change (UN-REDD Social and Environmental Principles and Criteria).

More specific objectives of the research are:

• To investigate how the capital REDD+ produces is applied and how much is paid to local communities out of the total carbon credits sold;
• To analyze if the Indigenous interests were preserved;
• To discuss cases of carbon credit companies committing Indigenous violence and whether REDD+ is a suitable approach for assuring Indigenous rights or not.

1.4 Structure of the thesis

The thesis is structured into six distinct sections, each serving a specific purpose in the investigation. The first chapter introduces the research problem and contextualizes it within the broader context of carbon credit mechanisms as a market-based approach to reducing greenhouse gas emissions. In particular, it focuses on the voluntary carbon credit market. This chapter also articulates the research objectives regarding the effectiveness and impacts of these initiatives, especially concerning Indigenous communities' rights and interests. The second division introduces pertinent theories relevant to the study, including methodologies for emission quantification, forest carbon offset projects, indigenous knowledge, and REDD+ initiatives. The section further delves into the definition and background of the Cancun safeguards, highlighting challenges in interpretation and the emergence of voluntary standards within REDD+ contexts. Thirdly, outlines the research methodology adopted for the study. It provides insights into the research approach, data collection methods, reliability of instruments, sample description, and statistical analysis techniques employed. This chapter also discusses the limitations and weaknesses inherent in the chosen methodology. Chapter four presents the detailed findings of the study, and statistical analyses conducted. In the fifth section, there are discussions on the empirical findings, addressing the implications of the results, limitations of the study, and suggestions for future research. This portion also explores the broader socio-economic dynamics of REDD+ initiatives and their impact on Indigenous communities. The last one encapsulates the conclusions drawn from the statistical analysis, summarizing the main findings and their implications for emission quantification, forest carbon offset projects, and indigenous knowledge. This chapter serves as a culmination of the study, offering insights into the effectiveness and ethical considerations surrounding REDD+ programs, particularly concerning Indigenous rights.

2. Theoretical background

This chapter, divided into two subsections, provides an overview of the key terms related to the study issue. First, the challenges of quantifying emission reductions, exploring the evolution of methodologies, concerns about forest

carbon offset projects' evaluation, and recent alerts from regulatory bodies regarding carbon credit frauds. The theoretical approach section explores the wealth of indigenous knowledge regarding forest ecosystems, emphasizing the importance of respectful engagement and ethical research practices. Furthermore, it discusses the Cancun safeguards and their broad interpretation challenges, as well as the emergence of voluntary standards and certification processes in the context of REDD+ initiatives, setting the stage for further exploration in subsequent chapters.

2.1 Definition(s)

Researchers and politicians struggle to decide which methodological techniques are most appropriate for quantifying emission reductions, as seen by the numerous, and occasionally significant, revisions that lots of quantitative methodologies have experienced throughout time. Numerous concerns have been raised about the fact that, even under ideal circumstances, evaluating forest carbon offset projects is not an easy task and that monetary incentives will merely make the task more difficult (K. Richards & Andersson, 2001). There have been many discussions regarding the ideal characteristics of offset protocols and strategies for enhancing their efficacy, but the development of these policies is very challenging (K. R. Richards & Huebner, 2012). The "additionality" of carbon offsets might therefore be lacking, as they may not accurately represent decreases in emissions(Wunder, 2007). Furthermore, the available statistics and literature indicate that, among multiple variables, the project kind, surroundings, and data accessibility determine the applicability of various methodologies; how well decreases in emissions or clearances are excessively or undervalued primarily relies on how reliable the particular quantitative methods are (Schneider et al., 2022). On June 2023, the Commodity Futures Trading Commission (CFTC) of the United States issued an alert about Carbon Credit frauds and that the organization is enhancing its knowledge to guarantee the usefulness and dependability of these marketplaces as well as its capacity to spot and combat any prospective scam or misconduct. As the CFTC's regulated carbon offset futures contracts continue to expand, the agency is strengthening its capacity to guarantee the dependability and usefulness of these markets, as well as to spot

and investigate any possible fraud or abusive conduct (CFTC, 2023). Table 1 below provides insight into the monetary value of carbon credit transactions over the past years.

Table 1: Past years of the market values in voluntary carbon markets.

Year	Traded Volume of Carbon Offsets [$MtCO_2e$]	Voluntary Market Transaction Value [MM USD]
2017	46	146
2018	98	296
2019	104	320
2020	203	520
2021	493	1,985

Source: (BCG Global, 2023)

A recent study by Sven Wunder called Modest Forest and Welfare Impacts from Current REDD+ initiatives, posted in February 2023, evaluated the performance-based, cost-effective climate change mitigation that (REDD+) promises to deliver. It examined the accurate counterfactual-based proof for ecological and social benefits from national and regional efforts across a REDD+ Theory of Change 15 years after the idea of REDD+. It contrasted 32 quantitative studies, including 26 primary forest-related and 12 socioeconomic magnitudes of effects, via machine learning tools for literature reviews. Comparable to effects caused by different protection tools, the average effects on the environment were favorable, moderate in scale, and mainly temporary over time. The socioeconomic results, particularly at the outcome stage (such as rising incomes), were welfare-neutral to somewhat positive (Wunder et al., 2023). Regrettably, financing from carbon markets is notably deficient, and poorly enforced prerequisites may have also restricted effects, consequently, significant guidelines and execution insights surface for magnifying efficiency during the prevailing global shift toward broader-spectrum, jurisdictional REDD+ endeavors (Wunder et al., 2023). (Hein et al., 2018) argue that by utilizing global REDD+ finance and policy mechanisms, tropical countries are progressing with government policies aimed at lowering emissions related to deforestation under the Paris Climate Agreement. However, it is necessary to evaluate the effectiveness of the methodologies being used to examine them to be confident

that these initiatives are genuinely having the desired environmental impacts. To build realistic deforestation baselines for voluntary REDD+ actions, innovative and robust methodologies must be developed, and their impact on global warming prevention must be adequately and often evaluated (West et al., 2023). Effective and reliable advice is essential for assisting carbon credit purchasers in navigating the complex market and enabling them to find excellent carbon credits, considering the rising demand and the hazards linked to inadequate carbon credits (Schneider et al., 2022). The need for more reliable and uniform approaches for monitoring and assessing carbon credit offset operations is one scientific demand in this field. The application of complaints procedures ought to be clear as well as up to date, with regular monitoring and verification to guarantee that the approach is carried out as intended and to promote transparency on the design's efficacy (Day et al., 2020). Due to this current scenario, it is necessary to evaluate the current methodology and discuss new regulation methods in the carbon credit market to reduce the potential for fraud and manipulation that can occur as with any other market.

2.2 Theoretical approach(es)

Native populations around the world possess a valuable reservoir of expertise accumulated over generations of living in close connection with their environments from which we can extract unique insights. This knowledge extends far beyond simply understanding the natural world. It encompasses complex social systems, spiritual practices, and sustainable ways of life. The vast indigenous knowledge of forest ecosystems, including their richness of flora and animals, varieties of soil, and fertility, is widely acknowledged (Persoon & Minter, 2020). Along with their vast biological knowledge, many indigenous tribes also have information or recollections of particular natural hazards, such as earthquakes, tsunamis, or volcanic eruptions, and these stories are typically used to pass on this knowledge to future generations through oral tradition (Tulius, 2020). There is also the understanding and application of medicinal plants by indigenous peoples can be very useful for the creation of medications. Medicinal plant use has existed since the dawn of humankind due to human contact and the selection of the most attractive, potent, and effective plant species found in

the immediate area at a given period (Lulekal et al., 2013). Co-production of knowledge can enhance the adaptive management of these traditional areas by Indigenous peoples, leading to positive effects on the environment, culture, society, and economy (McKemey et al., 2020). However, there are numerous obstacles to overcome before weaving Indigenous and scientific knowledge can be combined as the incompatibility of text-based scientific formats with the ritual, ceremonial, song, symbolic, and visual manifestations of Indigenous wisdom; the inadequate protection of Indigenous intellectual and cultural rights; the relative lack of cross-cultural tools for knowledge coproduction that consider ontological and epistemological differences. and the lingering effects of colonial histories on closer learning and decision-making organizations (R. Hill et al., 2020).

Engaging with Indigenous communities requires a deep respect for their cultures, traditions, and knowledge. To ensure ethical research and collaboration it is fundamental to adhere to a code of ethics and follow its guidelines. These steps would assist researchers in building respectful and productive relationships with Indigenous communities as well as ensure their work is conducted in a way that is beneficial for both parties. The rights of Indigenous communities to self-determination, control over their knowledge and resources, and freedom from exploitation are protected by ethical standards (AIATSIS, 2020). Protective measures for REDD+ emerged in reaction to grave worries expressed by NGOs Indigenous Peoples and local communities (IPLCs) that depend on forests regarding the program's potential to violate their rights and territories (Suiseeya, 2017). According to (Roe & Streck, 2013), safeguards are a set of rules, principles, and protocols put together to accomplish social and environmental goals. The United Nations Framework Convention on Climate Change (UNFCCC) approved the Cancun safeguards in 2010 to allay some of these worries and guarantee that REDD+ does not negatively impact the environment or communities that depend on forests. The Cancun Agreement outlines principles, safeguards, and guidelines for implementing REDD+ activities, emphasizing the importance of social and environmental safeguards, indigenous rights, and the engagement of local communities. The purpose of safeguards is to reduce the possibility that activities could have negative social and environmental effects. In table 2 we can see the seven safeguards according to

paragraph 71 of decision 1/CP.16 that were agreed at the sixteenth Conference of the Parties (COP 16).

Table 2: The seven Cancun safeguards state that REDD + initiatives should be promoted and supported.

Number	Definition
1	That actions complement or are consistent with the objectives of national forest programs and relevant international conventions and agreements;
2	Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;
3	Respect for the knowledge and rights of Indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances, and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;
4	The full and effective participation of relevant stakeholders, in particular Indigenous peoples and local communities;
5	These actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of Decision 1/CP.16 are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;
6	Actions to address the risks of reversals;
7	Actions to reduce displacement of emissions.

Source: (UNFCCC, 2024)

Because the Cancun Safeguards are so broad and simplistic, there are many different interpretations and difficulties in drawing firm conclusions. Divergent definitions of terms such as "natural forest" and "forest" are evident, varying across countries and standards, with some nations delineating forests as regions with greater than 10% tree cover compared to others necessitating 30%, while ambiguity persists regarding the classification of plantations within these parameters (Roe & Streck, 2013). Focusing only on the Cancun Safeguards may fail to recognize the complex aspect of high-quality forest investments aimed at carbon removal. Other tools can be applied together to improve the evaluation procedure. There are additional voluntary and regulative instruments that aim to address these possible gaps. Current global multi-stakeholder projects, like the Voluntary Carbon Market Integrity Initiative (VCMI), the Taskforce on Scaling Voluntary Carbon Markets (TSVCM), and the Science-Based Targets Initiative (SBTi), are proposing guidelines and frameworks that are pertinent to voluntary compensation and are in line with the Paris Agreement and Sustainable

development Goals (Ahonen et al., 2021). Organizations like ICROA (The International Carbon Reduction and Offsetting Accreditation), ICVCM (The Integrity Council for the Voluntary Carbon Market), and VCMI were established in response to these discrepancies among certifiers in an attempt to create a framework and establish themselves as "the standard for certifiers," but once more, the standards of acceptance for each vary (Santier, 2023). The EU Carbon Removal Certification Framework (CRCF) is an initiative proposed by the European Union in 2022 aiming to establish a robust certification system for carbon removal projects. The CRCF's goal is to ensure that carbon removal activities within the EU are verifiable and transparent and contribute meaningfully to the EU's climate objectives. To gain certification under the EU Carbon Removal Certification Framework, operators must enroll in a certification scheme endorsed by the Commission, which mandates compliance with "QU.A.L.ITY" standards that encompass the quantification of carbon removals, additionality, long-term storage, and sustainability (Mcdonald et al., 2023). The current voluntary carbon markets have a wide variety of certification methods, which frequently results in a lack of transparency and raises the possibility of greenwashing; However, the Commission's proposal to address these issues introduces additional challenges, like using these credits, guaranteeing the long-term storage of CO2, reducing the possibility of double claiming removal credits, and addressing potential effects on other environmental issues like biodiversity loss (Günther et al., 2024). The European Parliament officially implemented a new greenwashing directive in January 2024, mandating that member states enact stronger regulations pertaining to the use of environmental claims by businesses. In an effort to safeguard consumers from deceptive greenwashing practices, the Directive on Empowering Consumers for the Green Transition aims to curtail unfair commercial activities where environmental claims lack adequate substantiation by the relevant trader, and, complemented by the Green Claims Directive, these legislative measures will collectively enhance consumer rights by subjecting traders to increased scrutiny regarding the environmental claims they make about their businesses and products (Riordan, 2024). In Table 03 below, an overview of the good practices is provided. These practices are helpful in enhancing the mechanisms for carbon credits, ensuring they are more robust, transparent, and effective in achieving their environmental and social goals.

Table 3: Overview of the components of good practice in voluntary compensation.

Good practice	Level of agreement	Key guidance	Gaps
Robust and comprehensive calculation of own emissions (GHG footprint)	High	Carbon protocols e.g., calculation and verification of carbon footprints and product lifecycle emissions (e.g., GHG Protocol, ISO)	Insufficient access to and quality of scope 3 (indirect value chain emissions) data
Prioritization of sufficient own mitigation action voluntary compensation not used to substitute or postpone own action)	High	The Science-Based Targets initiative (SBTi) is developing a standard for setting and verifying 1.5-degree compatible net zero targets for companies, including small- and medium-sized enterprises. ICLEI – Local Governments for Sustainability have developed a Climate Neutrality Framework for cities and regions.	SBTi guidance is still under development, does not cover all subsectors, and is not readily applicable to e.g., micro-sized enterprises or individuals. Assessment of 'sufficiency' and 'alignment with the 1.5-degree pathway' inevitably entails subjective judgment and important equity issues.
Using high-integrity carbon credits for compensation	High regarding the principle of using high-integrity carbon credits. Diverging views on what constitutes high-integrity credits, the extent to which different crediting standards succeed in ensuring carbon credit integrity, and preference for carbon credits based on emission reductions vs removals.	TSVCM is developing Core Carbon Principles, a standard taxonomy for carbon credit attributes, and an assessment framework for crediting standards to promote the standardization of high-integrity carbon credits. Many crediting standards are revising their criteria to align with the PA. The Carbon Credit Quality Initiative is developing a scoring tool for carbon credit quality.	Guidance and tools for high-integrity carbon credits are still under development and focus on carbon credits issued under crediting standards.
Reporting of own emissions and voluntary compensation in a transparent, accurate, and disaggregated manner	High	International and national guidance for companies reporting GHG emissions and aggregate use of carbon credits (e.g., Global Reporting Initiative, GHG Protocol, Carbon Disclosure Project, ISO, UK Environmental Reporting Guidelines), and on the role of voluntary compensation in the broader mitigation strategy (e.g., WWF).	Lack of specific guidance and platforms for standardized reporting of disaggregated and detailed information on the carbon credits used for voluntary compensation and their role in the broader mitigation strategy.
Making clear, truthful, and verifiable claims about targets and the voluntary (offsetting and non-offsetting) use of carbon credits	High regarding the principle of ensuring the integrity of claims. Lack of consensus on definitions for claims.	Development of guidance is underway, e.g., SBTi and VCMI. VCMI is developing guidance on claims about targets and the voluntary use of carbon credits, including a classification of claims based on a range of features, e.g., emissions coverage, ambition of targets, types of carbon credits, and accounting treatment of carbon credits.	Lack of standardized definitions and classification of claims, which are a precondition for independent third-party verification of claims.
Compliance with good marketing practices when using claims about own emissions, voluntary compensation , etc. for marketing	High regarding the principle of complying with good marketing practices. Lack of consensus on definitions for claims (see above).	International (e.g., ICC), supranational (e.g., EU), and national guidance on green claims, including some guidance specifically on carbon neutrality claims.	Lack of standardized definitions and classification of claims, which are a precondition for assessing compliance with good marketing practices. The average consumer has a limited understanding of voluntary compensation and related claims.

Source: (Ahonen et al., 2021)

Many rules, norms, and frameworks have emerged in the context of the continuing REDD+ pilot programs as a result of these advances in the UNFCCC, enabling governments and project developers to improve local community safety (Arhin, 2014). In order to account for greenhouse gas emissions and removals (as well as co-benefits) from REDD+ or other forest carbon initiatives and to validate or certify these activities, several organizations have created voluntary standards (Schmidt & Gerber, 2016). Certain standards include an evaluation procedure to evaluate the process's quality and the degree to which rules and safety measures have been implemented. These procedures can be diverse and include independent audits, reporting, organizational assessments, and worldwide reviews. While certain project-level carbon criteria, like the Verified Carbon Standard (VCS), do not provide comprehensive safeguards and instead concentrate on carbon accounting, they do provide ways to integrate social and environmental standards, such as the VCS and Climate, Community & Biodiversity (CCB) (Roe & Streck, 2013). Since communities and ecosystems are the standards' intended beneficiaries, standards with a more social and environmental paradigm, such as Plan Vivo (PV) and CCB standards, are extremely careful in their protection of both (Roe & Streck, 2013). In the next chapter, it was discussed how this research took into consideration the Cancun Safeguards and the third-part certification mentioned above. The Cancun Safeguards were selected as a foundational framework within this thesis because they appear to be better suited for the thesis proposal, due to their comprehensive approach to integrating indigenous knowledge, protecting biodiversity, and ensuring the social and environmental integrity of REDD+ projects.

3. Research methodology

This study examines the social and economic impacts of REDD+ initiatives, focusing on ten projects across eight countries involving Indigenous stakeholders certified by VCs, Plan Vivo, or CCB. These projects can be overseen in section 3.1 and in detail in the 3.2. Data collection involving both tangible and intangible assets, along with the techniques employed, is demonstrated in section 3.3. There is also a subsection dedicated to highlighting the limitations and weaknesses of this research. The findings compared with

other initiatives, guided by the Cancun safeguard criteria and UN-REDD principles are displayed in the next chapter.

3.1 Research approach

This research will only focus on the social and economic benefits created during and after the implementation of the REDD+. The start is a literature review to gather information on 10 REDD+ projects within Indigenous territories from 8 different countries and 3 continents, certified by Verified Carbon Standard (VCS), Plan Vivo or Climate, Community, and Biodiversity Standards (CCB) displayed in Table 04. The next step is to assess the state of REDD+ development outputs, their achievements, and potential limitations. After that there will be data collection on tangible assets, for example, how much money the native community receives and how many infrastructures were built, and intangible assets like workforce and quality of life in the region. Furthermore, in the discussion section five, all data will be analyzed and compared with other initiatives. The guidelines will be the Cancun safeguard criteria 3,4 and 7 and the United Nations Framework Convention on Climate Change (UN-REDD Social and Environmental Principles and Criteria).

Since the objective of this research is to assess the benefits of REDD+ initiatives for Indigenous populations, the primary criterion for project selection will be the project to be implemented within Indigenous territories with a relevant presence of Indigenous people. To ensure better data quality and audit information, all projects should be certified by a reputable third-party standard. To facilitate a comprehensive ex-post analysis, a time requirement of at least ten years of operation in the voluntary private market will be established for the selection of REDD+ endeavors. This duration allows for a better evaluation of the long-term impacts, providing sufficient data and insights into their effectiveness. The extent of REDD+ programs varies greatly, with some initiatives covering as little as 20 hectares in the Atlantic Coastal Forest and others spanning 8.4 million hectares in the Amazon, operating on a landscape scale (Angelsen et al., 2009). The scale of the REDD+ initiatives is a crucial factor in their selection. The projects considered in this research span a range of sizes, with the smallest covering 27,000 hectares and the largest extending up to 1.4 million hectares. To

ensure the feasibility of this analysis within the 20-week timeframe of the master's thesis, it is estimated that evaluating ten projects would provide a sufficient dataset. This quantity allows for a comprehensive analysis while remaining manageable within the given period.

Table 4: REDD+ Programs to be analyzed.

Country	Program REDD+	Area [ha]	People Impacted	Started	Carbon Credits Emitted [MM]	Certified
Brazil	Suruí Forest Carbon Project	247.000	1.400	2009	0,3	VCS + CCB
Chile	Valdivian Coastal Reserve	50.251	2.000	2003	0,5	VCS + CCB
Colombia	Mataven	1.150.212	16.000	2012	27,1	VCS + CCB + SD VISTA
DR Congo	Mai Ndombe	300.000	50.000	2011	31,4	VCS + CCB
India	Khasi Hills Community	27.139	40,978	2011	0,4	Plan Vivo
Indonesia	Rimba Raya	64.000	9.500	2014	33,6	VCS + CCB + SDVISTA
Peru	Ucayali	127.004	40.000	2010	2,6	VCS + CCB
Peru	Alto Mayo Conservation	182.000	16.000	2008	7,2	VCS + CCB
Peru	Cordillera Azul	1.350.000	180.000	2008	36,6	VCS + CCB
Tanzania	Yaeda-Eyasi Landscape	110.000	61.000	2011	0,5	Plan Vivo

Source: Verra and Plan Vivo websites.

This research will analyze only two standard body projects: Plan Vivo and Verra. Plan Vivo features an exclusive beneficiary system in which at least 60% of PVC sales revenue must be distributed to those who generate climate benefits, post-tax (Pan et al., 2022). Project coordinators may use the remaining 40%. In contrast, VCS does not require a minimum proportion of revenue distribution, and such financial information is not publicly available as can be seen in Table 05 below. Furthermore, Plan Vivo demands initiatives to complete a socioeconomic baseline analysis. The verification and carbon offset issuance renewal cycle varies per standard, with the CCB and Gold Standard employing a five-year cycle, Plan Vivo a three-year cycle, and VCS not requiring any periodicity (Pra & Brotto, 2018). In terms of scale, Verra's VCS far surpasses Plan Vivo, with over 1 billion credits issued across more than 3,000 projects, as shown in Table 06. In 2016, VCS certified 82% of forestry and land use projects, with 73% also certified

to the CCB Standard, ACR certified 5%, mostly in the United States, the Gold Standard and Plan Vivo, both prioritizing co-benefits, represented 4% and 2% of market size, correspondingly (Pra & Brotto, 2018). Plan Vivo, which issues only 0.8% of total credits, is preferred for its exclusive focus on land use and forestry initiatives by small-scale farmers, with certificates trading at €7.1/tCO^2e, roughly four times the price of VCS offsets (Hamrick & Gallant, 2017). Plan Vivo appears to facilitate faster carbon credit sales compared to Verra. An analysis of 161 projects (145 Verra and 16 Plan Vivo) launched between 2007 and 2017 indicated that Plan Vivo initiatives had their initial sale following an average of 3.25 ± 2.2 years, whereas Verra developments had their debut sale with an average of 4.96 ± 2.3 years (Atmadja et al., 2022).

