



Carbon Markets in Africa and their implications for land rights: Literature review and annotated bibliography

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ABSTRACT

Market-based strategies for climate change mitigation are often presented as win-win solutions by emphasising the supposed 'synergies' that are established between carbon investors and users of natural resources. All too often, however, the impacts of carbon markets on social relations of production are underestimated. This paper argues that ensuring the development of effective climate change responses requires an understanding of the complex political economy of divergent and even competing interests between users and rights-holders of natural resources, local traditional authorities, the state, and transnational institutions. Ensuring resilient and sustainable land tenure security in the context of climate change, therefore, requires the ability to understand, co-ordinate and negotiate the interplay between a mosaic of diverse land uses and livelihood activities as they interact in a given politically and biophysically constituted territory designated for carbon trade.

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LIST OF ACRONYMS AND ABBREVIATIONS

AD	Avoided Deforestation
CDM	Clean Development Mechanism
COP	Conference of the Parties
CO ₂	Carbon Dioxide
EC	Eastern European Countries
ERR	emission reductions and removal
ESG	école des sciences de la gestion
EU	European Union
EU ETS	European Union Emissions Trading System
FPIC	Free, Prior and Informed Consent
JI	Joint Implementation
IET	International Emissions Trading
KACP	Kenya Agricultural Carbon Project
LDPI	Land Deal Politics Initiative
NGO	non-governmental organizations
PSA	Power Shift Africa
REDD+	Reduced Emissions from Deforestation and Degradation
SISA	System of Incentives for Environmental Services
TFGB	Trees for Global Benefits
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	Reduced Emissions from Deforestation and Degradation
UQAM	Université du Québec à Montréal
USD	US Dollar
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security

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1. INTRODUCTION

Climate change is a consequence of the destructive and polluting global capitalist accumulation. African countries, like other developing countries, have contributed little to current climate crisis, but they are being hardest hit by the devastating consequences of climate change. To date, climate solutions emanating from global policy processes have been based on market fundamentals, and thus undermine customary land rights in Africa in fundamental ways. This paper accordingly reviews and critiques market-led solutions for climate change from both published and grey literatures. More specifically, it discusses how the assessment and payment of carbon offsets, depends on and require information about land rights and ownership. This in turn spurs processes of legal and financial change in land rights themselves that often negatively affect local land-users.

2. THE KYOTO PROTOCOL: A MARKET-LED SOLUTION TO AN ENVIRONMENTAL CRISIS

The 1990s saw a surge in global interest to address the impacts of climate change on humanity. The United Nations Framework Convention on Climate Change (UNFCCC) was accordingly adopted by 189 countries in June 1992 to reduce and de-escalate the concentration of greenhouse gases in the atmosphere (Gupta 2016). Unfortunately, the unbinding nature of this treaty prevented it from achieving its intended objectives. It became increasingly evident that only a firm and binding commitment - particularly by the highest polluting industrialised countries - could reduce emissions. This led to two and half years of intense negotiations which culminated at the third “Conference of the Parties” (COP) to the UNFCCC in Kyoto, Japan on December 11, 1997. It was here that the legally binding international agreement known as the Kyoto Protocol was signed (Gupta 2016).

Under the Kyoto Protocol, the countries of the world are categorised into two main groups: the industrialized countries carrying the historical burden of pollution and the developing countries receiving the biggest impacts of climate change. The Protocol provides for legally binding emission reduction commitments for each industrialized country to reduce their total greenhouse gas emissions by at least 5% below their 1990 levels. The implementation plan of the Kyoto Protocol was adopted at COP to the UNFCCC in Marrakesh in 2001 (also known as the “Marrakesh Accords”). This plan was based on market-led approach that created a new globally traded commodity known as “carbon credits.” These credits, expressed in tons of carbon dioxide equivalent, have an assigned market value similar to other commodities like wheat or oil, and they can similarly be traded on international market (Böhm et al. 2012).

The Kyoto Protocol implementation plan moreover has three distinct market mechanisms through which carbon credits can be traded: Joint Implementation (JI); International Emissions Trading (IET); and the Clean Development Mechanism (CDM). JI carbon markets target the carbon credits generated in the countries of Eastern Europe and the former Soviet Union (also known as “transition economies”), while CDM carbon markets are implemented in the developing countries. IET carbon markets involve the trading of carbon credits among the industrialised countries (Gupta 2016; Occhipinti & Verona 2020).

Through the CDM carbon markets, industrialised countries can buy the carbon credits generated from emission reduction projects in developing countries. This can take place either through the regulatory compliance mechanisms associated with the Kyoto Protocol (such as the Reduced Emissions from Deforestation and Degradation, also known as UN-REDD and REDD-plus) or through voluntary carbon markets (Leach & Scoones 2015; see also Arhin and Atela 2015; Fong-Cisneros 2012).

While all carbon credits are equivalent in theory, there is nonetheless a major historical and institutional difference between the JI and IET carbon markets in the Global North and the CDM carbon markets implemented in the Global South. In the first instance, European political institutions (the EC and EU member states) took full control and ownership of developing and implementing the global regulatory infrastructures for both JI and IET carbon offset markets through the EU Emissions Trading System (EU ETS). This is not the case for the CDM, where carbon offset markets are primarily pioneered and directly shaped by private actors and other global corporates (Nestlé, Microsoft, Saudi Arabia Public Investment Fund, JP Morgan, Apple, Royal Dutch Shell and so on) as opposed to states’ organs (Corbera & Brown 2010). Accordingly, the CDM offset carbon markets are driven by the same profit-driven actors that operate at the core of contemporary financial markets: institutional investors, insurance companies, banks, hedge funds, consultancy and accountancy firms