Table 5: REDD+ safeguards standards and guidelines:

	The Plan Vivo Standard (PV)	**Verified Carbon Standard (VCS)**
Level	Project	Project
Groups	Rural smallholders & communities	Local stakeholders & communities
Cancun Safeguards	No	No (not explicitly)
Gender	Yes (procedural)	Yes (procedural)
IPCL Rights under International Law	No	No
Land & Resource Rights	Limited (Only where recognized)	Limited (Only where recognized)
Community Carbon Rights	No	No
FPIC	Yes (Incl. Design & Implementation)	Limited (no procedural guidance)
Formal Benefit-sharing mechanism	Yes (agreed with communities; awareness of change over time)	No
Formal Grievance Mechanisms	Yes (& reported)	Yes (planning, implementation; benefit-sharing)
MRV of social/rights concerns	Limited (socioeconomic baselines; impacts to be reported)	No (initial information on how Safeguards were addressed, no monitoring)

Source: (Sarmiento Barletti et al., 2021)

Table 6: Size of Verra and Plan Vivo Portfolio:

Standard Body	Credits Name	Nº of Credits Issued	Nº of Projects
VERRA	VCS	1,090,392,689	3,331
Plan Vivo	Plan Vivo Certificates (PVCs)	6,453,389	221

Source: (Dulait & Berkol, 2023)

This disparity in scale may be linked to Plan Vivo's exclusive focus on land-use developments and its objective to empower community landowners by increasing their access to the voluntary carbon market. Verra, on the other hand, is a traditional for-profit company that may prioritize entrepreneurs with the necessary finances for generating carbon offsets. Certain carbon offset standards like the VCS prioritize carbon accounting but offer mechanisms for incorporating social and environmental safeguards, whereas others, for instance, Plan Vivo, spotlight precise protections for communities and the environment as key beneficiaries (Roe & Streck, 2013). The Plan Vivo approach focuses on smallholders and community-based initiatives that employ a "payments for ecosystem services" strategy and prioritizes participatory design, decrease in poverty, livelihood development, restoration of ecosystems, biodiversity protection, and climate change mitigation (Pra & Brotto, 2018). Plan Vivo principles prioritize FPIC, empowering communities to develop and manage their land depending on their needs and objectives (Pan et al., 2022). Plan Vivo encompasses particular guidelines for protecting threatened species, implementing the High Conservation Value framework, preserving ecosystem services and functions, focusing on the involvement of stakeholders, defining conflict resolution processes, implementing equitable benefit sharing, and evaluating influences beyond the project area, whereas the VCS focuses primarily on carbon accounting and pays less attention to these other aspects (Savilaakso & Petrokofsky, 2017). Plan Vivo certificates are issued for up to 90% of offsetting activities, with a 10% buffer for potential reversals, and monitoring is limited to the period necessary to observe the long-term effects of the activities (O'brien, 2022). A comparison of 26 projects verified by Gold Standard, Verra, and Plan Vivo indicates important discrepancies, with Plan Vivo initiatives

standing out for their extensive surveillance designs designed in partnership with local populations; These programs benefit local communities by collaborating with and for them, exhibiting a broader range of indicators, and providing a more comprehensive and detailed assessment of socioeconomic benefits (Dulait & Berkol, 2023). Plan Vivo decides on all potential leakage sources, whereas VCS examines leakage only from activity-shifting and market effects; VCS stipulates no adverse effects on the surrounding environment and community, whereas Plan Vivo mandates a socio-economic baseline to prove positive local impacts and requires more detailed performance metrics, monitoring periods, and frequencies (Pan et al., 2022). One probable discussion for the gap in conflict grades between the standards would be the lack of a required framework for resolving conflicts. VCS demands project developers show that recognized obstacles only influence the proposed project and not alternate scenarios, whereas Plan Vivo requires additional viability views and solutions to all reported difficulties (Pan et al., 2022).

3.2 Study area

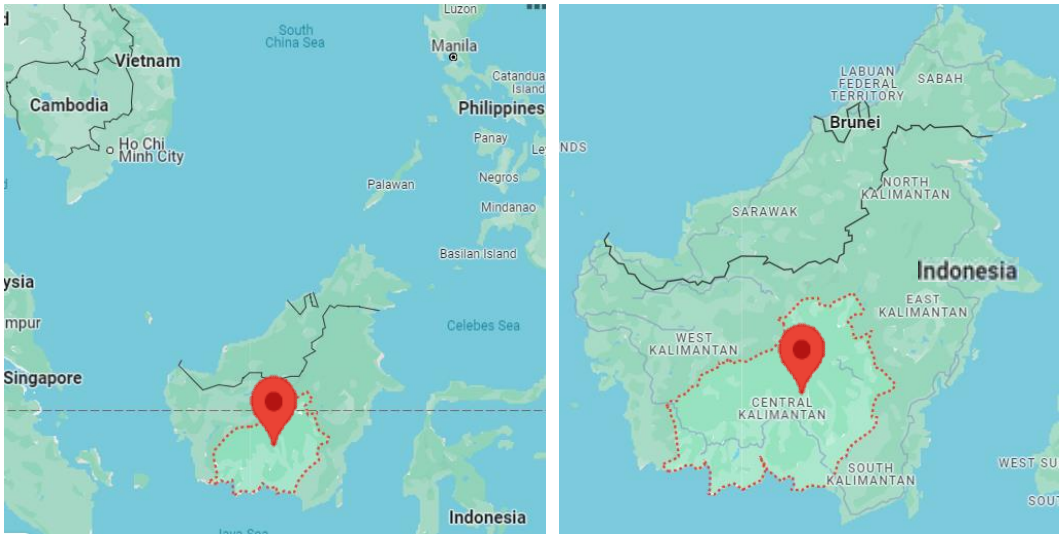
Examining ten REDD+ projects across eight diverse countries offers a richer understanding of its impact on Indigenous communities. This wider lens allows the research to find how REDD+ affects different people with distinct cultures and forest relationships, as well as how it functions across various ecosystems varying from the Amazon rainforest to the Tanzania mountains. By comparing how each nation implements REDD+ policies, it is possible to assess if the program empowers native people while protecting forests and aims to guide future REDD+ initiatives for the maximum benefit of the stakeholders involved.

3.2.1 VCS 674
Rimba Raya Biodiversity Reserve Project

The first project of the company Infinite Earth, Rimba Raya spans about 64,000 hectares and is strategically located next to Tanjung Puting National Park, home of the endangered Borneo Orangutan, to take advantage of REDD+ opportunities and act as a barrier towards nearby oil palm cultivation (Enrici &

Hubacek, 2018). The region, with a population approximately of 11 thousand people, has an area of roughly 16.5 million hectares and experienced a high deforestation rate of 50% between 2000 and 2008 (Broich et al., 2011).

Figure 1: Rimba Raya Biodiversity Reserve REDD+ in Central Kalimantan in Indonesia



Source: Map data © 2024 Google.

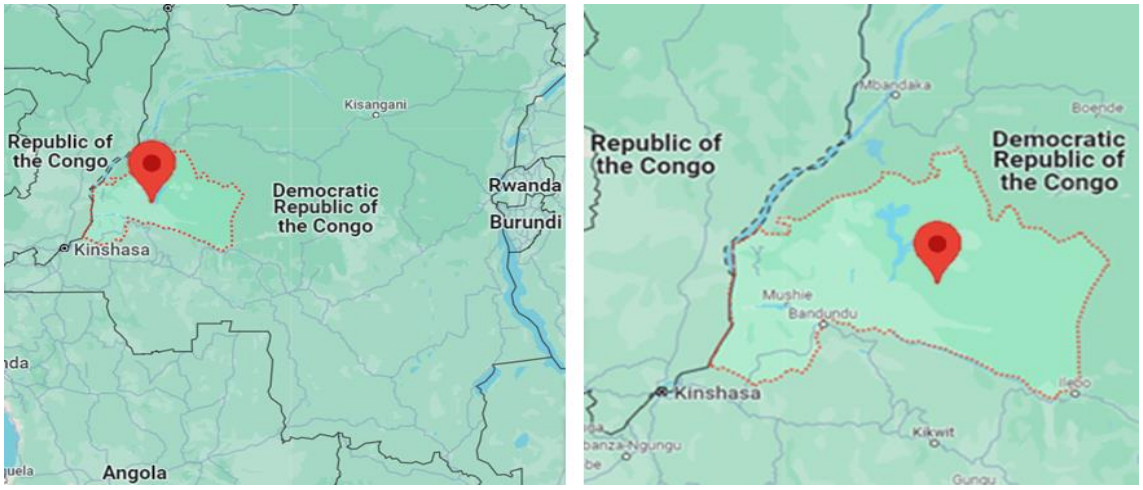
The indigenous ethnic group of Borneo, the Ngaju people (also known as Ngaju Dayak, Dayak Ngaju, or Biaju), is descended from the Dayak group and made up 18.02% of the population of the state of Central Kalimantan (Suryadinata et al., 2003). The Indonesian reform movement placed a strong emphasis on sustainable forest management in 1998, but since then, deforestation has only increased, with Kalimantan showing the highest rate of forest loss (Yuliani et al., 2018). Despite the fact the goal of these pro-forest laws was to enhance the lives of indigenous people, many reports indicate that the contrary has happened (McCarthy & Cramb, 2009). Disputes between oil palm and rubber firms, the main agricultural products of the region, and locals are common; these usually arise from the development of plantations in village areas without the locals' permission (Sills et al., 2024). Due to customary land tenure, communities have minimal legal ownership of property, but enterprises have fairly solid legal standing thanks to licenses provided by the district head (Resosudarmo et al., 2014). This kind of confrontation has occurred in at least half of the 14 communities that made up the original agreement, encompassing

a disputed territory roughly varying from 200 to 6000 hectares per town (Resosudarmo et al., 2014).

3.2.2 VCS 934
The Mai Ndombe REDD+ PROJECT

The province of Mai-Ndombe in the Democratic Republic of Congo has been a pilot site for implementing The Congo Basin's first massive REDD+ program since 2010, as well as the biggest forest landscape conservation project in Africa, spanning 12.3 million ha, of which 9.8 million ha are forested (World Bank, 2016). Over the course of its 30-year lifespan, the Mai Ndombe REDD+ Project is expected to safeguard 300,000 hectares of vital habitat for bonobos and forest elephants within the second-largest intact rainforest in the world and reduce roughly 100 million tons of carbon dioxide emissions (Crair, 2022). Among 50,000 people who reside in some of the world's most marginalized areas surrounding the Mai Ndombe REDD+ Project, there are indigenous populations who depend on the forest for fruit, fish, meat, honey, and medicinal herbs (Crair, 2022).

Figure 2: Mai Ndombe region in the Democratic Republic of the Congo.



Source: Map data © 2024 Google.

Even while between 2010 and 2022, 61,600 hectares of "natural forest" have been lost, and Whereas there seems to be a net amplification in the loss of forest cover, the province is nevertheless predicted to serve as a model for

environmentally friendly development in the Congo Basin (Pietarinen, 2023). Even though Mai-Ndombe can be a model site for REDD+ in the Democratic Republic of the Congo, this region is linked to several commercial land-use activities along with conflicting goals, such as logging, mining, agricultural, cattle concessions, and oil exploration permits (Pietarinen, 2023).

3.2.3 VCS 944
Alto Mayo Conservation Initiative

In the Peruvian Amazon, the Alto Mayo Protected Forest protects about 182,000 hectares of very valuable territory for the preservation of biodiversity and watersheds, a portion of the broader Abiseo-Condor-Kutukú Conservation Corridor, which is one of the world's most endangered ecosystems and home to numerous globally significant endemic species (Schulenberg & Awbrey, 1997). The creation of this REDD+ initiative in 2008 was an outcome of Conservation International's organization collaborating with local stakeholders to support the sustainable management of the forest and prevent the intensifying pressure from the growth of coffee production and the migratory demographic (Wright et al., 2018).

Figure 3: Alto mayo protected forest in San Martin, Peru.

Source: Map data © 2024 Google.

Even though REDD+ has made significant progress in conservation, ecosystems are still being destroyed because it is extremely difficult to effectively and efficiently monitor activities over massive forests with a small staff (Alto Mayo Conservation Initiative, 2016). Alto Mayo was one of a select few Verra-approved offsetting projects that succeeded in halting deforestation, halting roughly 3,329 hectares and 720,000 carbon credits, an impressive amount but lower than the 7.5 million declared using Verra's system (West et al., 2023). Even though the project was productive in slowing deforestation, a 2020 Bloomberg investigation discovered that the communities involved seemed to be divided and riven by conflict as a result of the effort. Villagers in Alto Mayo have destroyed checkpoints, obstructed roads, and battered rangers paid with Disney cash (Mider & Quigley, 2020).

3.2.4 VCS 985
Cordillera Azul National Park

Nestled in the Cordillera Oriental of the Andes, Loreto, San Martín, Huánuco, and Ucayali regions, the Cordillera Azul National Park is one of the most diversified natural ecosystems in northern Peru, encompassing an area of over 13,000 km² and elevations of 200 to 2400 m above sea level (Pitman et al., 2014). This is the first-ever REDD+ that, to the best of our comprehension, guarantees that all conservation expenses for a national park of this magnitude are covered by sales of carbon credits in the private sector, with minimal transaction costs, and ensures investments in sustainable livelihoods which will improve endeavors to stop deforestation in the 23,000 km2 buffer zone surrounding the park, home to over 300,000 people (Howson, 2019).

Figure 4: Cordillera Azul National Park in the northeast of Peru.

Source: Map data © 2024 Google.

Two of the largest oil firms on the earth that pollute the environment, Shell and TotalEnergies, received 87% of the credits this REDD+ initiative has produced (Blanton & Mosis, 2021). Human rights organizations and Kichwa community organizations filed an official request with the UN Committee for the Elimination of Racial Discrimination (CERD) in August 2022, demanding immediate measures to halt the Cordillera Azul National Park's discriminating conservation practices. Based on the acquired data, the Cordillera Azul National Park was established in 2001 lacking a sufficient previous consultation procedure to secure the free, prior, and informed consent of the affected Indigenous peoples, imposing limitations on the Kichwa communities' ability to utilize and access their traditionally owned land (Lang, 2023).

3.2.5 VCS 1118 Suruí Forest Carbon Project

The planet's first indigenous-developed REDD+ initiative, the Suruí Forest Carbon Project (SFCP) in the Brazilian Amazon Forest was the first certified in the voluntary carbon market (VCS - CCBS) and the first in the globe to offer carbon credits via the voluntary carbon market (Escaquete et al., 2013). The project took place in the homeland of the Suruí tribe within the Sete de Setembro Indigenous Land, a 250,000-ha zone along the "arc of deforestation" that borders the Brazilian states of Rondônia and Mato Grosso in the Amazon (Zwick, 2019).

Figure 5: Suruí area located in the Brazilian Indigenous land of Sete de Setembro.

Source: Map data © 2024 Google.

Distinguished as the inaugural VCS project to earn a Gold certification from the Climate, Community, and Biodiversity Alliance (CCB), the project earned this recognition due to its effective mitigation of deforestation levels within the designated area through carbon credit production and sale spanning from 2009 to 2014, approximately 299,895 credits (Zwick, 2019). Both academics and practitioners have also characterized SFCP as a productive and promising REDD+ experience, particularly because of its governance structure, which includes multiple organizations (Toni, 2011; Vitel et al., 2013). The initiative was scheduled to last 30 years, but after the first 5, the discovery of gold and diamonds on its territory led to criminal activities. The illegal logging and mining activity resulted in 452,554 tons of CO2 emissions and the loss of 653 hectares of forest, a deforestation rate 256% above the permitted for the initial scope (Maisonnave, 2017). Consequently, the project faced indefinite suspension in 2018, despite its promising start.

3.2.6 VCS 1175
Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve (VCR)

Before 2003, Bosques S.A., a manufacturing timber firm, owned and operated the land, which was located in the Cordillera Pelada, a region of the Coastal Mountains in south-central Chile, about 40 km southwest of Valdivia.

Bosques S.A. had been gradually transforming the native forest into Eucalyptus plantations and working with the Chilean government to build a coastal highway (Carretera Costera) through the site. The Nature Conservancy (TNC), realizing the property's great ecological importance and imminent risks, purchased it in November 2003 after Bosques S.A. filed for bankruptcy in 2003 as a result of fiscal misconduct (Sellers & Derolph, 2014). The location of the first REDD program in Chile, one of the few temperate rainforest survival, was established to draw attention to the critical role that forests play in mitigating the effects of climate change and to raise money from voluntary carbon traders to promote the Reserve's preservation over the long run, following the cessation of deforestation within the 124,000-acre and prevented an estimated 580,000 tons of CO2 emissions (D. Jones, 2019).

Figure 6: Valdivian Coastal Reserve in South Chile.

Source: Map data © 2024 Google.

In 2012 TNC donated to the Chilean government 9,453 hectares, to be used as the country's new Alerce Costera National Park (Sellers & Derolph, 2014). Nonetheless, the creation of protected areas interacts with the processes of natural and spatial appropriation, as well as territorial modification (García & Mulrennan, 2020). This shift causes issues and disagreements between parties with differing interests over territorialized representations of conservation, particularly in the south of Chile (Habert et al., 2023).

In southern Chile, as in other parts of the world, protected areas are still largely planned, established, and managed with little or no real participation of

indigenous people in decision-making (Habert et al., 2023). The southern region of Chile is home to the Mapuche, who make up the majority of the country's indigenous population (1.7 million, or 79.8% of all indigenous people) (INE, 2017). Even though safeguard regions have an extensive history in Chile, indigenous and peasant people, whose ancestors lived in these lands decades before the protected zones were founded, are frequently left out of decision-making processes related to its territory (García & Mulrennan, 2020). Through the Mapuche in southern Chile to the Yagán and Kawashkar in Southern Patagonia, numerous indigenous communities in southern Chile are still largely shut out of geographical decision-making within protected areas (Aravena et al., 2018).

3.2.7 VCS 1360
Forest management to reduce deforestation and degradation in Shipibo Conibo and Cacataibo Indigenous communities of the Ucayali region

Ucayali zone in central-eastern Peru represents 8% of the country's total area, 102,165 km², where 87% of the land is covered by tropical rainforest and temperatures from 19 to 30°C (AIDER 2014). The Tropical Andes of Peru are recognized as a hotspot for biodiversity, home to numerous unique species (Young et al., 2011). With 432,159 residents, 12% are indigenous Amazonian people from 27 diverse ethnic groups, it is the second-largest area in Peru (INEI, 2008). Through the help of families from seven Indigenous Shipibo Conibo and Cacataibo communities, the Association for Research and Integrated Development (AIDER) started a REDD+ project in 2010. The proceeds from the sale of carbon credits will be utilized to enhance local livelihoods and expand forest management initiatives, enhancing resources for forest monitoring and long-term sustainable forest management, and promoting biodiversity preservation (Rodriguez-Ward et al., 2014).

Figure 7: The Ucayali Region is located in the central part of eastern Peru.

Source: Map data © 2024 Google.

With 80,349 hectares of forest removed between 2010 and 2014, the Ucayali was placed third in terms of Peruvian cumulative deforestation (Ministerio del Ambiente, 2015). Furthermore, there is continuous debate about land trafficking in addition to an increase in the agriculture sector (Amancio, 2016). Both large and small oil palm cultivation play a significant role in deforestation, with large corporations often violating local laws (Fort & Borasino, 2016). The research conducted between 2000 and 2015 indicates a worrying pattern of declining food diversity, less forest cover, and decreased agricultural biodiversity, with diets becoming more dependent on commercial crops and fewer wild foods, which may be related to rising deforestation for agricultural growth (Blundo-Canto et al., 2020).

3.2.8 VCS 1566
REDD+ Project Reguardo Indigena Unificado Selva de Matavén

The Matavén Forest is located in Colombia's Orinoco region, which borders Venezuela, and is part of the Vichada State. Situated in the zone that separates the humid Amazonian jungles to the south from the Orinoco savannas to the north, Selva de Mataven's biogeographic location and well-conserved state demonstrate its significance for biodiversity (Osorno Muñoz et al., 2019).

Figure 8: Selva de Matavén in Colombia.

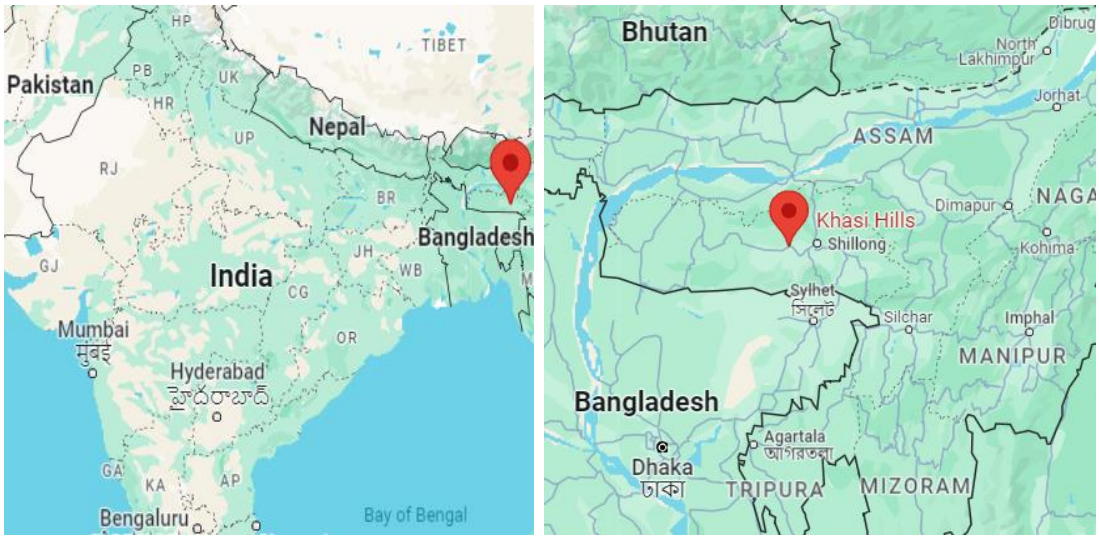
Source: Map data © 2024 Google.

This barely inhabited area is home to over 16000 native individuals from the Cubeo, Curripaco, Piapoco, Piaroa, Puinave, and Sikuani Indigenous communities (Berman Arévalo & Ros-Tonen, 2009). While sharing common surroundings, each ethnicity has its own unique cultural and historical traits (Villarreal-Leal et al., 2009). An environment consulting company called Mediamos F&M and a local organization called ACATISEMA (Asociación de Cabildos y Autoridades Indígenas de la Selva de Matavén), which represents the 16 communities on the land and is in control of governing the area, came together to establish the Matavén REDD+ project to provide residents additional funds. The Superior Court of Justice received a lawsuit from certain communities alleging that their right to "consulta previa" had been breached, however, the court concluded in 2015 that the right had not been infringed and the REDD+ firmed by ACATISEMA and Mediamos is legit (Lozano Picón, 2020). Collaborating with the Latin America Center for Investigative Journalism and Colombian journalist Andrés Bermudez, the Belgium-based Carbon Watch Group contended that extensive forestry initiatives in Colombia generate greater amounts of credits than the real decrease in emissions they accomplish. Investors are advised to cease buying carbon credits from the undertaking and Verra should decertify it because The Selva de Matavén Project employed an exaggerated baseline to determine the rate of deforestation, drastically raising the quantity of credits provided by the project (Bermúdez Liévano, 2021).

3.2.9 PV_2012_009
Khasi Hills Community REDD+ Project

The Khasi Hills have ecosystems that are unmatched elsewhere. The globe's greatest precipitation record has been contested by two settlements in this region's south: Rainfall at Cherrapunjee and Mawsynram over the past 20 years has varied from 11,995 to 14,189 mm and 10,689 to 13,802 mm, respectively (A. K. Singh, 2010). This area is a component of the Indo-Burma Biodiversity Hotspot, which is known for its diverse range of habitats, fauna, and tremendous floristic richness among 7,000 native plant species (Khan et al., 1997). The Khasi people in Northeast India have a 500-year-old heritage of sacred forests with ancient stone megaliths, which is a reflection of their inherent ideals for forest conservation. Ten indigenous councils and sixty-two communities formed a federation to coordinate the preservation and restoration of their community forests in the Umaim subwatershed in response to threats to these important ecosystems, allowing the development of India's first REDD+ initiative to be certified under the international Plan Vivo standard (Poffenberger, 2014).

Figure 9: The Khasi Hills REDD+ Project in the District of Meghalaya, India.



Source: Map data © 2024 Google.

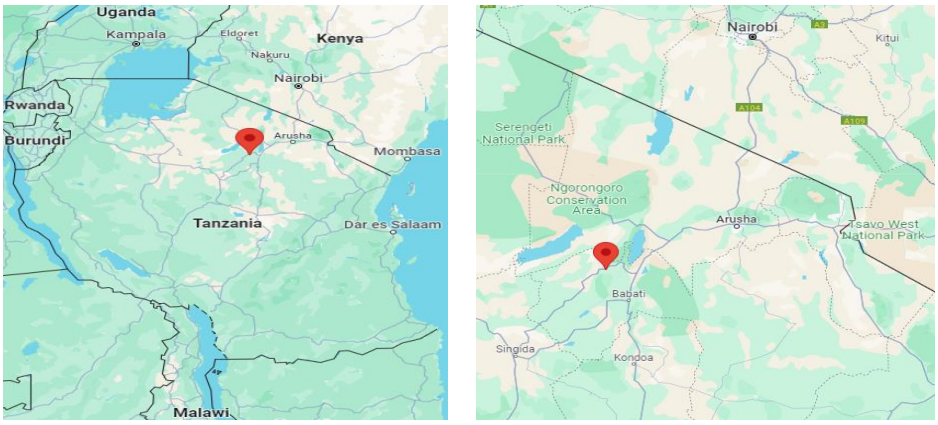
Unhappiness with government policies and agencies, such as state forest authorities suspected of corruption and poor administration, among tribes

dependent on forests, such a large portion of India's 60 million tribal people, has fostered an atmosphere conducive to conflict (P. Singh, 2006). With insurgencies affecting more than 20 of the country's 28 states, India's forests have grown progressively entangled in social and armed conflicts throughout the last 20 years, with some analysts considering these the biggest risks to the country's national security (BBC News, 2010).

3.2.10 PV_2013_011
Yaeda-Eyasi Landscape

The Yaeda Valley is a semi-arid region of acacia and baobab forests and rangelands, located south of Lake Eyasi, is the last significant home of the Hadza, a tribe of hunters and gatherers who are among the region's oldest inhabitants (Peterson et al., 2013). The indigenous Hazda and Maasai communities have been able to keep their collective identity through stewardship that is focused on preserving a sharing economy, natural food security, ecological conservation, and health thanks to their vast environmental expertise **(Newenham-Kahindi & Stevens, 2020)**. Carbon Tanzania, a social enterprise, collaborated with community groups in 2011 to sell carbon credits and transform this 20-year REDD+ project into their flagship. The successful partnership has sold all project credits to date on the voluntary carbon market, showcasing reduced deforestation rates, transparent financial benefits for local communities, and protection of one of the last hunter-gatherer groups by preserving their significant territory (Trupin et al., 2018)

Figure 10: Yaeda Valley is situated in the Mbulu district in northern Tanzania.



Source: Map data © 2024 Google.

3.3 Data collection

Due to the logistical and financial constraints of traveling to eight different countries, on-site data collection for this study was not possible. However, a robust online data collection strategy was employed to ensure a comprehensive evaluation of the REDD+ initiatives across these diverse geographical locations. Program evaluations frequently employ qualitative methods to narratively record and communicate participants' experiences, offering insightful information about the procedures and results that guide decision-makers and highlighting the significance of findings that go beyond quantitative measurements (Everitt & Howell, 2005). In qualitative research, data is gathered and interpreted by the researcher or a designated co-researcher, this approach involves the investigator being as much a part of the research procedure as participants and the data they provide, utilizing an open and flexible design, which is opposition to the idea of strictness that is crucial in quantitative studies (Corbin, 2014). In order to enhance comprehension, qualitative assessments can put faces on the data and highlight the individuals beyond the numbers (Patton, 2002). Primary sources include its own REDD+ Program Reports, offering detailed insights into project goals, implementation strategies, and monitoring data. Additionally, third-party certifier reports, which assess adherence to environmental and social safeguards, provide critical evaluation metrics. NGO Journals and News articles offer diverse perspectives on project implementation and community impacts. By meticulously examining these online resources and applying the designed questionnaire framework, this study aims to achieve a comprehensive evaluation of the REDD+ initiatives' adherence to the Cancun Safeguards, focusing on Criteria 3, 4, and 7, which emphasize the rights and roles of Indigenous Peoples and local communities.

3.3.1 Questionnaire

The questions outlined below were meticulously formulated with the overarching objective described in section 1.3. Each inquiry within the questionnaire serves as a targeted probe into various facets of project implementation and outcomes, all with the ultimate aim of shedding light on the

intangible and tangible benefits accrued by native groups. This questionnaire endeavors to provide a comprehensive understanding of the actual impact and efficacy of REDD+ initiatives in benefiting Indigenous communities.

Transparency of Data:

- How transparent are the project's data collection and reporting processes?
- Are project data readily accessible to stakeholders and the public?

IP Engagement:

- To what extent are indigenous peoples and local communities involved in the planning and implementation of REDD+ actions?
- How are concerns and feedback raised by stakeholders, including indigenous peoples and local communities, addressed by project authorities or implementing agencies?

Deforestation Rate:

- Has there been a measurable change in deforestation rates post-implementation?
- Does this change align with the expected outcomes outlined in the project plan?

Infrastructure Development:

- Have there been any new infrastructure developments initiated as part of the project?
- How is the maintenance of these infrastructures being ensured?

Resources Distribution:

- What percentage of project resources has been allocated to indigenous communities?
- Has this allocation been distributed equally among different indigenous groups?

Conflicts:

- Have there been any documented instances of increased conflict in the project area since its implementation?
- If conflicts have arisen, what are the primary causes?

Cultural Changes:

- Have there been any observable cultural changes within Indigenous communities as a result of the project?
- If so, what aspects of culture have been affected?

Evidence of corruption or illegality:

- Have there been any reported evidence of corruption or illegality associated with the project?
- If yes, what were the nature and implications of these scandals?

3.3.2 Criteria and Indicators per the comparative analysis

The 1992 Rio Earth Summit, also known as UNCED - The United Nations Conference on Environment and Development, established the connection between environmental management and sustainable development, leading to the creation of the "Forest Principles," a worldwide effort to establish criteria and indicators for Sustainable Forest Management (SFM), which has since become the standard practice for managing tropical forests. (Khadka & Vacik, 2012). A lot of proceedings, including monitoring, reporting, and management tools at different levels, have been sparked by the idea of criteria and indicators (C & I), which have made it easier to encourage and fulfill SFM (Wijewardana, 2008). In order to ensure a comprehensive assessment of the questionnaire above, incorporating the Cancun Safeguard Criteria 3, 4, and 7, within the framework of Sustainable Forest Management (SFM), a structured methodology utilizing Principles, Criteria, and Indicators (P, C, I) is proposed further down.

Principle: Sustainable Forest Management

Criteria: Cancun Safeguard Criteria 3, 4, and 7

Indicators and Verifiers:

Transparency of Data:

- Indicator: Degree of transparency in data collection and reporting processes.

- Verifier: Review of project documentation, including reports and publications, to assess the clarity and accessibility of data to stakeholders and the public during the 10 years of the initiative.

IP Engagement:

- Indicator: The level of engagement and participation of relevant stakeholders, including indigenous peoples and local communities.
- Verifier: Review of project documentation, including reports and publications, to assess the clarity and accessibility of data to stakeholders and the public during the 10 years of the initiative.

Deforestation Rate:

- Indicator: Change in deforestation rates pre- and post-implementation.
- Verifier: Analysis of satellite imagery reports to quantify changes in forest cover and assess alignment with project objectives during the 10 years of the initiative.

Infrastructure Development:

- Indicator: Presence of new infrastructure developments initiated by the project.
- Verifier: Examination of project documentation and reports to identify any infrastructure projects and assess their impact on the local community during the 10 years of the initiative.

Resources Distribution:

- Indicator: Percentage of project resources allocated to indigenous communities.
- Verifier: Review of project budgets and financial records to determine the proportion of resources directed towards Indigenous groups, supplemented by investigations to assess the equitable distribution among different Indigenous communities during the 10 years of the initiative.

Conflicts:

- Indicator: Occurrence of documented conflicts in the project area post-implementation.

- Verifier: Stakeholders published interviews, community news, and a review of conflict resolution mechanisms to identify and analyze instances of conflict and their underlying causes.

Cultural Changes:

- Indicator: Observable changes in cultural practices or norms within indigenous communities.
- Verifier: Ethnographic studies, interviews published with community leaders, and participatory observations to assess any shifts in cultural dynamics resulting from the project.

Evidence of corruption or illegality:

- Indicator: Existence of reported corruption or illegality associated with the project.
- Verifier: Literature review, media analysis, and stakeholder-published interviews to identify any reported scandals or controversies and evaluate their nature and implications on project outcomes.

In the attribution of three classes of grades for project criteria, the aim is to provide a structured evaluation framework that offers detailed feedback on the quality and effectiveness of the indicators and criteria analyzed. Each class grade corresponds to specific levels of achievement and comprehension, enabling a nuanced assessment of the project's performance. This grading system can be delineated as follows:

Positive "😃": This grade signifies exemplary achievement in meeting project criteria. Projects awarded this grade demonstrate exceptional understanding, thoroughness, and execution of the specified verifier.

Neutral "😐": This grade indicates satisfactory fulfillment of project criteria with some room for improvement. Projects receiving this grade generally meet the basic requirements but may exhibit minor deficiencies or inconsistencies in execution.

Negative "☹": This grade suggests subpar attainment of project criteria, reflecting significant shortcomings or deficiencies in execution. It may result from inadequate documentation or insufficient evidence to assess the project's quality effectively. Projects receiving this grade may lack coherence, relevance, or specificity, making it challenging to discern the extent of achievement or deficiency. Projects assigned to this grade may fall short of meeting fundamental requirements, demonstrating limited understanding, organization, or coherence. By employing these three classes of grades, it would be easier to offer comprehensive feedback that acknowledges the varying degrees of accomplishment and challenges encountered in project-based learning. This approach promotes a deeper understanding of strengths and areas for improvement, facilitating the iterative process of skill development and knowledge acquisition.

3.3.3 Reliability

Primary data is, as its name implies, information that is gathered initially by the researcher, whereas secondary data is information that has already been gathered or created by another. The most significant distinction between the two types of data is that primary data is real and unique, whereas secondary data is merely an analysis and interpretation of the primary data (Ajayi, 2017). Whereas secondary data provides information about the past, primary data is information that is contemporary (Mesly, 2015). Due to constraints related to time and financial resources necessary to perform on-site visits in 8 different countries, this research will employ secondary data from reliable sources.

3.3.4 Sample

The construction of the sample lacked consideration for key statistical parameters such as confidence level, population size, and variability. Furthermore, the absence of any statistical tests to validate the sample further undermines its robustness. The sample was solely assembled by gathering REDD+ projects that aligned with the predetermined requirements outlined in

Session 3.1: Research Approach. While the research sample may encompass a diverse array of 10 projects spanning 8 different countries and certified by 3 distinct third-party certifiers, it is important to acknowledge that representativeness goes beyond mere diversity in project and geographic scope. While these factors contribute to the breadth of the sample, they do not inherently ensure its representativeness in a statistical sense.

3.4 Data analysis

The data utilized in this study has been previously collected and processed by external parties. The integrity and validation of this data have been established through rigorous verification procedures conducted by the original data providers. This ensures that the data adheres to the required standards of reliability and accuracy necessary for scientific analysis. Consequently, our focus primarily lies in the analytical utilization of this curated dataset. The findings derived from our analysis are extensively discussed, highlighting correlations, interpretations, and potential implications within the broader context of our research objectives in section five.

4. Results

The following sections present the comprehensive results of our evaluation of ten different REDD+ initiatives, each of which is the subject of a separate section. The findings presented in these sections shed light on the different approaches taken by REDD+ projects in different geographical regions and ecosystems. In addition, the synthesis of findings in section 4.11 provides a comprehensive overview that summarizes the key findings from the analysis of all ten cases.

4.1 VCS 674 Rimba Raya Biodiversity Reserve Project

Transparency of Data:

Grade: Negative “😟”.

Although the Rimba Raya has the VCS and CCB certification since 2015, and the Sustainable Development Verified Impact Standard (SD VISta) since 2020, the project's environmental objectives, and its potential socioeconomic implications for the surrounding communities, the transparency regarding the allocation and distribution of revenue generated from carbon credit sales remains limited. This lack of comprehensive data hinders a thorough assessment of the project's impact on local livelihoods and socioeconomic development. Therefore, further research and transparency are warranted to ascertain the extent to which the community benefits from Rimba Raya's carbon credit sales and to ensure equitable distribution of the generated revenue.

IP Engagement:

Grade: Neutral “😬”.

Through the establishment of task forces that include women and indigenous groups, Rimba Raya REDD+ has assisted in the development of greater institutions with the help of World Education and the Orangutan Foundation International (Caroll, 2022). Village government was the primary decision-making entity at the local level, and the majority of women who took part in our study said they had enough representation in the community's decision-making bodies, with the ability to impact choices, and fully engaged in communal assemblies (Indriatmoko et al., 2014). Despite the initiative's claim to involve Indigenous communities as stakeholders, there is no clear evidence of their active engagement in decision-making processes or resource distribution.

Deforestation Rate:

Grade: Positive “😀”.

For the months that the Verified Carbon Standard independently tracked the Rimba Raya endeavor, from July 2009 to June 2014, it proved successful in preserving biodiversity, sequestering carbon, and involving residents (Enrici & Hubacek, 2018). In the past, the most valuable forestry goods were timber, which was primarily harvested by native communities in rural Central Kalimantan; however, because of the complicated processes involved in obtaining authorizations, extracting timber has become uncommon, and residents now primarily consume it for their own (Suwito et al., 2021). According to an assessment conducted in 2020 under VERRA's SD VISta standard, Rimba Raya was the first REDD+ endeavor to have made progress on each of the 17 Sustainable Development Goals of the United Nations (Crair, 2023). Approximately 47,237 hectares of forest have been protected through community firefighting, 15,187 hectares safeguarded from conversion to oil palm plantations, with 74,850 mangrove seeds planted to enhance carbon sequestration, and 137.5 hectares of peat swamp successfully replanted, all contributing to ecosystem restoration (Caroll, 2022).

Infrastructure Development:

Grade: Neutral “😐”.

The project encompasses various initiatives aimed at enhancing community well-being, including installing commercial water filtration systems in seven villages, supporting local women-owned egg farms and shrimp-paste manufacturers for economic empowerment, providing educational scholarships, constructing libraries and community centers to foster literacy and development, and establishing a floating medical clinic on the Seruyan River to offer free medical care, thereby addressing healthcare needs and promoting overall wellness (Crair, 2023). Despite the initiative's provision of employment opportunities for 200 individuals, it proved insufficient to meet the needs of the 14 villages involved. Additionally, it was noted that the project remained stagnant for

two years without any noticeable improvements for the residents. Sources in the study communities claimed that Rimba Raya did not carry out any kind of action in 2011–2012 (Indriatmoko et al., 2014).

Resources Distribution:

Grade: Negative “ ☹ ”.

While Rimba Raya's marketing states the sale of carbon credits contributes to carbon offsetting efforts, there is a notable absence of data elucidating whether the local community members receive monetary benefits, the mechanisms through which such funds are distributed, and the precise amounts involved. The quantity of future offset options that have been traded is unclear, and there is still no intention of providing locals with monetary rewards (Howson, 2020). Instead of benefiting hosts, the projects' foreign financiers are reimbursed with the proceeds from these transactions and don't specifically encourage any more cultivation of trees or the "additionality" of carbon (Howson, 2020). An agreement with InfiniteEARTH to purchase 57.3 million carbon credits at US$8.50 per for the following twenty years was presented by Carbon Streaming Corp. in August 2021, which offers carbon credits from Rimba Raya on its website for $20 each, in addition to processing costs, making an aggregate of US$21.20 (Lang, 2024). Considering three of our four sample areas primarily depended on salary workers from oil palm, it is unclear whether community members view Rimba Raya's claims that they enrich them by preserving forests, which enable them to maintain their traditional lifestyle (Indriatmoko et al., 2014)

Conflicts:

Grade: Negative “ ☹ ”.

Land use concerns are common in the area, and cases of invasion suggest an absence of assistance from local authorities (Resosudarmo et al., 2014). Although Rimba Raya has managed to keep encroachment at a low enough level to receive carbon certification, there is still enough of an issue to require ongoing management from the interference of palm oil firms as well as illegal loggers. (Enrici & Hubacek, 2018). The Ministry of Forestry, the project administrators,

and the local government couldn't approve the concession's boundary, which has led to the incursions of the palm oil business on Rimba Raya and the encouragement of local people to do the same. Illegal loggers arrive in the region shortly after paying for an "allowance" from an authoritative local figure rather than someone associated with Rima Raya, anticipating receiving payment for the cost of their entry to the area when the project contacts them and requests them to exit (Resosudarmo et al., 2014).

Cultural Changes:

Grade: Neutral “😳”.

The Ngaju Dayak people rely on tropical peat swamp forests for their livelihoods, utilizing timber and non-timber forest products as well as ecosystem services, with rattan and rubber being the most economically beneficial non-timber forest products, while the forest supports essential habitats for fish, forest food, and rattan (Suwito et al., 2021). Decreased fishing, the primary protein source, is attributed to rising pollution levels, deforestation due to oil palm farms, and unsustainable fishing methods (such as electrofishing), leading plenty of fishermen to change occupations to take jobs on oil palm farms, which are thought to be less prone to seasonal fluctuations (Indriatmoko et al., 2014). Fish is harvested mainly during the dry season from receding lakes or artificial ponds known as "beje". This ecosystem significance extends to local beliefs, with the Ngaju Dayak people considering river creek sites sacred within their Kaharingan religion, providing various medicinal plants, with 17 species traditionally used, nine of which hold high economic value (Suwito et al., 2021).

Evidence of corruption or illegality:

Grade: Negative “😟”.

There have been documented cases of local government officials receiving clandestine benefits from project managers or working in concert with encroachers; these actions were not budgeted for and were supported in part by private foundations and foreign aid organizations (Enrici & Hubacek, 2018). Although fourteen village leaders signed documents endorsing the Rimba Raya

responsibility throughout its preparatory stage, in four communities, the chief signed without the presence of an official witness; furthermore, there existed doubts in two villages regarding the initiative's advantages, resistance in one village because of the village's predilection for oil palm plantations, and limited opportunities for villagers to interact with Rimba Raya staff during short visits to introduce forest restriction plans (Indriatmoko et al., 2014). According to a statement from the Indonesian ministry in March 2024, the authorities cited the license-holder, PT Rimba Raya Conservation, for three infractions: operating outside of its authorized region, transferring its permit to a third party with no government consent, and failing to fulfill the necessary deposits to the state. One of the biggest offset schemes in the globe may not survive following the Indonesian government dismissed its permit due to local regulations, having negative effects on investors that have bought Rimba Raya credits to offset their carbon emissions and highlighting potential hazards that can be hidden by having several stakeholders and the possibility of changing governmental rules (Tong, 2024).

4.2 VCS 934 The Mai Ndombe REDD+ PROJECT

Transparency of Data:

Grade: Negative “ 🙁 ”.

Out of 180 countries, the Democratic Republic of the Congo was ranked 166th most corrupt in 2022 by the NGO Transparency International. It specifically mentions how the natural resources industry is linked to endemic misconduct, conflict, violence, and insecurity among citizens. Bureaucratic and administrative corruption is the most pervasive type of dishonesty in DRC, with clandestine transactions to gain an advantage in markets, indicating the whole REDD+ program is in danger from the country's widespread corruption, which is even more dangerous considering how much money was pledged (Gauthier, 2018). The Mai-Ndombe jurisdictional program has an established benefit-sharing strategy that could act as a precedent for further initiatives in the DRC, however, there is still insufficient information on its execution (Kengoum et al., 2024). Despite years of so-called 'REDD preparation' operations, the local

government's capacity to monitor the jurisdictional REDD+ project remains relatively limited (Berk & Lungungu, 2020). The Mai N'dombe REDD project pledges to generate "direct local jobs," but the actual number provided remains ambiguous and contradictory in project documents, with claims ranging from over 170 to just 60 employees, leaving questions about the nature of employment conditions unanswered (Kill, 2016). Despite the Mai Ndombe project having held VCS and CCB certifications since 2012, there is limited transparency regarding the allocation and distribution of revenue generated from carbon credit sales. This opacity impedes a comprehensive evaluation of the project's impact on local livelihoods and socioeconomic development. Consequently, further research and enhanced transparency are necessary to ascertain the extent of community benefits from the Mai Ndombe carbon credit sales and to ensure equitable distribution of the generated revenue.

IP Engagement:

Grade: Negative “ 😟 ”.

There is a limited integration of Indigenous Peoples, local communities, and women in Mai-Ndombe's REDD+ initiative, with marginalized populations excluded from decision-making processes, inadequate information dissemination, and women's roles in land management and governance neglected, posing risks of exacerbating vulnerability without recognized land rights and systematic support for women's participation (Gauthier, 2018). The projects failed to obtain the free, prior, and informed consent of local communities for REDD+ activities, resulting in confusion and conflict, while community inclusion and ownership, especially among women, remain low, and Local Development Committees do not adequately represent the communities (Berk & Lungungu, 2020). There is a Law no. 22/030 of 15 July 2022 that protects and promotes the rights of Indigenous Pygmy Peoples, with Article 44 guaranteeing their right to benefit from environmental services on their traditional lands. Despite international recognition of their rights, the province’s 73,000 indigenous Pygmy face routine violations, and although Law no. 22/030's implementing decrees are anticipated to help them benefit from REDD+, the ability to manage or carry out initiatives and take advantage of its benefits is still difficult in a situation where

these populations are merely spectators in the continuing policy processes (Kengoum et al., 2024).

Deforestation Rate:

Grade: Negative “ 😟 ”.

For the REDD+ sites in the Democratic Republic of Congo, Mai Ndombe, and Isangi, no proof of prevented deforestation could be identified (West et al., 2023). Because of a misalignment between the emergent structure and key factors, such as the migratory phenomena, unmarketable resource exploitation, as well a lack of perspective of the forest industry, the REDD+ initiatives in Mai-Ndombe are unable to effectively reduce deforestation (Gauthier, 2018). The measures also seem to have had a minor effect on decreasing deforestation and degradation, and in certain circumstances, they may have further accelerated forest loss (Berk & Lungungu, 2020). Global Forest Watch's tree cover data shows that deforestation in Mai Ndombe has increased since the REDD project began, with a large increase in 2013, two years after the initiative debuted (Lang, 2016). The effectiveness of climate funding in reducing emissions in Mai-Ndombe is questionable, as carbon offsets may create perverse incentives and justify business-as-usual practices without significant measures from emitters to reduce their emissions (Pietarinen, 2023).

Infrastructure Development:

Grade: Negative “ 😟 ”.

Discussions held in Inongo and the town of Nioki, which is south of the REDD conservation concession, indicate that not every member of the community may see the advantages of the Mai N'dombe REDD project as clearly as those emphasized in project promotional materials (Kill, 2016). In the province of Mai-Ndombe, an analysis of the hazards and cumulative effects of REDD+ activities divulges the expenditures made thus far fall short of the minimal safeguard level and fail to compensate for the associated risks (Gauthier, 2018). The majority of the promised advantages have yet to be granted and some

localities are disappointed with how they have been carried out (Berk & Lungungu, 2020). REDD+ aims to transform the political and economic value of forests compared to other land uses, but our research indicates these incentives are ineffective in Mai-Ndombe due to investments in extractive industries and overlapping interests in mining, livestock, timber, carbon concessions, and oil exploration permits (Pietarinen, 2023). Since the program's inception in 2011, ten schools have been constructed, yet the rates of education remain low. It is still difficult for some children to get an education; just 72% of boys, 61% of girls, and 30% of Indigenous Peoples' children attend elementary school (Gauthier, 2018). The World Bank announced an emissions reduction deal with the DRC for the acquisition of 11 million units from the Mai-Ndombe REDD+, nevertheless, no funds have been disbursed yet, possibly due to the government's failure to fulfill all of the conditions (Kengoum et al., 2024).

Resources Distribution:

Grade: Negative “ 😟 ”.

It is unknown the earnings for the Mai N'dombe REDD initiative through the sale of carbon credits, nor the compensation given to the locals involved in this endeavor (Kill, 2016). The absence of provisions allowing the population to access REDD+ benefits and the lack of knowledge about the program's adverse effects could lead to measures that favor private actors, reduce benefits for the poorest, and lessen state accountability for community ownership and preservation of forests (Gauthier, 2018). By emphasizing local interventions, REDD+ techniques in the DRC unintentionally perpetuate historical inequities by overlooking enduring power relations evident in cash flows, incentive systems, and discursive practices associated with extractive land uses (Pietarinen, 2023). The Ecosystems Restoration Associates Congo/Wildlife Works Carbon initiative made payments to stakeholders, including local communities, but the terms and values of these compensations persist unknown, prompting concerns regarding the genuine circumstances (Kengoum et al., 2024). 96 Percent of 278 community members from 19 villages in Mai N’dombe were either unaware of their project benefits or dissatisfied with how they were provided (Berk & Lungungu, 2020).

Conflicts:

Grade: Negative “😟”.

Some researchers faced difficulties in carrying out their probes as locals and staff in the area under study were not welcoming. Interviews with villagers along the road intersecting the REDD+ concession were impeded due to heightened tensions among communities within this area of the conservation concession, as well as hostility from project staff (Kill, 2016). Current initiatives lack effective coordination and governance mechanisms, leaving them ill-equipped to mitigate risks, potentially exacerbating existing land grabbing and triggering new conflicts with the anticipated influx of REDD+ benefits (Gauthier, 2018). Several participants pointed out that the introduction of large amounts of funding to certain regions of the nation, in reality, increases the risk of adverse effects like migration, which can result in disputes over tenure, the inadvertent reinforcement of power disparities that impact women, indigenous groups, or other vulnerable communities, corruption, and financial waste because of the country's tiny ability to absorb the funds (Johns, 2015). The project has sparked serious inter-communal conflict between certain villages, and WWC agents obstructed the legally sanctioned community surveying efforts within its concession (Berk & Lungungu, 2020).

Cultural Changes:

Grade: Neutral “😐”.

The Forest Governance Observatory (Observatoire de la gouvernance forestière), monitoring the Wildlife Works Carbon grant, has identified numerous shortcomings, including failure to consider traditional cultural and technical specificities of forest management (Gauthier, 2018). The management of natural resources fails to appropriately integrate communities' traditional land use systems, resulting in property conflicts, the loss of women's livelihoods, and inadequate nutrition in some settlements (Berk & Lungungu, 2020). The limited information available regarding cultural changes among the indigenous people makes it challenging to assign a grade based solely on two papers. With such a

narrow scope, drawing conclusive assessments about cultural shifts becomes difficult. Additionally, attributing “more or less” focus without a broader range of sources risks oversimplification and may not accurately reflect the complexity of cultural dynamics within these communities. A more comprehensive approach, incorporating multiple perspectives and data sources, is necessary to provide a nuanced evaluation of cultural changes among the indigenous population.

Evidence of corruption or illegality:
Grade: Negative “☹”.

In March 2012, researchers affiliated with the Forest Peoples Programme and Cercle pour la défense de l'environnement conducted a field investigation in Mai Ndombe. The article revealed a notable absence of educational initiatives aimed at elucidating the operational mechanisms of REDD+ and the carbon credit market. Furthermore, the local populace was found to be inadequately informed about these initiatives. The local populations said they were informed that the project had come and that they would be receiving new schools; however, they were not consulted or informed of the possibility this would affect their customary rights and property ownership (Nelson, 2012). In June 2019, once facing starvation because of limits in the natural resource management plans and yet not getting any money, people decided to protest by burning savannahs that were promised to be protected through the agreement (Berk & Lungungu, 2020). Jonas Gerding, a journalist from the German newspaper Die Zeit, recently conducted a field visit to Mai Ndombe in the Democratic Republic of Congo and subsequently published a report. His findings indicate that, after 11 years of implementation, many villagers are questioning the benefits they have received. Anybody who visits Mai Ndombe to speak with the locals and observe Wildlife Works Carbon's operations personally, as well as a professional or academic

discussing the initiative, will encounter an extensive amount of dubious material (Gerding, 2022).

4.3 VCS 944 Alto Mayo Conservation Initiative

Transparency of Data:

Grade: Neutral “😳”.

The forest offset market is largely unregulated, but prestigious projects like Alto Mayo follow official guidelines and have independent auditors confirm their carbon credits, which enables them to negotiate premium prices of $7 to $8 per ton, which is roughly twice for comparable transactions in 2018 and reflects compliance to standards of excellence in the sector (Mider & Quigley, 2020). On the other hand, rigorous counterfactual-based impact evaluation is still pending concerning environmental additionality and socioeconomic and well-being impacts (Montoya-Zumaeta et al., 2021).

IP Engagement:

Grade: Negative “😟”.

When the regional administration created the conservation areas, some communities alleged it ignored their claim that they were in the instance of requesting official ownership of land. Afterward, they received notification from the government that they were no longer able to secure their ancestral region since Peruvian conservation areas do not permit titling to prevent rights from overlapping. The Peruvian Amazon's indigenous tribes have insufficient property titling, with over 50% missing documents; furthermore, despite San Martín possessing sophisticated ecological and climatic agencies, it has the lowest ownership percentage for Indigenous groups at 19% (Augusto, 2018). Since there are no Indigenous Peoples within the protected area, no constitutional obligation for consultation in advance exists, allowing the pitch of multi-stakeholder tables alternatively, though the success of this strategy is doubtful considering the fragility of local social organization (Paredes & Kaulard, 2023).

Nonetheless, it indicated from the interviews that locals were freely recruited by employing individual agreements (Montoya-Zumaeta et al., 2021). The Decision-making process is centralized by implementers and communities are just informed about decisions (Montoya-Zumaeta et al., 2021).

Deforestation Rate:

Grade: Positive “😀”.

Although plenty of the Verra-approved offset schemes that the Guardian writers looked into had limited to no effect on halting deforestation, Alto Mayo was one of the few that succeeded in doing so, preventing the loss of roughly 3,329 hectares of forest up to 2020 (Greenfield, 2023b). There is evidence of significant reductions in deforestation Alto Mayo Conservation Initiative, the overall effort was worth approximately 720,000 carbon credits, which is impressive but not as much as the 7.5 million reported by Verra's report. (West et al., 2023). When assessed against matching control pixels in the larger landscape, we discovered that the introduction of the REDD+ initiative was linked to decreases in deforestation and forest degradation during its initial five years of activity (Guizar-Coutiño et al., 2022). New NGO reports on coca and opium plantations in the protected are restrained by government agencies, who contend the majority of households have preservation compromises with the enacting NGO; meanwhile, the dispute between protection and illegal agriculture has resulted in a comeback of militarization in that region (Paredes & Kaulard, 2023).

Infrastructure Development:

Grade: Neutral “😐”.

Given that the area is more than twice the size of New York City, has had no forest guards for the previous ten years, and is the entry point for hundreds of migrants because a national highway passes through it, the REDD+ funding made it possible to hire personnel and provide them with vehicles, providing it its initial opportunity of actual territorial control (Mider & Quigley, 2020). For instance, the total amount of park rangers expanded from ten in 2008 to 103 in 2016, with

90% of that growth being funded by the preservation initiative (Paredes & Kaulard, 2023). Although benefits were negotiated prior to participants' enrollment (or by their communal representatives for collective agreements), it is unclear to what extent these benefits were realized, despite the provision of in-kind rewards such as technical assistance for coffee, post-harvesting equipment, sanitation improvements (ecological kitchens and toilets), small livestock (e.g., guinea pigs), and incomes from sustainable activities including birdwatching, communal tourism, and cultivation of products like pitahaya and cupuassu (Montoya-Zumaeta et al., 2021).

Resource Distribution:

Neutral “😳”.

The incentives, which have frequently been given sporadically, have included inputs and technical support for facilities related to sanitation, reforestation seeds, and sustainable livelihoods. Locals stated they haven’t received cash payments to date since it has been difficult to secure funding from voluntary carbon markets (Montoya-Zumaeta et al., 2021). This appears contradictory since the initiative has received funding from well-known companies. Disney contributed $1 million in order to scale up the initiative shortly after it began in 2009 and provided almost half of the $30 million raised over the ten years that followed (Mider & Quigley, 2020). For example, with Conservation International's assistance, a resident runs a bird sanctuary attracting a few hundred bird-watchers annually, but the funds generated are insufficient, so he still needs to take on additional jobs to support his income. He expressed a desire to one day generate sufficient income from tourism to eliminate the need for supplementary earnings through odd jobs (Mider & Quigley, 2020).

Conflicts:

Grade: Negative “😟”.

Although deforestation has successfully ceased, the project has led to conflicts in the surrounding communities as patrols assert control over police and

the legal system, frequently stressing quick justice that involves assault or shaming. (Mider & Quigley, 2020). Conservation initiatives in the Peruvian Amazon offer new resources for government-led programs but may clash with Indigenous and 'Colono' communities, who share a history of land and agrarian displacement. “Colono” initially described Andean peasant settlers who migrated to the Amazon as part of state colonization efforts, but the term has since been appropriated by these settlers and Indigenous groups to distinguish their respective communities. When the REDD+ accords were carried out in 2011, tensions and objections arose regarding who has permission to be in the region and how (Paredes & Kaulard, 2023).

Cultural Changes:

Grade: Negative “ 😟 ”.

Indigenous communities in San Martín have encountered continuous discrimination from officials who regard their traditional ways of living and ancestral cultures as primitive and inefficient in using Amazon resources (Biffi & Chaparro, 2021). Officials assert that Indigenous communities can use the forest if they adhere to park management guidelines, but tribal leaders argue that these rules deprive them of their lands and their customs of fishing, hunting, and farming would not be viable in the absence of small-scale agriculture (Paredes & Kaulard, 2023). The establishment of conservation areas has criminalized Indigenous forest practices, leading to accusations against the Kichwa community for illegal access and agricultural activities, obligating them to seek approval for limited fishing, hunting, collecting, and adhering to strict rules for growing crops and building routes (Revilla, 2015). Instead of leaving plantations, inhabitants were instructed to remain and a cooperative was funded to sell higher price organic and fair-trade certified coffee. Around 600 families, representing nearly half of the park's inhabitants, took part in the initiative, cultivating eco-friendly coffee to fill 13 shipping containers by the previous year, some also have branched out into less land-intensive crops like dragon fruit and native honey (Mider & Quigley, 2020).

Evidence of corruption or illegality:

Grade: Negative “😟”.

During an investigative expedition to this major initiative in Peru, people displayed footage of their houses being chopped down by park rangers and policemen using cables and chainsaws. They reported conflicts with park officials and compelled expulsions. With wooden sticks and whips at their disposal, residents of Alto Mayo have set fire to border controls, stopped roadways, and whipped guards who were paid with money from the Walt Disney Company, one of the biggest entertainment businesses in the entire world (Mider & Quigley, 2020). Originally envisioned as a showcase offsetting project, the Alto Mayo protected forest in Moyobamba, Peru, has had problems concerning human rights, for example, on Mother's Day 2021, when many people were away, there was a substantial amount of home expropriation (Greenfield, 2023).

4.4 VCS 985 Cordillera Azul National Park

Transparency of Data:

Grade: Negative “😟”.

The creation of Peru's Cordillera Azul National Park years before the project started generates skepticism about the endeavor's claim of sequestering "additional" CO2, an essential prerequisite for carbon offsetting (D. Hill, 2022). There are serious questions concerning the REDD project's claim of additionality in preserving the park because it contends minimal land-use zoning, tenure procedures, and reporting of illegal activities in the absence of the project; however, while the counterfactual claim that no additional funding would be available cannot be refuted, it is possible that the government, with outside assistance, could have funded the park's protection, given that only one of Peru's 15 national parks (Bahuaja-Sonene) has received partial funding from carbon offsets (Kill & Counsell, 2022). The NGO Unearthed and Source Material looked into the carbon sequestration promises made by Shell for the forestry project in

Peru and revealed that it was difficult to demonstrate the climate impact that customers had paid for to guarantee "neutrality" (Clarke et al., 2021).

IP Engagement:
Grade: Negative “☹️”.

In May 2001, the Peruvian government designated 1.35 million hectares of the Cordillera Azul as a National Park without consulting the local indigenous communities, despite these communities having inhabited the area for centuries and the majority of Kichwa ancestral lands remaining unregistered (Lang, 2021). Regarding human rights, the Cordillera Azul project faces substantial challenges, particularly as a large section of the park has been designated a "strictly protected zone" due to the presence of Indigenous people living in "isolation," as recognized by both UN and Peruvian law. Furthermore, the existence of uncontacted Cacataibo Indigenous peoples in the area calls into question the veracity of the project's additionality allegations (Kill & Counsell, 2022). These people's rights under international law were violated since, like the Kichwas in Puerto Franco, they weren't consulted about the park or project; initiatives concerning indigenous areas shouldn't proceed without sufficient assessment, as demonstrated by the impossibility of consultation given their decision to live in isolation and the potential hazards of interaction (D. Hill, 2021). The United Nations CERD highlights an absence of communication and transparency in the administration of the Cordillera Azul REDD+ Programme by the conservation NGO, the Center for Conservation, Research, and Management of Natural Areas, as well as the absence of consultation during that project's operation in 2008. The inability of involvement from Indigenous groups in the Park's management and the REDD+ Project is further evidence of this (Jenner, 2023).

Deforestation Rate:

Grade: Neutral “😐”.

The validity of avoided deforestation credits relies on assumptions about hypothetical scenarios without financial intervention, establishing a "baseline”. The Supreme Decree statute creating the park mandates Peru's perpetual

commitment to conserve the area where the carbon project is located, independent of any activities that may have the opposite effect. The commitment dates back to prior the project's launch in 2008. Furthermore, there is no reason for selecting 1989 to 2003 as the historical reference period for calculating future deforestation risk instead of 2006 or 2008, as the latter would not have demonstrated the project's overall effectiveness (D. Hill, 2022). Before 2004, the park saw very little deforestation, averaging only 300 hectares per year (0.02% yearly), probably because of the difficult geography, which includes steep, unreachable valleys and peaks higher than 2,000 meters (Kill & Counsell, 2022). Deyvis Huamán, a REDD+ official in Peru's Ministry for the Management of Protected Areas, expressed uncertainty in May 2021 over the possibility of significant rates of deforestation in Cordillera Azul in the absence of the REDD+ project, emphasizing the difficulties involved in validating such estimates (Clarke et al., 2021). The project's approach for evaluating leakage levels lacks logical consistency and probably underestimates the true extent of emission displacement, as the project documentation unaccountably assumes a leakage rate of 20% (Kill & Counsell, 2022). This project was discarded from the 31 REDD+ projects deforestation analysis because of substantial disagreements between the Cordillera Azul sites' and the synthetic control buffer deforestation during the pre-project period (West et al., 2023).

Infrastructure Development:

Grade: Negative "😟".

The Kichwa community has not benefited from the millions of money collected from the sale of carbon credits, even though the initiative has sold 25,240,371 carbon credits overall, based on VERRA's web page (Lang, 2021). Finally, even if we ignore the non-falsifiability of the counterfactual, there remains the issue of the financing amounts generated by the project not being made publicly available for essential and effective protection; the project material states that "protection activities" stand to gain the most from the sale of carbon credits, but the entire benefit allocation is "confidential" (Kill & Counsell, 2022).

Resource Distribution:

Grade: Negative “😟”.

The REDD project has generated over 30 million carbon credits, amounting to more than US$80.5 million in revenue; however, the Indigenous Kichwa community has not received any benefits from the sale of these carbon credits from the national park (Lang, 2023). The project's claim that carbon credits are necessary to maintain the park is questionable because the financial resources obtained are far more than the real costs of preservation. The projected yearly management expenses for 2011 were $1.7 million, which was increased by 20% to account for extra carbon project costs, however, of these, less than 40% were designated for park preservation, with 36% going toward buffer zone activities (which are not included in carbon accounting) and 25% going toward administrative and ancillary expenditures (Kill & Counsell, 2022).

Conflicts:

Grade: Negative “😟”.

The carbon credits obtained in the eruption of a dispute between indigenous peoples and the Peruvian government over land rights in a national park probably fail to reflect actual avoided emissions (Kill & Counsell, 2022). While the Kakataibo people have received legal recognition (2017) and a “strict protection zone” serving as a Reserve to safeguard their way of life and prevent external contact (2021), the Kichwa community has not secured land title claims within and around the project zone (Molleda & Gavancho, 2021). Although a pledge that the proceeds via carbon credit transactions would be used to take care of the park, there has been a rise in illegal logging and coca growing, with drug dealers making death threats to the indigenous that live in and monitor the protected area and buffer zone. Powered mercenary murderers control the region, threatening violence against those who speak out, meanwhile, local officials have done little to address the growing dangers to the affected populations (Alvitres, 2021).

Cultural Changes:

Grade: Negative “😟”.

While the initiative presents that all farmers were moved in a peaceful manner by 2008, reports indicate that relocated native people lost their sovereignty, access to basic resources, and customary connections to their ancestral lands, which resulted in their marginalization, poverty, and continuous conflict over land (Molleda & Gavancho, 2021). With authorization required for entry and restrictions on traditional activities like fishing, hunting, and gathering medicinal herbs and food, the creation of the Park has limited the Kichwa communities' ability to use their ancestral lands (Lang, 2023).

Evidence of corruption or illegality:

Grade: Negative “😟”.

The Cordillera Azul National Park and the Peruvian government were sued in 2020 by the Indigenous Kichwa community of Puerto Franco for establishing a REDD carbon trading program and restrictive environmental practices without their approval, as well as neglecting to title their traditional territories (Lang, 2021). At the recent COP26 climate change conference in Glasgow, indigenous leaders from Peru denounced both the national park and the REDD+ project. During protests both inside and outside the COP26 conference, Indigenous representatives reiterated that despite having protected their lands for generations, businesses continue to destroy the environment, and they criticized Peru for promoting exclusive protected areas and selling carbon offsets to aviation and oil companies instead of acknowledging Indigenous land ownership (D. Hill, 2021). On April 28, 2023, the Peruvian State received an official notification from the United Nations CERD concerning the adverse effects of the Cordillera Azul National Park REDD+ Project on the human rights and territories of the Kichwa people and other Indigenous peoples. The initiative is well-known worldwide for trading tens of millions of carbon credits to major corporations without contact with the Kichwa communities in whose territories they are produced (Jenner, 2023). CERD’s letter underscores shortcomings in addressing

Indigenous rights and poses several inquiries regarding the State's plans to safeguard Indigenous rights in the future (Lang, 2023).

4.5 VCS 1118 Suruí Forest Carbon Project

Transparency of Data:

Grade: Negative “😟”.

This REDD+ was registered with Verra in 2009, received VCS certification, obtained validation approval by CCB in 2012, and issued its only carbon credits in 2013. The credits have been sold to Natura (a well-known Brazilian cosmetics corporation) and the 2014 FIFA World Cup, however, the SFCP has not been verified or granted additional carbon credits since (Garcia et al., 2021). One of the world's most successful voluntary conservation and forest carbon storage initiatives has been dismissed prematurely due to an increase in criminal mining, as well as illegal logging, which has driven deforestation beyond tolerable levels (Nathanson, 2018). There is no regular accountability, the use of resources is unclear, and the REDD+ handbook has undergone significant modification without notification to all participants (Barcellos & Gebara, 2020).

IP Engagement:

Grade: Positive “😃”.

The Suruí Forest Carbon Project, a pioneering REDD+ in the VCM encompassing indigenous communities in the Brazilian Amazon, started as a spontaneous local demand led by the Suruí association Metareilá and was implemented by the Institute for Conservation and Sustainable Development of Amazonas (IDESAM) (Garcia et al., 2021). Envisioned in 2007 by Suruí leader Almir Suruí and designed with the indigenous institution, the project initially had the support of most of the 26 Suruí villages, despite many not fully understanding its implications and functioning (CIMI, 2015). SFCP, an endogenous project, employs a decentralized governance model that reflects the attributes and beliefs of the Indigenous group that initiated it, and this framework has been significantly reinforced and expanded to incorporate elements of both national and indigenous

practices (Alvarez et al., 2016). Regardless, the low representation of women in political decision-making is a cultural trait of the populace (IDESAM, 2011). Indigenous people make decisions, but not all tribe members are allowed to participate and there are few details available (Barcellos & Gebara, 2020). The Paiter Suruí clans, represented by the association Metareilá, established a project committee of both indigenous and non-indigenous persons to oversee and choose projects funded by funds; this body reflects efforts to settle disputes during fund implementation and reacts to outside pressure from SCFP partner groups (Barcellos & Gebara, 2020).

Deforestation Rate:

Grade: Negative “ 😟 ”.

The endeavor, which sought to reduce five million tons of carbon emissions over 30 years, was very effective in the beginning, decreasing illegal logging in Indigenous land to nearly nothing between 2009 and 2012 while neighboring areas faced over double the rate of destruction (Nathanson, 2018). In 2015, the discovery of gold, followed by diamonds, led to significant environmental degradation, with various sources documenting and publishing footage highlighting the extensive damage inflicted on this previously pristine region of the Amazon (Maisonnave, 2017). The 2016 Suruí diamond occurrence resulted in higher-than-expected levels of deforestation due to intensified illegal mining and timber harvesting, which in turn lowered claimable decreases in emissions and, ultimately, credit sales cash (Zwick, 2019). Given the extended period needed to provide economic and social advantages for the community, dissident individuals persisted in removing wood, despite logging moratoria signed by Indigenous associations, increasing local disputes and deforestation (Ferronato & Nunes, 2018). Intense conflicts between indigenous groups supporting REDD+ and those backing mining and logging resulted in the tragic deforestation of 10,000 hectares of native forest (Alencar, 2020).

Infrastructure Development:

Grade: Neutral “😐”.

To secure permanent funding, the Suruí money would originally function as a revolving fund with a long-term fundraising approach; later on, it would switch to an endowment fund using only interest-generated earnings (Barcellos & Gebara, 2020). This transition depends on maintaining sufficient invested capital to meet the demand for financial resources, but unfortunately, this REDD+ project did not raise the expected funds due to the previously mentioned issues. The shortage of early money flows to support the group's demands, particularly those depending on productive activities, was a major source of disagreement, as the only available economic options in the reserve were environmentally negative: the agricultural sector, raising cattle, and timber extraction (Silva & Neto, 2014).

Resource Distribution:

Grade: Neutral “😐”.

Substantial deliberations on property rights, especially ownership of carbon credits, led to respect and recognition of the rights of possession and use of land, territory, and resources from nature; however, the Suruí people questioned the initiative's complexity and efficiency due to delays in receiving money and discontent with how much they were given. (Barcellos & Gebara, 2020). Certain community leaders in Suruí have expressed disapproval of the initiative due to its shortage of accounting transparency, inability to enhance living circumstances, and limitations on formerly profitable commercial activities (Alencar, 2020). Due to the unfair distribution of carbon revenues, a local admitted to engaging in illegal logging and subsequently advocated for the people to oppose the scheme (Maisonnave, 2017). The communal sharing benefits criterion has been fulfilled in part, with clan associations benefiting from the initiative, but there is an absence of transparency, and the initial rewards were primarily handed to a few individuals (Barcellos & Gebara, 2020).

Conflicts:

Grade: Negative “ 😟 ”.

The Suruí initiative gives an example of how challenging it is to preserve social cohesiveness when REDD+ funds are viewed as unsatisfactory by members of the community. Despite being essential for high levels of consent, the Suruí example demonstrates that a well-designed Free, Prior, and Informed Consent process may not be sufficient to prevent conflicts (Gebara et al., 2014). The communities were initially supportive, but some argued that the REDD+ project negatively impacted their way of life (Garcia et al., 2021). Due to community members' perceptions that project earnings were allocated unfairly, past disagreements within the Suruí clans escalated following the establishment of the SFCP (Barcellos & Gebara, 2020). The hostile publicity started in 2014 when people from Suruí, who had been encouraged by the Catholic Indigenous Missionary Council, questioned how the credit sales proceeds were being used and requested the project to stop (Luna Freire, 2017). The destruction of this isolated region of the Amazon exposes the strategies used by the Catholic church, one of the most influential organizations in Brazil, to sow discord among tribes in an effort to weaken carbon credit programs (Maisonnave, 2017).

Cultural Changes:

Grade: Negative “ 😟 ”.

The implementation of the SFCP negatively impacted the indigenous communities' traditional social organization by introducing neoliberal values (Garcia et al., 2021). Both indigenous and non-indigenous research participants voiced worries over the ability and dedication of Indigenous Peoples' associations to take up these resources without compromising their cultural norms of natural resources and livelihood (Barcellos & Gebara, 2020). Some residents felt that community life had radically changed, with restrictions on hunting, fishing, planting, and handicraft production (Maisonnave, 2017). Competition rather than cooperation has historically characterized relations between clans, as a result,

the Suruí REDD+ brought up new social divisions and tensions (e.g., over certain families in the tribe profiting more than those around them) (CIMI, 2015).

Evidence of corruption or illegality:

Grade: Negative "😟".

Despite initial success, the project faced governance challenges and pressure from the ongoing advance of gold and diamond mining and logging, leading to its discontinuation in 2018 (Alencar, 2020). Once it was discovered that the 248,000-hectare Seventh of September territory of the Paiter-Suruí rests on one of the biggest untouched diamond treasures on Earth, illegal miners rushed in, forcing the entire carbon credit program to fall apart (Maisonnave, 2017). The project's principal leader, Almir Suruí, subsequently received death threats from illegal miners, loggers, and other indigenous who were supposedly corrupted with money and firearms (Ribeiro, 2016). Researchers identify several factors that contributed to the initiative's shutdown: the intervention of powerful external actors with self-interested motives, inadequate law enforcement within the Indigenous land, and insufficient state investment in Indigenous education, health, and livelihood programs, which could have decreased social and economic strains for short-term profit (Nathanson, 2018).

4.6 VCS 1175 Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve

This initiative will not be considered in this research due to the lack of available research papers specifically addressing the REDD+ Verified Carbon Standard Project 1175 on avoiding planned deforestation and degradation in the Valdivian Coastal Reserve, Chile. Despite its potential significance and the detailed documentation available from project proponents and certifying bodies, the absence of peer-reviewed scientific studies limits the ability to comprehensively evaluate its impact and effectiveness within the scope of this research. The expiration of VCS and CCB certifications for the REDD+ program, despite limited research, suggests potential issues with sustainability, governance, or compliance. This raises concerns about the program's credibility

and its ability to deliver promised environmental and socio-economic benefits, indicating the need for further investigation. Further and deep examination of local requirements led them to recognize locations within the protected area considered holy to the Mapuche. The non-governmental organization TNC dedicated substantial time and money to assisting Mapuche and peasant communities in the protected area, assessing their needs through seminars and field studies (Delgado, 2013). This participatory procedure included local communities to some level, primarily in a consultative capacity; nonetheless, some residents confronted the legitimacy of these protected zones, claiming it usurped property that originally belonged to their earlier generations (Habert et al., 2023). The initiative sponsored ecotourism projects around the VCR; however, corporate social responsibility activities focusing on employment and training have had modest effectiveness, offering sporadic money to a select few while causing suspicion and conflicts by integrating some community members while excluding others (Habert et al., 2023). Even though employment and training programs are meant to improve well-being, they can also cause deterritorialization, cultural assimilation, and social fragmentation by involving certain members of the community while ignoring others, which breeds distrust and conflict (Brevis et al., 2021). The project intensified longstanding tensions between the Mapuche, the Chilean state, and other players like investors and logging companies, influencing territorial decision-making in southern Chile, meanwhile, the perception of disproportionate REDD+ benefits fueled internal disputes (Habert et al., 2023).

4.7 VCS 1360 Forest management to reduce deforestation and degradation in Shipibo Conibo and Cacataibo Indigenous communities of the Ucayali region

Transparency of Data:

Grade: Negative “ ☹ ”.

Locals were concerned about the proponent's transparency and complete engagement of all members, fearing inadequate details on future REDD+ operations and that benefits would be restricted to a few select individuals, as had been the case with prior foreign interference (Naime et al., 2024; Rodriguez-

Ward et al., 2014). REDD+ did not substantially improve locally identified dimensions of well-being, but it did have a detrimental effect on subjective well-being, which was most likely related to a lack of transparency and frustrated expectations about local benefits (Cubas-Baez & Sills, 2024). A detailed counterfactual-based impact assessment of environmental additionality is still patiently awaited (Montoya-Zumaeta et al., 2021). The budget and the manner in which the funds will be allocated are unclear (Naime et al., 2024).

IP Engagement:

Grade: Negative "☹️".

The Indigenous state-recognized community territories have unique rights to forest income, but the decision-making process is handled centrally by the implementer, with communities just receiving notification of the decisions (Montoya-Zumaeta et al., 2021). AIDER scheduled several types of interactions with local leaders, such as conferences and seminars for establishing sharing benefits agreements in July 2013, training sessions on future scenarios with and without the project in February 2014, and classes on business administration and project expense declaration in May 2014 (Rodriguez-Ward et al., 2014). Despite the proponent's efforts to disseminate knowledge, these workshops did not appear to be particularly effective. Families were dissatisfied with the REDD+ program because of unfulfilled promises, confusion regarding activities and delivery, excessive technical terminology, and a lack of engagement and transparency in the plan design (Naime et al., 2024).

Deforestation Rate:

Grade: Neutral "😐".

When assessed against matching control pixels in the larger landscape, we discovered that the introduction of the REDD+ initiative was linked to decreases in deforestation and forest degradation during its initial five years of activity, with a high rate of undisturbed forest cover (Guizar-Coutiño et al., 2022). The household data collection showed earnings from sawn timber decreased, presumably due to enhanced enforcement and surveillance by the Peruvian

Agency for the Supervision of Forest Resources and Wild Fauna (Solis et al., 2021). It is challenging to determine whether the initiative succeeded or if the deforestation rate prior to REDD+ was overestimated. Particularly low-threat remote indigenous territory with restricted road access comprises the majority of the places included in the Ucayali REDD+ effort (Montoya-Zumaeta et al., 2021). This project was discarded from the 31 REDD+ projects deforestation analysis because of substantial disagreements between the three disconnected areas of this initiative and the synthetic control buffer deforestation during the pre-project period (West et al., 2023). The results show an insignificant effect on income parameters for both participating and nonparticipating households, as altering household activity portfolios is linked to land use shifts, and the analyzed effort has no variation on revenues or triggers adverse 'anticipation' consequences that would lead to deforestation or agricultural land use (Naime et al., 2024).

Infrastructure Development:

Grade: Positive “😃”.

Since 2010, the effort has included REDD+ capacity-building events, better surveillance and monitoring of forested areas, and guidance for FSC forest management certification. The initiative endorses sustainable forest management by engaging communities in certification, reforestation, forest surveillance, monitoring, and business planning for timber and non-timber forest products, with REDD+ serving as a conduit for leveraging carbon payments to assist these activities (Rodriguez-Ward et al., 2014). Several participants highlighted favorable outcomes from increased forest monitoring and management, as well as the REDD+ project's distribution of products and machinery such as a car, chainsaws for wood harvesting and manufacturing, and supplies for forest surveillance (Naime et al., 2024). The programs successfully maintained people's livelihoods but did not achieve aspirations for producing long-term development co-benefits beyond increasing forest revenue (Solis et al., 2021). Our findings suggest that the REDD+ project in the Peruvian Amazon did not have a negative impact on livelihoods, probably due to the initiative's

restrictive impacts being balanced by new opportunities (Solis et al., 2021).

Resource Distribution:

Grade: Negative "☹️".

Benefit-sharing agreements for the sale of carbon credits are still unknown, with continuous conversations between the proponent and community leaders since July 2013 (Rodriguez-Ward et al., 2014). The project intended but had not yet begun sharing carbon credit profits with families in their intervention areas, thus it could only help local livelihoods by boosting forest revenue (Solis et al., 2021). The Ucayali agreement specified that profit shares from sales of carbon credits would be delivered to enrolled participants; however, no monetary rewards have been made thus far given the challenges in getting funds from voluntary carbon markets (Montoya-Zumaeta et al., 2021). In 2017, the endeavor received certification, and carbon credits were sold, with the proceeds going toward new profitable operations like agroforestry fields, as well as training sessions for capacity building and instruments for forest surveillance, raising livestock, and fishing (Cubas-Baez & Sills, 2024). The agroforestry cultivation began in 2019, with complete plot construction in 2020, emphasizing the importance of exploring the expectation consequences considering the three-year postponement within carbon certification and benefit delivery, as demands created by the REDD+ undertaking's launch in 2012 probably affected land use and economic results before any carbon income was received (Naime et al., 2024). The program failed to fulfill its promises and provided no direct benefits to families (Naime et al., 2024).

Conflicts:

Grade: Positive "😃".

The communities have secured ownership of territory with established boundaries, however, they remain fearful that the government may withdraw their rights to allow huge enterprises possession, as seen with drilling operations by oil giants (Rodriguez-Ward et al., 2014). There are tiny land-related problems

aside from sporadic intrusion by loggers and colonial farmers (Montoya-Zumaeta et al., 2021).

Cultural Changes:

Grade: Neutral "😐".

Communities have reported degradation of communal woodlands, leading to increased travel for wild meat, as well as issues with over-harvesting and contamination by foreign fishermen (Rodriguez-Ward et al., 2014). In Ucayali, we identified mixed data regarding the impact of REDD+, with considerable positive effects on annual household income but negative consequences on water quality and accessibility (Cubas-Baez & Sills, 2024). The quasi-experimental research shows that the early phase of REDD+ did not significantly affect the land usage of enrolling families (Naime et al., 2024).

Evidence of corruption or illegality:

Grade: Positive "😀".

A comprehensive analysis of the REDD+ project literature revealed no published cases of scandal.

4.8 VCS 1566 REDD+ Project Reguardo Indigena Unificado Selva de Matavén

Transparency of Data:

Grade: Negative "😟".

The geospatial records show a region that is roughly 30% larger than the approved project areas. The inconsistency cannot be justified by the details provided in the project design document; therefore, the geographic data provided for the undertaking does not accurately represent program placements (Schmid & Castro, 2023). MEDIAMOS has not respected the social and environmental safeguards required by REDD+, failing to recognize the autonomy of the six indigenous peoples in the Selva de Matavén reserve (Diaz Montaña, 2021). The

restricted release of documents, just having the validation report accessible, aggravates assessment debates on supervision alongside developers of projects, limiting accountability; Additionally, the Colombian government is also informed of the exaggerated Matavén baseline, as evidenced by press releases referring to inconsistencies among public agencies and an overall absence of capacity (Dufrasne, 2021).

IP Engagement:

Grade: Negative “ 🙁 ”.

Recognizing that the right to autonomy is intrinsically linked to the capacity for relationship-building, it is evident that the introduction of the REDD+ Matavén Project into the reserve has compromised this autonomy. This conclusion is supported by the failure to respect mechanisms that facilitate autonomy, such as prior consultation (Diaz Montaña, 2021). Surveys with local people reveal that even community leaders have little comprehension of the initiative, raising concern about whether the endeavor is truly a community-driven effort (Schmid & Castro, 2023). Although the REDD+ Matavén project implementation has progressed alongside institutional efforts to address climate change, there remains a gap between the Indigenous peoples' rights and MEDIAMOS's actions, which have not promoted measures to ensure the collective rights of the Indigenous communities (Diaz Montaña, 2021).

Deforestation Rate:

Grade: Negative “ 🙁 ”.

There is no evidence that this initiative has led to significant reductions in deforestation (West et al., 2023). By setting arbitrarily high baselines, the forest conservation initiative generated millions of excess carbon credits that are unlikely to provide any genuine environmental benefits and rather represent "hot air" (Dufrasne, 2021). The VCS 1566 REDD+ Project Resguardo Indígena Unificado Selva de Matavén has not reduced the deforestation rate as intended, instead, it has increased it by 108% (Gómez, 2024; Guizar-Coutiño et al., 2022).

The expected carbon offset claimed by Verra is 31,325,923 Mg CO^2, but the actual offset should be zero (Gómez, 2024).

Infrastructure Development:

Grade: Neutral “😐”.

Indigenous leaders in Matavén welcome the Redd+ project for providing them with new resources, including classrooms, 21 aqueducts, and cocoa fields; However, some have expressed objections regarding the project's administration (Bermúdez Liévano, 2021). Due to an absence of transparency regarding contractual terms, locals are unaware of the advantages and circumstances of the REDD+ program to which their community contributes (Schmid & Castro, 2023). While limited participation was observed, there was no evidence of a thorough procedure involving translated documents or communication in Indigenous languages to include community feedback (Diaz Montaña, 2021). Indigenous leaders report a lack of clarity regarding the distribution of promised benefits and the existence of a structured plan to achieve the project's objectives (Diaz Montaña, 2021).

Resources Distribution:

Grade: Negative “😟”.

The distribution of economic benefits to communities within the REDD+ Matavén framework is a major concern, the exact amount each family should receive remains unknown due to the confidentiality of the REDD+ contract's negotiated value (Diaz Montaña, 2021). The agreements that the initiative designers signed with the residents are not accessible to the public, consequently, it is unlikely to determine the amount the villages obtained (Schmid & Castro, 2023).

Conflicts:

Grade: Neutral “😐”.

The local community opted to sue the program since it was implemented without prior consultation. Nevertheless, the lawsuit did not succeed. The Superior Court of Villavicencio dismissed the action against the REDD+ Matavén project for neglecting to perform prior consultation, determining that there were no risks to the integrity of Indigenous communities and consequently making previous consultation unnecessary (Diaz Montaña, 2021; Lozano Picón, 2020; Schmid & Castro, 2023).

Cultural Changes:

Grade: Neutral “😐”.

Surveys also highlight social problems within communities that derive from the REDD+ programs, notably the risk of adverse effects on traditional self-governance institutions and disputes over the allocation of (possible) carbon revenues (Schmid & Castro, 2023). Throughout the evaluation, no barriers were found in forest regions or other places as a result of the execution of the REDD+ Matavén Project, which is a common issue in the literature about Indigenous peoples and REDD+ (Diaz Montaña, 2021).

Evidence of corruption or illegality:

Grade: Negative “😟”.

The REDD+ Matavén initiative has sold at least 25.2 million carbon credits to firms throughout the world, including fossil fuel massive corporations such as Chevron and ExxonMobil, who utilize these credits to greenwash their brands and make up emission reductions (Bermúdez Liévano, 2021). Over the past three years, 93% of the carbon offsets Chevron bought are considered worthless and may even contribute to further emissions, while Chevron's "net zero" promise disregards 90% of emissions from burning the fossil fuels they extract (Jackson & Tofighi-Niaki, 2023). The adoption of carbon credits by businesses as an alternative to paying the national carbon tax resulted in a loss of public income. Among these credits, 12.4 million may violate national regulations or exploit

regulatory ambiguities, potentially resulting in a loss of US$62 million in tax revenue for the Colombian government (Dufrasne, 2021).

4.9 PV_2012_009 Plan Vivo Khasi Hills Community REDD+ Project

Transparency of Data:

Grade: Positive “😀”.

The Khasi Hills community REDD+ project stands out among REDD+ initiatives in India (Vijge, 2015). It has improved forest governance, approaches to development, and environmental outcomes, as evidenced by seminars, annual reports, and participation documents (Poffenberger, 2015). The Khasi Hills REDD+ initiative is notable for its creation of a trustworthy community framework based on documented ownership rights, which successfully perpetuates conservation practices (Benabou, 2021). This particular REDD+ project appeared to be conducted on a more democratic basis than most conservation interventions, and it provided a more in-depth investigation of community interactions (Sharma, 2022).

IP Engagement:

Grade: Positive “😀”.

The Khasi Hills program is an exceptional case of a 100% community-owned and controlled carbon credit program, distinguishing out in a carbon market that is frequently attacked for exploitation by "carbon pirates" while also displaying effective local ownership and control of an offset initiative (EcoVoice, 2023). The initiative employs forest plot inventory data, as well as parameters of community engagement, comprehension, and reforestation actions, to assess the community's ability to reduce the degradation of forests and determine the effect of measures such as intensified fire line building, lowered fuelwood gathering, and the closure of forest restoration areas (Poffenberger, 2015). The project succeeds in engaging pre-existing Indigenous community institutions to manage their forests and develop governance frameworks including project-specific agencies. Established by ten indigenous governments (the Hima) for

planning, enforcement, and strategy coordination, the project is guided by Community Facilitators who help Local Working Committees develop natural resource management and livelihood plans (Vijge, 2015). The initiative achieved support from locals by integrating two fundamental levels of Khasi traditional governance, the Shnong (village) and the Hima (native state), that employ consensus-based decision-making through the durbar (council), to guarantee the program is perceived as community-owned as opposed to top-down. (Benabou, 2021).

Deforestation Rate:

Grade: Positive “😀”.

The statistics show that biomass is rising while carbon is being sequestered in the sample locations. Yearly forest plot inventory data demonstrate notable rises in biomass rates throughout all types of project forests, such as dense forests with more than 40% canopy closure, open forests with 10-40% canopy closure, and open forests having active regeneration (Poffenberger, 2015). The initiative has successfully maintained the high biodiversity in the sacred forests of Mawphlang, Meghalaya, due to low levels of disturbance (Srivastava & Majid Wani, 2018). Project reports and external observers have observed considerable positive effects on forest preservation, such as fewer fires and illegal wood activities, thanks largely to local people's sense of ownership, particularly when forests generate revenue (Benabou, 2021).

Infrastructure Development:

Grade: Positive “😀”.

Improved fire management, thinning and weeding, enrichment planting, and soil and moisture conditions could all contribute to the significantly increased sequestration rate (Poffenberger, 2015). Community educators, village leaders, Local Working Commissions, and volunteers partner up on forest plot inventories and socioeconomic monitoring, guided by ecological and socioeconomic professionals, to improve their skills (Vijge, 2015). These benefits

are complemented by serious inspection and accountability procedures mandated by the organizations promoting the Khasi project worldwide, putting pressure on local institutions to guarantee the project delivers on its promises (Benabou, 2021). The developer claims to have produced roughly 350,000 tonnes of certified CO2 emissions reductions by preserving and regenerating ancient woods, which led to nearly $900,000 in community benefits (EcoVoice, 2023).

Resources Distribution:

Grade: Positive “😀”.

The project goal is to split a minimum of 60% of the proceeds from Plan Vivo Certificate sales. Where less than 60% is provided, the undertaking needs to clarify the reason why. Only this initiative and the PV_2013_011 Plan Vivo Yaeda-Eyasi Landscape have made this specific number public. By 2015, the project had sold approximately 54% of the carbon offset certificates accomplished between 2012 and 2014, promoting $140,439 to finance administration, surveillance, and community development funding, for example, women's microfinance groups (Poffenberger, 2015). The endeavor empowers Khasi villages to collaborate with government agencies in managing natural resources and obtaining funds from the government (Vijge, 2015). A monetary benefit is present to encourage effectiveness and entrepreneurship through performance-based rewards, individual and community funding, and the formation of self-help groups (SHGs) that serve as microfinance institutions in communities (Benabou, 2021). The new developer’s documentary on the Khasi Hills project reveals it receives $13.50 per tonne of carbon, 4.5 times the average market price for REDD+ credits, resulting in a community income of $8.10 per tonne, more than three times the amount generated by others offsets (EcoVoice, 2023).

Conflicts:

Grade: Neutral “😐”.

Local constraints on forests have been increasing for decades due to the fast rise in population and new external market forces, prompting Indigenous to lease community lands for commercial extractive and mining activities, resulting in ecological harm. The design of this REDD project sparked a broader dialogue among participating communities about local environmental problems and solutions, resulting in an evolving management system founded on Khasi forest conservation and sustainable use values to effectively address these challenges. (Poffenberger, 2015). Although not all addressed villages have supported this idea, with at least one community declining possibly due to suspicion and concerns about losing land ownership, this is an outlier. Overall, the initiative has received more local support than objections, thanks to the active participation of traditional institutions and an integrated environmental education effort (Benabou, 2021). As a whole, in consensus with an increasing amount of studies on how REDD+ initiatives impact the lives and livelihoods of forest-dwelling peoples around the globe, this study with the Khasi communities demonstrates that REDD+ efforts increase the disparity among men and women, wealthy and poor and add new forms of conflict among them (Sharma, 2022).

Cultural Changes:

Grade: Neutral “😐”.

Khasi villages maintain significant autonomy over their natural resources through traditional organizations, facilitated by community homogeneity and pre-existing communication networks, and supported by traditional forest management systems effective in controlling degradation and deforestation (Poffenberger, 2015). Through interviews, no local collaborators indicated worry that the inclusion of technical experts restricted traditional practices in the Khasi Hills REDD+ project (Vijge, 2015). This initiative promotes a neoliberal meritocracy ethos while remaining true to existing lines of local social structure and power connections, particularly through family-clan networks, strengthening pre-existing inequities (Benabou, 2021). In opposition to its defined objectives, the REDD+ in the Khasi Hills reinforces disparities and treats individuals differently, benefiting those in roles of power while depriving the poorest,

particularly women, of their lives and livelihoods within the context of Meghalaya's expansion path (Sharma, 2022).

Evidence of corruption or illegality:

Grade: Positive “😀”.

A comprehensive analysis of the REDD+ project literature revealed no published cases of scandal. Against funding constraints from national bureaucracy, the effort is accomplishing REDD+ goals and benefiting communities (Poffenberger, 2015). The Khasi Hills REDD+ initiative serves as a model for improving national REDD+ plans across India as well as voluntary market-based programs globally (Vijge, 2015).

4.10 PV_2013_011 Plan Vivo Yaeda-Eyasi Landscape

Transparency of Data:

Grade: Positive “😀”.

The Yaeda Valley initiative in Tanzania, a model nested REDD+ voluntary carbon effort that works with native people, received the Equator Prize 2019 for enabling preservation through creative, nature-based climate solutions implemented through community, business sector, and government collaborations (Porras & Steele, 2020). The initiative has substantially lowered deforestation rates and offered significant benefits to community members for focusing on development priorities democratically and transparently (Trupin et al., 2018). Carbon Tanzania, in collaboration with Plan Vivo, successfully sold all of the project's confirmed carbon credits to overseas customers on the VCM, including advance sales until 2020, showcasing the initiative's credibility (Blomley et al., 2019).

IP Engagement:

Grade: Positive “😀”.

The project integrates sustainable development and conservation with

ecosystem service payments through a results-based community mechanism (Porras & Steele, 2020). Two local organizations cooperated on the flagship Yaeda Valley REDD+ project, effectively assisting communities in securing land rights and managing resources, using income for forest preservation, and engaging local communities in promoting their growth objectives (Blomley et al., 2019). Carbon Tanzania presents earnings in a community-wide forum every six months, then allows the locals to determine how to allocate the funds, which are delivered via a mobile payment platform (Trupin et al., 2018). Although the Valley REDD+ project was established on the framework of already-existing institutions for the governance of natural resources, it does not have any particular laws pertaining to carbon rights associated with forests, which would give project developers and nearby people hoping to profit from carbon offset programs more security (Blomley et al., 2019).

Deforestation Rate:

Grade: Positive “😃”.

There has been a significant decrease in deforestation in the project region, resulting from REDD+ efforts on the native forests of indigenous populations (Blomley et al., 2019). Remote sensing data indicates deforestation rates in the core Hadzabe region of 20,790 hectares (the 'project area') have decreased by 9% in the last five years, while, deforestation rates in the surrounding area have increased by more than 50% (Trupin et al., 2018). Improved forest management in Yaeda Valley has benefited animal conservation, with recent sightings of endangered species such as wild dogs, elephants, and lions, indicating a wildlife comeback as a result of increased regulation, greater habitat conditions, and hunting prevention. Stratified sampling indicates robust habitat-species associations and indicates that wildlife populations in the Yaeda Valley Redd+ area are currently stable or expanding (Kiffner et al., 2019).

Infrastructure Development:

Grade: Positive “😃”.

The REDD+ project employs community rangers to enforce land-use laws, including livestock limitations and preventing illicit hunting by non-Hadza tribes (Kiffner et al., 2019). Despite achieving good results and receiving training, surveillance efforts in Yaeda Valley may be limited by a shortage of modern vehicles, as rangers patrolled on foot. Of the 60 percent distributed to the community, regular disbursements cover expenses for managing and safeguarding the project area, including a monthly wage of 50,000 TSH (approximately $22) for 40 community guards (Trupin et al., 2018). By connecting REDD+ development knowledge with the ability to assist community-level land and forest management, the effort effectively established an appealing forest product (carbon credits) through enhanced local management of resources (Blomley et al., 2019). Activities are continually tracked according to operating plans, with carbon offsets validated by third-party criteria and traded as over-the-counter transactions through the global registry Markit (Porras & Steele, 2020).

Resources Distribution:

Grade: Positive “😃”.

The project goal is to split a minimum of 60% of the proceeds from Plan Vivo Certificate sales. Where less than 60% is provided, the undertaking needs to clarify the reason why. Only this initiative and the PV_2012_009 Plan Vivo Khasi Hills Community REDD Project have made this specific number public. The undertaking safeguards Hadza's livelihoods and rights by distributing 60% of earnings to the community, 20% to Carbon Tanzania's expenses for operation, and 20% to managerial and program costs, resulting in roughly $219,000 in carbon offset profits for the local population within 2013 and 2017 (Blomley et al., 2019). The money was channeled to communities in the first five years, with a forecast yearly income for communities from this initiative expected to surpass US$70,000 (Porras & Steele, 2020). The Carbon Tanzania reports detail the allocation of this amount as follows: Community use receives the largest portion at 43.66%, followed by Community Scouts at 20.22%. Village Governments are allocated 15.46%, while Ward Governments receive 2.04% and the District Government gets 3.72%. Health Insurance accounts for 3.55% of the funds, and Education fees take up 5.46%. Governance work is allocated 2.03%, Training

also receives 3.55%, and Equipment is allocated the smallest portion at 0.31%. The funding from REDD+ allows the community to invest in forest management, support land use surveillance, and offer training and equipment, to guarantee the plan for land use is effectively enforced and carried out in the face of growing pressure on Hadza's historic territory (Trupin et al., 2018).

Conflicts:

Grade: Positive “😃”.

Administration actions have decreased the influx of external livestock, reducing pressure on pastures and disputes among nomadic pastoralists, villagers, and environmental goals, however, sporadic feeding of livestock continues in limited regions regardless of broadly enforced land-use policies (Kiffner et al., 2019). Monthly updates from Carbon Tanzanian's rangers report that the majority of incidents are illegal hunting and livestock feeding on restricted territories, which limit Hadzabe access to wildlife (Trupin et al., 2018).

Cultural Changes:

Grade: Positive “😃”.

REDD+ has influenced Hadza's attitude to land conservation by allowing them to fight land intrusions, preserve their rights in village gatherings, and resolve conflicts with local and national authorities, guaranteeing their ability to reinforce their ancient traditions and culture (Trupin et al., 2018). In essence, the initiative enhances local lives, lowers greenhouse gas emissions, and upholds traditional cultural values (Porras & Steele, 2020).

Evidence of corruption or illegality:

Grade: Positive “😃”.

A comprehensive analysis of the REDD+ project literature revealed no published cases of scandal. Carbon Tanzania's REDD+ initiative in Yaeda was successful in providing significant money to indigenous local populations, assisting those communities in better protecting their lands and natural

resources, and resulting in tangible reductions in deforestation and enhanced conservation outcomes (Trupin et al., 2018). The outcomes suggest that REDD+-based land-use strategies can help maintain biodiversity in East African rangelands (Kiffner et al., 2019).

4.11 Summary of Results

Table 7: Summary of Results.

Project	Standard Employed	Transparency	IP Engagement	Deforestation Rate	Infrastructure Development	Resource Distribution	Conflicts	Cultural Changes	Illegality
VCS674	VCS CCB SDVISTA	Negative	Neutral	Positive	Neutral	Negative	Negative	Neutral	Negative
VCS934	VCS CCB	Negative	Negative	Negative	Negative	Negative	Negative	Neutral	Negative
VCS944	VCS CCB	Neutral	Negative	Positive	Neutral	Neutral	Negative	Negative	Negative
VCS985	VCS CCB	Negative	Negative	Neutral	Negative	Negative	Negative	Negative	Negative
VCS1118	VCS CCB	Negative	Positive	Negative	Neutral	Neutral	Negative	Negative	Negative
VCS1360	VCS CCB	Negative	Negative	Neutral	Positive	Negative	Positive	Neutral	Positive
VCS1566	VCS CCB SDVISTA	Negative	Negative	Negative	Negative	Negative	Neutral	Neutral	Negative
PV2012009	Plan Vivo	Positive	Positive	Positive	Positive	Positive	Neutral	Neutral	Positive
PV2013011	Plan Vivo	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive

Table 8: Classification of analyzed projects.

Rank	Project		Positive Grades	Neutral Grades	Negative Grades	Carbon Credits Emitted [MM]	Size [Ha]
1º	Yaeda-Eyasi	PV 2013011	8	0	0	0.5	110,000
2º	Khasi Hills	PV 2012009	6	2	0	0.4	27,139
3º	Ucayali	VCS 1360	3	2	3	2.6	127,004
4º	Rimba Raya	VCS 674	1	3	4	33.6	64,000
4º	Alto Mayo	VCS 944	1	3	4	7.2	182,000
5º	Suruí	VCS 1118	1	2	5	0.3	247,000
6º	Mataven	VCS 1566	0	2	6	27.1	1,150,212
7º	Mai Ndombe	VCS 934	0	1	7	31.3	300,000
7º	Cordillera Azul	VCS 985	0	1	7	36.6	1,350,000

Table 9: Average Plan Vivo and Verra analyzed project data.

Standard	Positive Grades 😀	Neutral Grades 😳	Negative Grades ☹️	Carbon Credits Emitted [MM]	Size [Ha]
Plan Vivo	7.0	1.0	0.0	0.45	68,570
VCS	0.9	2.0	5.1	19.82	488,602

5. Discussion

The purpose of this discussion is to examine the distinctions between Plan Vivo and Verified Carbon Standard (VCS), two well-known carbon offsetting standards. Specifically, we will concentrate on how opaque it is to evaluate the ecological impact of climate change and community benefits in the context of REDD+ projects. Furthermore, this study will look into incidents of carbon credit companies involved in Indigenous violence and assess the viability of REDD+ as a method for protecting Indigenous rights. Finally, constraints in present research on this topic will be discussed, and recommendations for future study areas will be made. This analysis aims to contribute to the ongoing discussion about the efficacy and ethical implications of REDD+ projects.

5.1 Differences between Plan Vivo and Verified Carbon Standard

The results of Table 06 highlight the significant discrepancy between Verra and Plan Vivo projects as we saw in the Methodology 3.1 section. Although there are seven VCS projects and only two PV projects, without a smaller hectare area, the performance disparity is notable. The highest-scoring VCS project received positive grades in only three out of eight criteria. In contrast, the Plan Vivo projects achieved considerably higher scores, with one project meeting six out of eight criteria and the other meeting all eight criteria. This result prompts a concise investigation into the differences between Plan Vivo and Verra. Tables 04 and 05 in the methodology might explain why no VCS program received a "Positive 😀" grade in the resource distribution analysis. Line seven regarding FPIC could help clarify why five examined VCS projects obtained a "Negative ☹️" grade in IP Engagement criteria. Differences in MRV procedures between the standards

seen in the last line of Table 04 could impact the deforestation rates of the analyzed REDD+ initiatives, with VCS only achieving two "Positive 😀" grades.

5.2 Lack of Transparency in the Carbon Industry

The legitimacy of carbon offset mechanisms is endangered by several obstacles concerning their true efficiency, which can only be resolved with significantly increasing transparency throughout the entire carbon offsetting value chain, a critical step toward succeeding in genuine carbon emission reductions (Delacote et al., 2024). Although there is increasing enthusiasm for transparency, most contributions in the literature use terms like 'increased transparency', 'improving transparency', or 'transparent organization/institution' without providing a clear definition (Baraibar-Diez et al., 2017). Some perspectives suggest this concept is multidimensional, which differs based on the circumstances in which it is employed. Due to the complexities of transparency, it necessitate organizational-level analysis and critique, as this is where transparency policies, practices, and perceptions are ultimately implemented and assessed (Christensen & Cheney, 2015). Green transparency means remaining open and honest regarding a company's environmental policies, including disclosure of information on the ecological impact of their services, goods, and activities, defining clear sustainability targets, and being responsible for its decisions (Rawlins, 2008). Green transparency may contest and minimize the impression of greenwashing and its results in several ways, demonstrating the business's dedication to sustainability and eagerness to be liable for its conduct (Alyahia et al., 2024). Many of the world's most profitable and environmentally harmful companies have invested in carbon offset schemes that are "probably junk" with serious flaws, suggesting that their greenhouse gas reduction promises are likely exaggerated, as over a third of the offsets portfolio for 33 of the top 50 corporate buyers is unreliable (Lakhani, 2024). Energy firms have become the biggest buyers of probably worthless offsets; of ExxonMobil's 3.7 million carbon credits, nearly half (49%) come from questionable projects, even though internal records demonstrate that Exxon scientists correctly estimated the effect of fossil fuels on the environment in the 1970s (Milman, 2023). The results indicate a deficiency in both “overall” transparency and specific

green transparency within projects. It is challenging to trust a company that fails to provide comprehensive information about its activities and permits companies potentially engaged in greenwashing to purchase its credits, as evidenced by VCS projects 1360 and 1566 analyzed in this research. The recent drop in carbon credit prices may demonstrate the weakening of belief in this business. In December 2023, the market price on the Xpansiv trading platform fell to US$0.80 per ton for nature-based carbon offsets (down from US$7.50 in 2022) and US$0.50 per ton for tech industry carbon offsets (down from US$1.10 in 2022) (Delacote et al., 2024). Failure to disclose important information can lead to controversies, as recently emphasized in the media and mentioned in the introduction of this study, with evidence found in six of the previously evaluated projects.

The analysis of previous REDD+ projects reveals two principal categories of information deficiencies: insufficient details regarding the environmental impact and the beneficiary system. Even information that is allegedly public is difficult to obtain, and finding updated information is highly challenging. For instance, although many offset programs theoretically make geographic site boundaries accessible to the public, numerous initiatives fail to give this information, and others either supply corrupted data or borders that don't correspond to the real project regions (Delacote et al., 2024; Guizar-Coutiño et al., 2022; West et al., 2023). Discrepancies between the claimed geographic areas and the provided documentation were observed in VCS projects 1360 and 1566. This issue can also be linked to inadequate explanations of project additionality, particularly concerning the deforestation rates used for baseline calculations, as evidenced in VCS projects 944, 1360, and 1566. The primary consideration for offset assignments is additionality, which includes motivation (whether the initiative would have taken place with no carbon credits revenue) and effects (whether the assignment minimizes global warming, which is frequently disregarded by the VCM) (Delacote et al., 2024). Most ongoing REDD+ projects' baselines, created using four VCS-approved procedures, frequently depend on oversimplified deforestation predictions that project designers, certifying authorities, and purchasers fail to consider (West et al., 2024). A conflict of interest exists because Verra and other intermediaries generate the majority of their revenue from commissions on carbon credits. Consequently, the sale of more credits results in

increased financial gains for both the intermediaries and the project developers. Around 70% of the initiatives are situated in regions with low rates of deforestation, quite far from the deforestation epicenter in the Colombian Amazon, and Indigenous territories also with usually minimal deforestation, bringing concerns about the efficacy of REDD+ endeavors in combating forest loss in Colombia (Schmid & Castro, 2023). To legitimately offset GHG emissions and play a role in climate change prevention, voluntary REDD+ programs need immediately new, solid baseline methodologies to ensure that each issued carbon offset represents a minimum of one ton of CO2 not emitted; without it, net-zero emission claims will continue to lack trustworthiness (West et al., 2024).

Regarding monetary transactions, only Plan Vivo disclosed the actual values involved and the community benefit share. There was no publicly available information on these parameters for any of the analyzed VCS projects. The inaccessibility of critical information on transactions and value distribution, even within existing regulations and projects, erodes the credibility of offset initiatives and hinders efforts to address fundamental issues in the VCM (Delacote et al., 2024). Foremost, transparency ensures that stakeholders understand the decisions and actions related to the project, thereby maximizing their engagement and fostering trust (Eskerod & Huemann, 2024). The lack of transparency is further underscored by the poor grades given for “IP Engagement” in carbon offset projects, with the majority of VCS projects receiving negative ratings.

5.3 Outlook Carbon Credits and the Indigenous Communities

Even well-liked policy instruments like REDD will probably face opposition from Indigenous communities and NGOs who fear that payments for the preservation of forests will only exacerbate already-existing disputes over access, usage, and displacement of land (Goodman & Boyd, 2011). The benefits generally associated with carbon offset schemes for social and ecological reasons have been compromised by the reshaping of forest governance due to the concentration of decision-making power in the hands of developers and brokers, increasing the need for clearly defined land rights and boundaries, and the technical requirements for measuring, calculating, and monitoring carbon

(Osborne, 2015). The carbon credit market is also reviewed in the British Broadcasting Corporation Panorama documentary "Big Brands Green Claims Uncovered" released in May 2024. Through interviews with academics, industry insiders, and impacted communities, the documentary shows how conflicts of interest in the offsetting business model can delay effective climate action and endanger human rights. Some people contend that the REDD+ credit market is excessively vulnerable, highlighting worries regarding the respect for local people's rights, the additionality of prevented deforestation, leakage of deforestation into other areas, and the durability of carbon reductions, all of which were emphasized in the Panorama documentary (J. P. G. Jones, 2024). In addition to not having scientific credibility, being dangerously deceptive, and probably resulting in an overall spike in global emissions growth, offsetting is worse than doing nothing because it could raise emissions above those from the offset endeavors alone when initiatives that promote economic prosperity (primarily through the use of coal, oil, and gas) are undertaken (Anderson, 2012).

Table 4 indicates that the majority of REDD+ initiatives in Indigenous land analyzed in this research experienced increased conflicts, suffered cultural changes, and involvement of the operating companies in scandals. In this section, we will discuss cases of violence outside the previously studied initiatives and the forecast of Redd + for Indigenous communities. Since the start of 2023, discussions over the implementation of a carbon credit project in the Alto Turiaçu Indigenous Territory have escalated conflicts among the Ka'apor people in Maranhão, thanks to discussions among the US-based business Wildlife Works. The opposite side believes they do not need this type of project to conserve the Amazon and rejects using carbon market money in their villages. Based on recent experiences, they are concerned that changes in territorial relations may result in violence and isolation. On the other hand, defenders of the initiative argue that using cash from carbon credit sales to supplement protection activities will considerably improve their quality of life. The foreign company, which is not legally permitted to work in Brazil due to a lack of national registration, has a decades-long history of violating socio-environmental rights in the country, such as the absence of prior consultation in project implementation and the persecution of Indigenous leaders who oppose its activities (Sabrina, 2023). The Brazilian case is not the only scandal involving this company; it is also implicated

in a sexual harassment scandal within a VCS-certified program operating in Kenya. Based on the statements of former employees and several community members, the California-based company Wildlife Works, which is in charge of the Kasigau Corridor conservation project in southern Kenya certified by Verra, is under investigation for harassment and exploitation by its senior male employees between 2011 and 2023 (Greenfield, 2023). Major investigations conducted by the Kenya Human Rights Commission (KHRC) and the Centre for Research on Multinational Corporations (SOMO) have revealed widespread, severe sexual abuse of women at the well-known Kasigau carbon offset project in Kenya (Hengeveld, 2023). Wildlife Works is also responsible for VCS project 934, which this research highlighted for its lack of community benefits, failure to reduce deforestation, and increase in conflicts. The Brazilian Federal Public Ministry's complaint was also sent by the Ka'apor of Tuxa Ta Pame to Sônia Guajajara, the Brazilian Minister of Indigenous Peoples, Joenia Wapichana, the President of Funai (Brazil's Indigenous affairs agency), and Fany Kuiru Castro, the General Coordinator of the Coordination of Indigenous Organizations of the Amazon Basin (Coica, in Spanish), in July 2023 (Sabrina, 2023). In an attempt to offset emissions from international polluters, an investigation details how the company Carbonext, supposedly disregarded Funai, (Brazil's Indigenous affairs agency), and violated international agreements when gathering signatures on deals regarding carbon credits throughout Indigenous territories in the Brazilian Amazon. The corporation allegedly forced communities in the Alto Rio Guamá Indigenous Territory to sign blank documents and offered Funai's legal office USD 10 million in exchange for the authorization of Kayapó communities to double the area of forest through six projects on Indigenous lands (Bispo, 2023). Even though social equity is still difficult to achieve, there is a lot to be learned from the last decade of "social soundness" evaluations of both successful and unsuccessful initiatives, especially REDD+ schemes that include social safeguards, which must not only seek "doing no harm" but strengthen social and environmental welfare of communities that rely on forests (Poudyal et al., 2016).

Despite the reviewed cases of violence and scandals causing harm to Indigenous peoples, there are some recent potential improvements in the VCM. Verra updated the VCS Program in April 2024, adding VCS Standard version 4.7. Some of the significant changes include revised registration rules that avoid

duplicate issuance, improved project reporting templates, a more transparent alignment between safeguard standards and ICVCM requirements, and an upgraded Grievance Redress Policy that guarantees impartiality and accessibility for stakeholders. Throughout the coming years, all projects at VERRA, the biggest certifier of REDD+ credits, will switch to fresh methodologies, with the consequences of this change still unknown (J. P. G. Jones, 2024). In May 2024, the US Secretary of the Treasury, Janet L. Yellen, introduced seven new guidelines for optional carbon credits and underlined the significance of using markets and private finance to solve climate change. The US government released the latest guidelines for participating responsibly in VCMs, claiming this will lead to bold and realistic climate action, nevertheless, some researchers argue that offsets are intrinsically inadequate (Lakhani, 2024). Although it lacks legally enforceable criteria, enforcement mechanisms, and regulatory monitoring, this project seeks to improve the credibility and efficacy of carbon offset schemes by fostering openness, accountability, and environmental integrity in the voluntary carbon market. Rather than barring these credits from the market, REDD+ efforts must enforce stricter requirements for all acts to ensure that social protections and benefit-sharing obligations are met, credits that preserve forests without negatively affecting nearby communities are feasible but not at a low price (J. P. G. Jones, 2024).

Given the ongoing questions surrounding the effectiveness of REDD+, it is prudent to explore alternative approaches to climate mitigation that also aim to enhance the quality of life for Indigenous communities. Contracts for REDD+ offsets are not the sole mechanism to support tropical forest preservation; nations can help partners reduce deforestation through bilateral commitments unrelated to their own emissions, and people or businesses may contribute to initiatives without requesting offsets (J. P. G. Jones, 2024). The current strategies used in the REDD+ initiative have yet to deliver the promised advantages to indigenous populations. As a result, it is essential to investigate alternate approaches while also attempting to improve and refine the present methods. Indigenous groups have a quite low incidence of deforestation and have been successful in protecting their forested lands to a large extent. As a result, it is advised that efforts to create REDD+ initiatives be focused on areas with an established record of high deforestation. Indigenous communities exhibit a lower

deforestation rate and have been successful in preserving their forested lands. In comparison to unprotected tropical forests worldwide, deforestation rates on Indigenous lands were, on average, 17–26% smaller (Shimin Sze et al., 2021). Indigenous territories in Africa retained more of the forest cover than protected areas, in the Asia-Pacific region, deforestation rates were similar in protected areas, in the Americas, deforestation was 17% lower on average in Indigenous lands as opposed to unprotected areas; Nevertheless, protected territories experienced 28% less deforestation than unprotected regions, a surprising finding given that previous research in Panama, Peru and Brazil found Indigenous territories to be more effective at protecting forests than state-managed areas (Shimin Sze et al., 2021). In the 52 tropical and subtropical nations studied, local communities manage 22% (217,991 MtC) of the forest carbon, and 33% (72,079 MtC) occurs in regions where Indigenous Peoples and local communities do not have official acknowledgment of their ownership entitlements, setting them, their territory, and the carbon retained within it at risk (Frechette et al., 2018). Given the low rates of deforestation in indigenous communities, it is crucial to prioritize recognizing their land rights and ownership. After securing these fundamental rights, we can then address suggestions for improving their quality of life. The issue with forest communities is not a lack of resources, but a need for more political power, the forest is not ecologically vulnerable but rather politically excluded (Dove, 2011).

5.4 Limitations and suggestions for future research

Both quantitative and qualitative data can be presented together, as demonstrated by questionnaires and interviews with both closed-ended and open-ended questions, with the reliability of the data heavily dependent on the methodological skill, sensitivity, and integrity of the researcher, necessitating methodical and accurate monitoring (Everitt & Howell, 2005). Due to constraints related to the time and financial resources necessary to perform on-site visits in eight different countries, this research relied exclusively on secondary data from reliable sources. This literature review serves to consolidate the topic within a single file and can act as a foundational step for a PhD thesis or further detailed papers. Researchers frequently prefer qualitative methods over quantitative

methods for investigating participants' inner experiences, comprehending how concepts are formed and repurposed, evaluating areas that have not yet been thoroughly researched, recognizing pertinent variables for future quantitative testing, and taking a holistic and comprehensive approach to studying phenomena (Corbin, 2014). For future research, it is suggested to perform a quantitative study, collecting primary data through on-site visits to enhance the depth and accuracy of the findings. Given that managing 10 projects across 8 different countries could be overwhelming for a single researcher, it would be beneficial to establish a research group comprising scientists with diverse backgrounds and expertise.

6. Conclusions

The analysis reveals significant differences between the Plan Vivo and VCS standards. Plan Vivo's comprehensive approach to conservation, stakeholder engagement, conflict resolution, equitable benefit sharing, and detailed monitoring protocols stands out in contrast to VCS's more limited focus. The Plan Vivo standard's emphasis on socio-economic benefits, ecosystem protection, and community participation makes it particularly well-suited for projects involving indigenous communities. Consequently, based on the results of this analysis, Plan Vivo appears to be a more favorable option for initiatives aimed at supporting and empowering indigenous populations.

The pervasive lack of transparency in voluntary carbon credit transactions is a critical and urgent issue that undermines the effectiveness of these initiatives. Without transparency, it is impossible to thoroughly analyze projects or establish meaningful connections among all stakeholders. Addressing this deficiency is essential for ensuring the credibility and success of carbon offset programs, fostering trust, and facilitating the collaborative efforts needed to combat climate change effectively. The lack of transparency is further evidenced by the poor grades received for benefit distribution, suspicious deforestation rate, and Indigenous stakeholder engagement, in carbon offset projects analyzed. Effective and meaningful involvement of indigenous communities is crucial for the success and legitimacy of these initiatives. However, the opaque nature of many project processes and the insufficient dissemination of relevant information

hinder the ability of these stakeholders to fully participate and benefit. This not only compromises the ethical standards of the projects but also undermines their overall impact and sustainability. Addressing transparency issues is, therefore, imperative to improve stakeholder engagement and ensure the equitable distribution of benefits. To accurately evaluate the additional mitigation of global warming that voluntary REDD+ programs contribute, a new baseline methodology must be constructed immediately (West et al., 2024). While REDD+ initiatives aim to balance climate action with social equity, they often face significant opposition from Indigenous communities and NGOs. This opposition stems from concerns that such projects exacerbate existing disputes over land access and usage, displacing local populations. The effectiveness of carbon offset schemes is further compromised by the centralization of decision-making power, which marginalizes local communities and undermines both social and ecological benefits. High-profile cases of misconduct by companies involved in these projects highlight the need for more stringent oversight and enforcement of social safeguards and benefit-sharing commitments. Despite these challenges, there are signs of potential improvement in the Voluntary Carbon Market (VCM) with updates to standards and policies aimed at enhancing transparency, accountability, and environmental integrity. However, it remains crucial to explore alternative approaches to climate mitigation that prioritize the rights and well-being of Indigenous communities. Recognizing and securing land rights for these communities would be the first step, as their low rates of deforestation and successful forest conservation efforts demonstrate their crucial role in protecting the environment. Once Indigenous communities have their rights recognized, they can become key stakeholders in the decision-making process, ensuring both effective climate action and the protection of local communities' rights and livelihoods.

Quoted literature

Ahonen, H.-M., Möllersten, K., & Spalding-Fecher, R. (2021). *Voluntary compensation of greenhouse gas emissions. International guidance and initiatives*. https://doi.org/http://dx.doi.org/10.6027/temanord2021-541

AIATSIS. (2020). *AIATSIS code of ethics for Aboriginal and Torres Strait Islander research.*

Ajayi, V. O. (2017). *Primary Sources of Data and Secondary Sources of Data. Benue State University, 1, 1-6.* https://www.researchgate.net/publication/320010397_Primary_Sources_of_Data_and_Secondary_Sources_of_Data

Alencar, E. (2020). Quinze anos depois, programas REDD+ sofrem esvaziamento e buscam recomeço. *OECO*. https://oeco.org.br/reportagens/quinze-anos-depois-programas-reed-sofrem-esvaziamento-e-buscam-recomeco/

Alto Mayo Conservation Initiave. (2016). *Alto Mayo - Monitoring report document 2016*. http:// www.vcsprojectdatabase.org/#/project_details/944

Alvarez, G., Elfving, M., & Andrade, C. (2016). REDD+ governance and indigenous peoples in Latin America: the case of Suru Carbon Project in the Brazilian Amazon Forest. *Latin American J. of Management for Sustainable Development*, *3*(2), 133. https://doi.org/10.1504/lajmsd.2016.083705

Alvitres, G. (2021). Comunidades kichwa arrinconadas por el narcotráfico y la tala en Perú. *Mongabay*. https://es.mongabay.com/2021/07/comunidades-kichwa-narcotrafico-tala-peru-deforestacion/

Alyahia, M., Azazz, A. M. S., Fayyad, S., Elshaer, I. A., & Mohammad, A. A. A. (2024). Greenwashing Behavior in Hotels Industry: The Role of Green Transparency and Green Authenticity. *Sustainability (Switzerland)*, *16*(3). https://doi.org/10.3390/su16031050

Amancio, N. (2016). *Serfor: Daños ocasionados por empresas vinculadas a Dennis Melka suman US$ 117 millones [WWW Document]. Ojo Público | Las historias que otros no te quieren contar.* http://ojo-publico.com/307/empresas-vinculadas-dennis-melka-ocasionaron-millonaria-deforestacion-en-la-amazonia

Anderson, K. (2012). The inconvenient truth of carbon offsets. *Nature*. https://doi.org/https://doi.org/10.1038/484007a

Angelsen, Arild., Kanninen, M., Brockhaus, M., Sills, E., Sunderlin, W., & Wertz-Kanounnikof, S. (2009). *Realising REDD+ : national strategy and policy options*. Center for International Forestry Research.

Arava, R., Bagchi, D., Suresh, P., Narahari, Y., & Subrahmanya, S. V. (2010). *Optimal Allocation of Carbon Credits to Emitting Agents in a Carbon Economy*.

Aravena, J. C., Vela-Ruiz, G., Torres, J., Huenucoy, C., & Tonko, J. C. (2018). *Parque nacional bernardo O'Higgins/territorio kawésqar waes: Conservación y gestión en un territorio ancestral. Magallania (Punta Arenas), 46(1), 49-63.* https://doi.org/https://doi.org/10.4067/S0718-22442018000100049

Arhin, A. A. (2014). Safeguards and dangerguards: A framework for unpacking the black box of safeguards for REDD+. *Forest Policy and Economics*, *45*, 24–31. https://doi.org/10.1016/j.forpol.2014.05.003

Atmadja, S. S., Duchelle, A. E., De Sy, V., Selviana, V., Komalasari, M., Sills, E. O., & Angelsen, A. (2022). How do REDD+ projects contribute to the goals of the Paris Agreement? *Environmental Research Letters*, *17*(4). https://doi.org/10.1088/1748-9326/ac5669

Augusto, M. C. (2018). Cuando el Estado y la sociedad confluyen: la construcción de la política territorial en San Martín (2002-2018). *Debates En Sociología*, *47*, 9–39. https://doi.org/10.18800/debatesensociologia.201802.001

Baraibar-Diez, E., Odriozola, M. D., & Fernández Sánchez, J. L. (2017). A Survey of Transparency: An Intrinsic Aspect of Business Strategy. *Business Strategy and the Environment*, *26*(4), 480–489. https://doi.org/10.1002/bse.1931

Barcellos, L. M. B. de, & Gebara, M. F. (2020). Climate mitigation or knowledge deprivation? Learning from indigenous socio-environmental funds. *Revista Produção e Desenvolvimento*, *6*. https://doi.org/10.32358/rpd.2020.v6.435

BBC News. (2010). *Inside the Maoist insurgency in India's Jharkand state*. http://news.bbc. co.uk/2/hi/8659501.stm

BCG Global. (2023). *The voluntary carbon market: 2022 insights and trends.* https://www.shell.com/shellenergy/othersolutions/carbonmarketreports.html#vanity-aHR0cHM6Ly93d3cuc2hlbGwuY29tL2NhcmJvbm1hcmtldHJlcG9ydHMuaHRtbA

Benabou, S. (2021). Carbon Forests at the Margins of the State: The Politics of Indigenous Sovereignty and Market Environmentalism in the North-eastern Hills of India. *Journal of South Asian Development*, *16*(3), 387–413. https://doi.org/10.1177/09731741211059052

Berk, N., & Lungungu, P. (2020). *REDD-MINUS: The Rhetoric and Reality of the Mai Ndombe REDD+ Programme*.

Berman Arévalo, E., & Ros-Tonen, M. A. F. (2009). Discourses, power negotiations and indigenous political organization in forest partnerships: The case of selva de matavén, Colombia. *Human Ecology*, *37*(6), 733–747. https://doi.org/10.1007/s10745-009-9272-z

Bermúdez Liévano, A. (2021). *El mayor proyecto de bonos de carbono de Colombia podría estar vendiendo aire caliente - Centro Latino de Investigacion Periodística*. https://www.elclip.org/el-mayor-proyecto-de-bonos-de-carbono-de-colombia-podria-estar-vendiendo-aire-caliente/

Biffi, V., & Chaparro, A. (2021). Introducción. Visiones de San Martín y territorios vividos en la Amazonía andina. *Anthropologica*, *39*(46), 5–9. https://doi.org/10.18800/anthropologica.202101.000

Bispo, F. (2023). Shell affiliate accused of violating Indigenous rights in carbon credit contracts. *MONGABAY*. https://news.mongabay.com/2023/11/shell-affiliate-accused-of-violating-indigenous-rights-in-carbon-credit-contracts/

Blanton, E., & Mosis, S. (2021). *THE CARBON-NEUTRAL LNG MARKET: CREATING A FRAMEWORK FOR REAL EMISSIONS REDUCTIONS*.

Blomley, T., Nelson, F., Doulton, H., Morgan-Brown, T., & Trupin, R. (2019). *Scaling up community forest enterprises in Tanzania*. http://pubs.iied.org/17701IIED

Blundo-Canto, G., Cruz-Garcia, G. S., Talsma, E. F., Francesconi, W., Labarta, R., Sanchez-Choy, J., Perez-Marulanda, L., Paz-Garcia, P., & Quintero, M. (2020). Changes in food access by mestizo communities associated with

deforestation and agrobiodiversity loss in Ucayali, Peruvian Amazon. *Food Security*, *12*(3), 637–658. https://doi.org/10.1007/s12571-020-01022-1

Bravo, F., Mikolajczyk, S., & Mallol Díaz, J. (2024). *Voluntary Carbon Market 2023 Review*. https://climatefocus.com/wp-content/uploads/2024/01/VCM-2023-Review-Report.pdf

Brevis, H., Corvalán, A., & Ortuya, F. (2021). *EL TURISMO EN EL DESARROLLO DE LAS CIUDADES Reflexiones desde el contexto latinoamericano*.

Broich, M., Hansen, M., Stolle, F., Potapov, P., Margono, B. A., & Adusei, B. (2011). Remotely sensed forest cover loss shows high spatial and temporal variation across Sumatera and Kalimantan, Indonesia 2000-2008. *Environmental Research Letters*, *6*(1). https://doi.org/10.1088/1748-9326/6/1/014010

Burt, A. (2023). *Carbon Credit Crunch Report 2022. Sylvera*. https://www.sylvera.com/resources/carbon-credit-crunch-report

Caroll, K. (2022). *RIMBA RAYA BIODIVERSITY RESERVE PROJECT – MONITORING AND IMPLEMENTATION REPORT*.

Cavanagh, C. J., Vedeld, P. O., & Trædal, L. T. (2015). Securitizing REDD+? Problematizing the emerging illegal timber trade and forest carbon interface in East Africa. *Geoforum*, *60*, 72–82. https://doi.org/10.1016/j.geoforum.2015.01.011

CFTC. (2023). *Release Number 8723-23 CFTC Whistleblower Office Issues Alert Seeking Tips Relating to Carbon Markets Misconduct*. https://www.cftc.gov/PressRoom/PressReleases/8723-23

Christensen, L. T., & Cheney, G. (2015). Peering into transparency: Challenging ideals, proxies, and organizational practices. *Communication Theory*, *25*(1), 70–90. https://doi.org/10.1111/comt.12052

CIMI, C. I. Missionário. (2015). *Lideranças Suruí afirmam ao presidente da Funai que não querem mais o projeto de carbono em suas terras*. https://cimi.org.br/2015/02/36982/

Clarke, J., Howard, E., & Barratt, L. (2021). *Doubts over Shell's "drive carbon neutral" claim*. https://unearthed.greenpeace.org/2021/10/25/shell-oil-carbon-neutral-offsetting/

Corbin, J. (2014). *Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory* (Fourth Edition). SAGE.

Crair, B. (2022). *Mai Ndombe REDD+ Project. Natural Climate Solutions Alliance -NCS Lighthouse Project*.

Crair, B. (2023). *Natural Climate Solutions in Action: Rimba Raya*.

Cubas-Baez, A., & Sills, E. (2024). Impacts of REDD+ through a local lens: Perspectives on well-being in the Peruvian Amazon. In *Impacts of REDD+ through a local lens: Perspectives on well-being in the Peruvian Amazon*. Center for International Forestry Research (CIFOR). https://doi.org/10.17528/cifor-icraf/009088

Day, Thomas, Schiefer, Tessa, Tewari, Ritika, Kachi, Aki, Warnecke, Carsten, Mooldijk, Silke, Dransfeld, Björn, Wehner, Stefan, Brauhardt, & Laura. (2020). *Indicators for the promotion of sustainable development in carbon market mechanisms Final report*.

Delacote, P., L'Horty, T., Kontoleon, A., West, T. A. P., Creti, A., Filewod, B., LeVelly, G., Guizar-Coutiño, A., Groom, B., & Elias, M. (2024). Strong

transparency required for carbon credit mechanisms. *Nature Sustainability*. https://doi.org/10.1038/s41893-024-01310-0

Delgado, M. A. C. (2013). Zona de Amortiguación del Territorio de Conservación Parque Nacional Alerce Costero y Reserva Costera Valdiviana: Sistematización de la experiencia de diseño e implementación. *(Sistema Regional de Áreas Protegidas, p. 20) [Proyecto GEF-SIRAP]. Sistema Regional de Áreas Protegidas (SIRAP), Ministerio de Ambiente*. https://areasprotegidas.mma.gob.cl/wp-content/recursos/privados/CNAP/GEF-SNAP/SIRAP_5_5.pdf

Diaz Montaña, J. W. (2021). *REDD+: una apuesta limitada para el reconocimiento de los derechos indígenas a la autonomía y al territorio. El caso de los indígenas Piaroa del resguardo Matavén*. http://hdl.handle.net/1992/53011

Dove, M. R. (2011). The Banana Tree at the Gate: A History of Marginal Peoples and Global Markets in Borneo. In *Human Ecology* (Issue 1). Yale University Press.

Dufrasne, G. (2021). *Two Shades of Green: HOW HOT AIR FOREST CREDITS ARE BEING USED TO AVOID CARBON TAXES IN COLOMBIA*. https://carbonmarketwatch.org/wp-content/uploads/2021/06/Two-shades-of-green_EN_WEB.pdf

Dulait, S., & Berkol, K. (2023). *"How to measure socioeconomic impacts of nature-based carbon offsets? Analysis of current methodologies applied for project validation of reforestation projects and proposal for improvement."* [Louvain School of Managemetn]. http://hdl.handle.net/2078.1/thesis:41408

EcoVoice. (2023). *New Documentary on India's First REDD+ Project Shows Why Indigenous Ownership and Leadership Is Vital for Carbon Offsets*. https://www.ecovoice.com.au/new-documentary-on-indias-first-redd-project-shows-why-indigenous-ownership-and-leadership-is-vital-for-carbon-offsets/

Enrici, A. M., & Hubacek, K. (2018). Challenges for REDD+ in Indonesia: A case study of three project sites. *Ecology and Society*, *23*(2). https://doi.org/10.5751/ES-09805-230207

ERRICO, S. (2016). Opportunities and challenges to strengthen indigenous peoples' rights and livelihoods in the context of REDD a study of REDD+ implementation in Vietnam. *The International Forestry Review*, 412–428.

Escaquete, D., Brazil, B., Santos, E., & West, T. (2013). *Metareilá VCS, Verification Assessment Report for: Suruí Forest Carbon Project in Terra Indígena Sete de Setembro, Rondônia, Brazil, Rainforest Alliance, Washington, USA.*

Eskerod, P., & Huemann, M. (2024). *Handbook of Project Management* (6th ed.). Routledge. https://doi.org/https://doi.org/10.4324/9781003274179-31

Etchart, L. (2017). The role of indigenous peoples in combating climate change. *Palgrave Communications*, *3*(1). https://doi.org/10.1057/palcomms.2017.85

Everitt, Brian., & Howell, D. C. (2005). *Encyclopedia of statistics in behavioral science*. John Wiley & Sons.

Fa, J. E., Watson, J. E. M., Leiper, I., Potapov, P., Evans, T. D., Burgess, N. D., Molnár, Z., Fernández-Llamazares, Á., Duncan, T., Wang, S., Austin, B. J., Jonas, H., Robinson, C. J., Malmer, P., Zander, K. K., Jackson, M. V., Ellis, E., Brondizio, E. S., & Garnett, S. T. (2020). Importance of Indigenous Peoples' lands for the conservation of Intact Forest Landscapes. *Frontiers in*

Ecology and the Environment, *18*(3), 135–140. https://doi.org/10.1002/fee.2148

FAO. (2020). From reference levels to results reporting: REDD+ under the United Nations Framework Convention on Climate Change. In *From reference levels to results reporting: REDD+ under the United Nations Framework Convention on Climate Change*. FAO. https://doi.org/10.4060/cb1635en

Ferronato, M., & Nunes, R. (2018). *A EXPLORAÇÃO ILEGAL DE MADEIRAS NA TERRA INDÍGENA SETE DE SETEMBRO, CACOAL-RO*. https://www.researchgate.net/publication/268386169_A_EXPLORACAO_ILEGAL_DE_MADEIRAS_NA_TERRA_INDIGENA_SETE_DE_SETEMBRO_CACOAL_-_RO

Fort, R., & Borasino, E. (2016). *¿Agroindustria en la Amazonía? posibilidades para el desarrollo inclusivo y sostenible de la palma aceitera en el Perú. GRADE, Grupo de Análisis para el Desarrollo, Lima, Perú. 228 p.*

Frechette, A., Ginsburg, C., Walker, W., Gorelik, S., Keene, S., Meyer, C., Reytar, K., & Veit, P. (2018). *A Global Baseline of Carbon Storage in Collective Lands. INDIGENOUS AND LOCAL COMMUNITY CONTRIBUTIONS TO CLIMATE CHANGE MITIGATION*. https://rightsandresources.org/publication/globalcarbonbaseline2018/

Gaffar Hossain Shah, M., & Chandra Voumik, L. (2014). A green economy in the context of sustainable development and poverty eradication: what are the implications for Bangladesh? In *Online)* (Vol. 5, Issue 3). www.iiste.org

Garcia, B., Rimmer, L., Canal Vieira, L., & Mackey, B. (2021). REDD+ and forest protection on indigenous lands in the Amazon. *Review of European, Comparative and International Environmental Law*, *30*(2), 207–219. https://doi.org/10.1111/reel.12389

García, M., & Mulrennan, M. E. (2020). Tracking the History of Protected Areas in Chile: Territorialization Strategies and Shifting State Rationalities. *Journal of Latin American Geography*, *19*(4), 199–234. https://doi.org/10.1353/lag.2020.0085

Garnett, S. T., Burgess, N. D., Fa, J. E., Fernández-Llamazares, Á., Molnár, Z., Robinson, C. J., Watson, J. E. M., Zander, K. K., Austin, B., Brondizio, E. S., Collier, N. F., Duncan, T., Ellis, E., Geyle, H., Jackson, M. V., Jonas, H., Malmer, P., McGowan, B., Sivongxay, A., & Leiper, I. (2018). A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability*, *1*(7), 369–374. https://doi.org/10.1038/s41893-018-0100-6

Gauthier, M. (2018). *Mai-Ndombe: Will the REDD+ laboratory benefit Indigenous Peoples and local communities? Analysis of the cumulative impacts and risks of REDD+ initiatives.* www.rightsandresources.org

Gebara, M. F., Muccillo, L., May, P., Vitel, C., Loft, L., & Santos, A. (2014). *Lessons from local environmental funds for REDD+ benefit sharing with indigenous people in Brazil*. https://www.cifor-icraf.org/knowledge/publication/5198/

Gerding, J. (2022). *CO_2-Projekte in Kongo: Der rätselhafte Wald*. https://www.zeit.de/2022/29/wald-co2-projekte-kongo-wwc/komplettansicht

Golub, A. A., Fuss, S., Lubowski, R., Hiller, J., Khabarov, N., Koch, N., Krasovskii, A., Kraxner, F., Laing, T., Obersteiner, M., Palmer, C., Piris-Cabezas, P., Reuter, W. H., Szolgayová, J., Taschini, L., & Wehkamp, J. (2018). Escaping

the climate policy uncertainty trap: options contracts for REDD+. *Climate Policy*, *18*(10), 1227–1234. https://doi.org/10.1080/14693062.2017.1422478
Gómez, N. (2024). *Effectiveness of carbon taxes in conjunction with offsetting mechanisms: The Colombian experience*. https://edepot.wur.nl/656472
Goodman, M. K., & Boyd, E. (2011). A social life for carbon? Commodification, markets and care. *The Geographical Journal*, *177*(2), 102–109. https://doi.org/10.1111/j.1475-4959.2011.00401.x
Greenfield, P. (2023a). Allegations of extensive sexual abuse at Kenyan offsetting project used by Shell and Netflix. *The Guardian*. https://www.theguardian.com/environment/2023/nov/07/accusations-of-widespread-sexual-abuse-at-offsetting-project-used-by-netflix-and-shell-aoe
Greenfield, P. (2023b). 'Nowhere else to go': forest communities of Alto Mayo, Peru, at centre of offsetting row. *The Guardian*. https://www.theguardian.com/environment/2023/jan/18/forest-communities-alto-mayo-peru-carbon-offsetting-aoe
Guizar-Coutiño, A., Jones, J. P. G., Balmford, A., Carmenta, R., & Coomes, D. A. (2022). A global evaluation of the effectiveness of voluntary REDD+ projects at reducing deforestation and degradation in the moist tropics. *Conservation Biology*, *36*(6). https://doi.org/10.1111/cobi.13970
Günther, P., Garske, B., Heyl, K., & Ekardt, F. (2024). Carbon farming, overestimated negative emissions and the limits to emissions trading in land-use governance: the EU carbon removal certification proposal. *Environmental Sciences Europe*, *36*(1). https://doi.org/10.1186/s12302-024-00892-y
Habert, G. P., Motta, A. M., & Ther, F. (2023). *Participation and forest protected areas in Chile: Insights from Mapuche and peasant communities*. https://www.researchgate.net/publication/375959706
Hamrick, K., & Gallant, M. (2017). *Unlocking Potential State of the Voluntary Carbon Markets 2017 Supporter Sponsors*. https://www.forest-trends.org/publications/unlocking-potential/
Hein, J., Guarin, A., Frommé, E., & Pauw, P. (2018). Deforestation and the Paris climate agreement: An assessment of REDD + in the national climate action plans. In *Forest Policy and Economics* (Vol. 90, pp. 7–11). Elsevier B.V. https://doi.org/10.1016/j.forpol.2018.01.005
Hengeveld, M. (2023). Systemic sexual abuse at celebrated carbon offset project in Kenya. *SOMO*. https://www.somo.nl/systemic-sexual-abuse-at-celebrated-carbon-offset-project-in-kenya/
Hill, D. (2021). *One of Shell's Amazon carbon offsets projects raises serious human rights concerns: Indigenous peoples claim and reportedly live in different parts of the Cordillera Azul National Park*. https://hilldavid.substack.com/p/one-of-shells-amazon-carbon-offsets?s=w
Hill, D. (2022). *Isn't one of Shell's carbon offsets projects fundamentally flawed? Peru's Cordillera Azul National Park was established years before the project started, raising doubts how CO2 sequestered there is "additional".* https://hilldavid.substack.com/p/isnt-one-of-shells-carbon-offsets
Hill, R., Walsh, F. J., Davies, J., Sparrow, A., Mooney, M., Wise, R. M., & Tengö, M. (2020). Knowledge co-production for Indigenous adaptation pathways: Transform post-colonial articulation complexes to empower local decision-

making. *Global Environmental Change*, *65*. https://doi.org/10.1016/j.gloenvcha.2020.102161
Howson, P. (2019). Tackling climate change with blockchain. In *Nature Climate Change* (Vol. 9, Issue 9, pp. 644–645). Nature Publishing Group. https://doi.org/10.1038/s41558-019-0567-9
Howson, P. (2020). Climate Crises and Crypto-Colonialism: Conjuring Value on the Blockchain Frontiers of the Global South. *Frontiers in Blockchain*, *3*. https://doi.org/10.3389/fbloc.2020.00022
IDESAM, I. for C. and S. D. of A. (2011). *Project Description: Suruí Forest Carbon Project, Manaus, Brazil.*
Indriatmoko, Y., Atmadja, S., Ekaputri, A., & Komalasari, M. (2014). *Rimba Raya Biodiversity Reserve Project, Central Kalimantan, Indonesia*. https://www.jstor.org/stable/resrep02148.31
INE. (2017). *Instituto Nacional de Estadísticas del Chile. RADIOGRAFÍA DE GÉNERO: PUEBLOS ORIGINARIOS EN CHILE 2017*.
INEI. (2008). *Censos Nacionales de Población y Vivienda, Perfil Sociodemográfico del Perú. Instituto Nacional de Estadstica e Informatica*.
Jackson, R., & Tofighi-Niaki, A. (2023). Destruction Energy is at the heart of everything we do: Chevron's junk climate action agenda and how it intensifies global harm. *Corporate Accountability*. https://corporateaccountability.org/resources/chevrons-junk-agenda-report/
Jenner, F. (2023). *UN Questions Peruvian State Over Violations of Indigenous Rights in Cordillera Azul National Park and REDD+ Project*. https://www.forestpeoples.org/en/news/2023/Peru-un-cerd-questions-state-indigenous-rights-pncaz-REDD
Johns, T. (2015). *THE IMPACTS OF INTERNATIONAL REDD+ FINANCE DRC CASE STUDY*.
Jones, D. (2019). *THE NATURE OF INNOVATION 2019 Annual Report - The Nature Conservancy*. https://www.natureunited.ca/content/dam/tnc/nature/en/documents/2019_annual_report.pdf
Jones, J. P. G. (2024). Scandal in the voluntary carbon market must not impede tropical forest conservation. *Nat Ecol Evol*. https://doi.org/https://doi.org/10.1038/s41559-024-02442-4
Kengoum, F., Thuy, P., & Mihigo, B.-P. (2024). *REDD+ benefit sharing mechanisms in the Democratic Republic of the Congo Legal and institutional frameworks, policy implementation, and project experiences*. https://doi.org/10.17528/cifor-icraf/009119
Khadka, C., & Vacik, H. (2012). Comparing a top-down and bottom-up approach in the identification of criteria and indicators for sustainable community forest management in Nepal. *Forestry*, *85*(1), 145–158. https://doi.org/10.1093/forestry/cpr068
Khan, M. L., Menon, S., & Bawa, K. S. (1997). *Effectiveness of the protected area network in biodiversity conservation: a case-study of Meghalaya state. Biodiversity and Conservation 6, 853–868*. https://doi.org/https://doi.org/10.1023/B:BIOC.0000010406.35667.c0
Kiffner, C., Arndt, Z., Foky, T., Gaeth, M., Gannett, A., Jackson, M., Lellman, G., Love, S., Maroldi, A., McLaughlin, S., Skenandore, B., von Euler, S., Zambrano, Z., & Kissui, B. (2019). Land use, REDD+ and the status of

wildlife populations in Yaeda Valley, northern Tanzania. *PLoS ONE*, *14*(4). https://doi.org/10.1371/journal.pone.0214823

Kill, J. (2016). *Congo Basin Rainforest Project: Communities leery of "Conservation Revolution."* https://www.wrm.org.uy/other-information/congo-basin-rainforest-project-communities-leery-of-conservation-revolution

Kill, J., & Counsell, S. (2022). *HOW SHELL IS USING NATURE-BASED SOLUTIONS TO CONTINUE ITS FOSSIL FUEL AGENDA*.

Lakhani, N. (2024). Corporations invested in carbon offsets that were 'likely junk', analysis says. *The Guardian*. https://www.theguardian.com/environment/article/2024/may/30/corporate-carbon-offsets-credits

Lang, C. (2016). *Deforestation is increasing in the Mai Ndombe REDD project area. And the project still sells carbon credits*. https://reddmonitor.substack.com/p/deforestation-is-increasing-in-the

Lang, C. (2021). *Indigenous Kichwa community takes the Peruvian State and Cordillera Azul National Park to court*. https://reddmonitor.substack.com/p/indigenous-kichwa-community-takes

Lang, C. (2023). *Violations of Indigenous rights in Cordillera Azul National Park REDD project: UN Committee for the Elimination of Racial Discrimination writes to Peruvian State CERD's letter highlights failures to address Indigenous rights. Redd-Monitor.* https://reddmonitor.substack.com/p/violations-of-indigenous-rights-in

Lang, C. (2024). *Indonesian government revokes Rimba Raya REDD project's license*. https://reddmonitor.substack.com/p/indonesian-government-revokes-rimba?utm_source=publication-search

Lozano Picón, R. (2020). *CUARTO RESUMEN DE INFORMACION DE SALVAGUARDAS DE REDD+ -RIS IV - Ministerio de Ambiente y Desarrollo Sostenible Gobierno de Colombia*.

Lulekal, E., Asfaw, Z., Kelbessa, E., & Van Damme, P. (2013). Ethnomedicinal study of plants used for human ailments in Ankober District, North Shewa Zone, Amhara Region, Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, *9*(1). https://doi.org/10.1186/1746-4269-9-63

Luna Freire, J. (2017). Epistemological Spaces, Carbon Credits, and Environmental Modernity: the Suruí Forest Carbon Project. *TRANSMODERNITY: Journal of Peripheral Cultural Production of the Luso-Hispanic World*, *7*(2). https://doi.org/10.5070/t472035433

Maisonnave, F. (2017). *How diamonds and a bitter feud led to the destruction of an Amazon reserve*. https://www.theguardian.com/environment/2017/sep/27/how-diamonds-and-a-bitter-feud-led-to-the-destruction-of-an-amazon-reserve

McCarthy, J. F., & Cramb, R. A. (2009). Policy narratives, landholder engagement, and oil palm expansion on the Malaysian and Indonesian frontiers. *Geographical Journal*, *175*(2), 112–123. https://doi.org/10.1111/j.1475-4959.2009.00322.x

Mcdonald, H., Siemons, A., Bodle, R., Hobeika, M., Scheid, A., & Schneider, L. (2023). *QU.A.L.ITY soil carbon removals? Assessing the EU Framework for Carbon Removal Certification from a climate-friendly soil management perspective Ecologic Institute*. www.ecologic.eu

McKemey, M., Ens, E., Rangers, Y. M., Costello, O., & Reid, N. (2020). Indigenous knowledge and seasonal calendar inform adaptive savanna burning in northern Australia. *Sustainability (Switzerland)*, *12*(3). https://doi.org/10.3390/su12030995

Mesly, Olivier. (2015). Mesly, O. (2015). Creating models in psychological research. *New York: Springer International Publishing.* https://doi.org/https://doi.org/10.1007/978-3-319-15753-5

Mider, Z., & Quigley, J. (2020). Disney's Jungle Cruise High-emission vacations lead to trouble in a rainforest far, far away. *Bloomberg*. https://www.bloomberg.com/graphics/2020-disney-peru-deforestation/?embedded-checkout=true

Milman, O. (2023). Exxon made 'breathtakingly' accurate climate predictions in 1970s and 80s. *The Guardian*.

Ministerio del Ambiente. (2015). *Cuantificación y Análisis de la Deforestación en la Amazonia Peruana en el Período 2010–2011–2013-2014. Ministerio del Ambiente, Lima, Perú. 108 p.*

Mol, A. P. J. (2002). *Ecological Modernization and the Global Economy*.

Molleda, J. C., & Gavancho, O. (2021). Comunidad Puerto Franco cuando el Estado y los madereros despojan a una comunidad de su territorio. *Instituto de Defensa Legal*. https://www.idl.org.pe/comunidad-puerto-franco-cuando-el-estado-y-los-madereros-despojan-a-una-comunidad-de-su-territorio/

Montoya-Zumaeta, J. G., Wunder, S., & Tacconi, L. (2021). Incentive-based conservation in Peru: Assessing the state of six ongoing PES and REDD+ initiatives. *Land Use Policy*, *108*. https://doi.org/10.1016/j.landusepol.2021.105514

Naime, J., Angelsen, A., Rodriguez-Ward, D., & Sills, E. O. (2024). Participation, anticipation effects and impact perceptions of two collective incentive-based conservation interventions in Ucayali, Peru. *Ecological Economics*, *217*. https://doi.org/10.1016/j.ecolecon.2023.108052

Nathanson, M. (2018). World's first indigenous carbon offset project suspended due to illegal mining. *MONGABAY*. https://news.mongabay.com/2018/09/worlds-first-indigenous-redd-program-ended-due-to-illegal-mining/

Nelson, J. (2012). *Carbon Concessions in the Democratic Republic of Congo (DRC) Neglect Communities*. https://www.forestpeoples.org/topics/redd-and-related-initiatives/news/2012/04/carbon-concessions-democratic-republic-congo-drc-ne

Newenham-Kahindi, A., & Stevens, C. E. (2020). *Ecological sustainability and practical wisdom from the Maasai and Hadza people in East Africa*. https://doi.org/10.4324/9780429055508-3

O'brien, J. (2022). *Examining Carbon Offset Standards from an Irish Perspective* [National College of Ireland]. https://norma.ncirl.ie/id/eprint/5694

Osborne, T. (2015). Tradeoffs in carbon commodification: A political ecology of common property forest governance. *Geoforum*, *67*, 64–77. https://doi.org/10.1016/j.geoforum.2015.10.007

Osorno Muñoz, M., Fuentes Sánchez, G., & Fuentes Sánchez, E. (2019). *Animales de la Selva de Matavén. Instituto Amazónico de Investigaciones Científicas SINCHI, Bogotá, 152p.*

Pan, C., Shrestha, A., Innes, J. L., Zhou, G., Li, N., Li, J., He, Y., Sheng, C., Niles, J. O., & Wang, G. (2022). Key challenges and approaches to addressing

barriers in forest carbon offset projects. *Journal of Forestry Research*, *33*(4), 1109–1122. https://doi.org/10.1007/s11676-022-01488-z

Paredes, M., & Kaulard, A. (2023). *Forest as "nature" or forest as territory? Knowledge, power, and climate change conservation in the Peruvian Amazon*.

Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods* (Third Edition). Sage Publications.

Penteado, A., Chakrabarty, S. P., & Shaikh Editors, O. H. (2024). *Traditional Knowledge and Climate Change An Environmental Impact on Landscape and Communities*.

Persoon, G. A., & Minter, T. (2020). Knowledge and practices of indigenous peoples in the context of resource management in relation to climate change in Southeast Asia. *Sustainability (Switzerland)*, *12*(19), 1–23. https://doi.org/10.3390/su12197983

Peterson, D., Baalow, R., & Cox, J. (2013). *Hadzabe: By the light of a million fires. Mkuki na Nyota Publishers, Dar es Salaam.* http://www.btsociety.orglapp/images/events20l3/agropastoralist_

Pietarinen, N. (2023). Can REDD+ finance compete with established and emerging land investments? The case of Mai-Ndombe, Democratic Republic of Congo. In *Can REDD+ finance compete with established and emerging land investments? The case of Mai-Ndombe, Democratic Republic of Congo*. Center for International Forestry Research (CIFOR). https://doi.org/10.17528/cifor-icraf/009005

Pitman, N., Vriesendorp, C., Alvira, D., Markel, J. A., Johnston, M., Ruelas Inzunza, E., Lancha Pizango, A., Sarmiento Valenzuela, G., Álvarez-Loayza, P., Homan, J., Wachter, T., Campo, A. del, Stotz, D. F. (Douglas F., Heilpern, S., & Field Museum of Natural History. (2014). *Amphibians and reptiles in Cordillera Escalera.*

Poffenberger, M. (2014). *Khasi responses to forest pressures: A community REDD+ project from Northeast India*.

Poffenberger, M. (2015). Restoring and conserving Khasi forests: A community-based REDD strategy from Northeast India. *Forests*, *6*(12), 4477–4494. https://doi.org/10.3390/f6124382

Porras, I., & Steele, P. (2020). *Making the market work for nature How biocredits can protect biodiversity and reduce poverty Economics; Biodiversity Acknowledgements Produced by IIED's Shaping Sustainable Markets Group*. http://pubs.iied.org/16664IIEDwww.iied.org@iiedwww.facebook.com/theIIED

Poudyal, M., Ramamonjisoa, B., Hoackley, N., Rakotonarivo, O. S., Gibbons, J. M., Mandimbiniaina, R., Rasoamanana, A., & Jones, J. P. G. (2016). Can REDD+ social safeguards reach the 'right' people? Lessons from Madagascar. *Elsevier*. https://doi.org/http://dx.doi.org/10.1016/j.gloenvcha.2016.01.004

Pra, A., & Brotto, L. (2018). *Forest carbon project cycle and auditing*. Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315745985-15/forest-carbon-project-cycle-auditing-alex-pra-lucio-brotto

Rawlins, B. (2008). Give the emperor a mirror: toward developing a stakeholder measurement of organizational transparency. *Journal of Public Relations Research*, *21*(1), 71–99. https://doi.org/10.1080/10627260802153421

Resosudarmo, I. A. P., Atmadja, S., Ekaputri, A. D., Intarini, D. Y., Indriatmoko, Y., & Astri, P. (2014). Does tenure security lead to REDD+ project effectiveness? Reflections from five emerging sites in Indonesia. *World Development*, *55*, 68–83. https://doi.org/10.1016/j.worlddev.2013.01.015

Revilla, A. (2015). *"La comunicación para el desarrollo y la gestión participativa-intercultural de áreas naturales protegidas: estudio del caso de Cordillera Escalera en San Martín."*

Ribeiro, M. F. (2016). 'Tenho medo de morrer na própria aldeia': como 'cacique-modelo' da Amazônia se tornou alvo de índios madeireiros. *BBC News Brasil*. https://www.bbc.com/portuguese/brasil-37980120

Richards, K., & Andersson, K. (2001). The leaky sink: Persistent obstacles to a forest carbon sequestration program based on individual projects. *Climate Policy*, *1*(1), 41–54. https://doi.org/10.3763/cpol.2001.0105

Richards, K. R., & Huebner, G. E. (2012). Evaluating protocols and standards for forest carbon-offset programs, Part A: Additionality, baselines and permanence. In *Carbon Management* (Vol. 3, Issue 4, pp. 393–410). https://doi.org/10.4155/cmt.12.38

Riordan, E. (2024). *All You Need to Know About the EU's New Greenwashing Directive*. Policy & Economy. https://earth.org/all-you-need-to-know-about-the-eus-new-greenwashing-directive/

Rodriguez-Ward, D., Paredes, P., & Aguila, D. (2014). *Valuation of Environmental Services in the Managed Forests of Seven Indigenous Communities in Ucayali, Peru*. https://www.researchgate.net/publication/273458901

Roe, S., & Streck, C. (2013). *Safeguards in REDD+ and Forest Carbon Standards: A Review of Social, Environmental and Procedural Concepts and Application*. https://doi.org/10.13140/RG.2.1.1812.7846

Sabrina, F. (2023). AMERICAN COMPANY FEEDS INDIGENOUS CONFLICT TO PROFIT FROM ENVIRONMENTAL REPAIRS. *Intercept Brasil*. https://www.intercept.com.br/2023/11/27/empresa-americana-alimenta-conflito-indigena-para-lucrar-com-reparacao-ambiental/

Santier, T. (2023). *The next priorities of the Voluntary Carbon Market for mass adoption: The need for new technologies, carbon policy frameworks, and a meta registry*. https://hal.science/hal-04301394

Sarmiento Barletti, J. P., Larson, A., Lofts, K., & Frechette, A. (2021). *Safeguards at a glance Supporting the rights of Indigenous Peoples and local communities in REDD+ and other forest-based initiatives*.

Sarmiento Barletti, J. P., & Larson, A. M. (2017). Rights abuse allegations in the context of REDD+ readiness and implementation: A preliminary review and proposal for moving forward. In *Rights abuse allegations in the context of REDD+ readiness and implementation: A preliminary review and proposal for moving forward*. Center for International Forestry Research (CIFOR). https://doi.org/10.17528/cifor/006630

Savilaakso, S., & Petrokofsky, G. (2017). Certification systems for verifying carbon trading from forestry and other land uses and their effectiveness to deliver non-carbon benefits. *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources*, *12*, 2–7. https://doi.org/10.1079/PAVSNNR201712017

Schmid, D., & Castro, C. (2023). *REDD+ projects in the Colombian Amazon: social challenges and lack of transparency*.

Schmidt, L., & Gerber, K. (2016). *A comparison of carbon market standards for REDD+ projects Recommendations & guideline for IKI REDD+ projects*. www.germanwatch.org/en/12479

Schneider, L., Fallasch, F., De León, F., Rambharos, M., Wissner, N., Colbert-Sangree, T., Progscha, S., Brad Schallert, W., Holler, J., Kelley Kizzier, E., Petsonk, A., Hanafi, A., Barata, P., Ogata, C., Stuart, W., & Jones, D. (2022). *Methodology for assessing the quality of carbon credits*. www.oeko.de

Schulenberg, T. S., & Awbrey, K. (1997). *The Cordillera del Cóndor Region of Ecuador and Peru: A Biological Assessment. RAP Working Papers 7. Washington, D.C.: Conservation International*. www.conservation.org

Sellers, C., & Derolph, C. (2014). *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile-Validation Report*. www.esicarbon.com

Sharma, S. (2022). *Forest governance, forest dwelling people and construction of environmental subject case of REDD and Khasis in Meghalaya, India*. https://doi.org/http://dx.doi.org/10.7488/era/2587

Shimin Sze, J., Carrasco, L. R., Childs, D., & Edwards, D. P. (2021). Reduced deforestation and degradation in Indigenous Lands pan-tropically. *Nature Sustainability*. https://doi.org/https://doi.org/10.1038/s41893-021-00815-2

Sills, E. O., Atmadja, S. S., De Sassi, C., Duchelle, A. E., Kweka, D. L., Aju, I., Resosudarmo, P., Sunderlin, W. D., & Mattsson, E. (2024). *Rimba Raya Biodiversity Reserve Project, Central Kalimantan, Indonesia: a REDD+ on the ground case book of subnational initiatives across the globe. Center for International Forestry Research*.

Silva, N. T., & Neto, J. A. (2014). A monetarização da vida social dos Paiter Suruí The monetization of the social life of Paiter Suruí. In *Bol. Mus. Para. Emílio Goeldi. Cienc. Hum* (Issue 1). https://doi.org/https://doi.org/10.1590/S1981-81222014000100011

Singh, A. K. (2010). Probable Agricultural Biodiversity Heritage Sites in India: V. The Garo, Khasi, and Jaintia Hills Region. In *Asian Agri-History* (Vol. 14, Issue 2).

Singh, P. (2006). *The Naxalite Movement in India. Rupa & Co., New Delhi. 318 p.*

Sobrevila C. (2008). *The Role of Indigenous Peoples in Biodiversity Conservation: The Natural but Often Forgotten Partners. The World Bank, Washington DC.* https://documents1.worldbank.org/curated/en/995271468177530126/pdf/443000WP0BOX321onservation01PUBLIC1.pdf

Solis, D., Cronkleton, P., Sills, E. O., Rodriguez-Ward, D., & Duchelle, A. E. (2021). Evaluating the Impact of REDD+ Interventions on Household Forest Revenue in Peru. *Frontiers in Forests and Global Change*, *4*. https://doi.org/10.3389/ffgc.2021.624724

Srivastava, P., & Majid Wani, A. (2018). Vegetational analysis of open and dense forest under REDD + project of Mawphlang, Meghalaya. *Journal of Pharmacognosy and Phytochemistry*. www.un-redd.org

Streck, C. (2021). REDD+ and leakage: debunking myths and promoting integrated solutions. *Climate Policy*, *21*(6), 843–852. https://doi.org/10.1080/14693062.2021.1920363

Suiseeya, K. R. (2017). Contesting Justice in Global Forest Governance: The Promises and Pitfalls of REDD+. *Conservation and Society*, *15*(2), 189–200. https://doi.org/10.4103/cs.cs_15_104

Suryadinata, L., Nurvidya Arifin, E., & Ananta, A. (2003). Indonesia's Population: Ethnicity and Religion in a Changing Political Landscape. In *Indonesia's Population*. ISEAS Publishing.

Suwito, D., Suratman, & Poedjirahajoe, E. (2021). The Covid-19 pandemic impact on indigenous people livelihoods in the peat swamp forest ecosystem in Central Kalimantan Indonesia. *IOP Conference Series: Earth and Environmental Science*, *894*(1). https://doi.org/10.1088/1755-1315/894/1/012023

Téllez-Chávez, L. (2024). *Carbon offsetting's casualties : violations of Chong indigenous people's rights in Cambodia's southern Cardamom REDD+ Project*. Human Rights Watch.

Tong, S. T. (2024). *World's Largest Forestry Offsets Project Has License Revoked*. https://www.bloomberg.com./news/articles/2024-04-30/world-s-largest-forestry-offsets-project-has-license-revoked?leadSource=uverify

Toni, F. (2011). *Adapting to emerging institutions: REDD+ projects in the territories of the Suruí and Cinta-Larga Indigenous Peoples*. https://www.researchgate.net/publication/267303017

Trupin, R., Morgan-Brown, T., Doulton, H., & Nelson, F. (2018). *Making Community Forest Enterprises Deliver for Livelihoods and Conservation in Tanzania*. https://abcg.org/making-community-forest-enterprises-deliver-for-livelihoods-and-conservation-in-tanzania/

Tulius, J. (2020). LESSON FROM THE PAST, KNOWLEDGE FOR THE FUTURE: ROLES OF HUMAN MEMORIES IN EARTHQUAKE AND TSUNAMI NARRATIVES IN MENTAWAI, INDONESIA. *Paradigma: Jurnal Kajian Budaya*, *10*(2), 147. https://doi.org/10.17510/paradigma.v10i2.396

UNFCCC. (2024). *REDD+ Web Platform. Available online: https://redd.unfccc.int/fact-sheets/safeguards.html (accessed on 2 April 2024)*.

Vijge, M. J. (2015). Competing discourses on REDD+: Global debates versus the first Indian REDD+ project. *Forest Policy and Economics*, *56*, 38–47. https://doi.org/10.1016/j.forpol.2015.03.009

Villarreal-Leal, H. F., Álvarez-Rebolledo, M., Higuera-Díaz, M., Aldana-Domínguez, J., Bogotá-Gregory, J. D., & Villa-Navarro, F. A. (2009). *Caracterización de la Biodiversidad de la Selva de Matavén (Sector Centro-Oriental) Vichada, Colombia. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt y Asociación de Cabildos y Autoridades Tradicionales Indígenas de la Selva de Matavén (Acatisema), Bogotá, 186p.*

Vitel, C., Maria, S., Carrero, G. C., Cenamo, M. C., Leroy, M., Graça, P., Lima, M., & Fearnside, P. M. (2013). Land-use Change Modeling in a Brazilian Indigenous Reserve: Construction of a Reference Scenario for the Suruí REDD Project. *Human Ecology*, *41*(6), 807–826. https://doi.org/10.1007/s10745-013-9613-9

West, T. A. P., Bomfim, B., & Haya, B. K. (2024). Methodological issues with deforestation baselines compromise the integrity of carbon offsets from REDD+. *Global Environmental Change*, *87*. https://doi.org/10.1016/j.gloenvcha.2024.102863

West, T. A. P., Wunder, S., Sills, E. O., Börner, J., Rifai, S. W., Neidermeier, A., Frey, G., & Kontoleon, A. (2023). Action needed to make carbon offsets from forest conservation work for climate change mitigation. In *Science* (Vol. 381). https://www.science.org

Wijewardana, D. (2008). Criteria and indicators for sustainable forest management: The road travelled and the way ahead. *Ecological Indicators*, *8*(2), 115–122. https://doi.org/10.1016/j.ecolind.2006.11.003

Wong, G., Angelsen, A., Brockhaus, M., Carmenta, R., Duchelle, A., Leonard, S., Luttrell, C., Martius, C., & Wunder, S. (2016). Results-based payments for REDD+: Lessons on finance, performance, and non-carbon benefits. In *Results-based payments for REDD+: Lessons on finance, performance, and non-carbon benefits*. Center for International Forestry Research (CIFOR). https://doi.org/10.17528/cifor/006108

Wong, G. Y., Luttrell, C., Loft, L., Yang, A., Pham, T. T., Naito, D., Assembe-Mvondo, S., & Brockhaus, M. (2019). Narratives in REDD+ benefit sharing: examining evidence within and beyond the forest sector. *Climate Policy*, *19*(8), 1038–1051. https://doi.org/10.1080/14693062.2019.1618786

World Bank. (2016). *Forest Carbon Partnership Facility (FCPF) Carbon Fund Emission Reductions Program Document (ERPD) Mai-Ndombe Emission Reductions Program, Democratic Republic of Congo.* https://www.forestcarbonpartnership. org/sites/fcp/files/2016/Dec/20161108%20Revised%20 ERPD_DRC.pdf

World Bank. (2020). *State and Trends of Carbon Pricing 2020*. https://doi.org/10.1596/978-1-4648-1586-7

Wright, T. M., Andrade, B., Godoy, F., Hewson, J., Mendoza, E., Pinedo, J., & Tabor, K. (2018). Harnessing multiple technologies to combat deforestation – a case study in the alto mayo protected forest in San Martin, Peru. *Parks*, *24*(2), 79–86. https://doi.org/10.2305/IUCN.CH.2018.PARKS-24-2TMW.en

Wunder, S. (2007). The efficiency of payments for environmental services in tropical conservation: Essays. In *Conservation Biology* (Vol. 21, Issue 1, pp. 48–58). https://doi.org/10.1111/j.1523-1739.2006.00559.x

Wunder, S., Schulz, D., Montoya-Zumaeta, J., Börner, J., & Frey, G. (2023). *Modest forest and welfare impacts from current REDD+ initiatives*. https://doi.org/10.21203/rs.3.rs-2429873/v1

Young, B. E., Young, K. R., & Josse, C. (2011). *Vulnerability of tropical Andean ecosystems to climate change. In: Herzog, S.K., Martínez, R., Jørgensen, P.M., Tiessen, H. (Eds.), Climate Change and Biodiversity in the Tropical Andes. Inter-American Institute for Global Change Research and Scientific Committee on Problems of the Environment, pp. 170–181.*

Yuliani, E. L., de Jong, E. B. P., Knippenberg, L., Bakara, D. O., Salim, M. A., & Sunderland, T. (2018). Keeping the land: Indigenous communities' struggle over land use and sustainable forest management in Kalimantan, Indonesia. *Ecology and Society*, *23*(4). https://doi.org/10.5751/ES-10640-230449

Zwick, S. (2019). *The Surui Forest Carbon Project: A CASE STUDY ABOUT FOREST TRENDS*. https://www.forest-trends.org/wp-content/uploads/2019/03/doc_5751-1.pdf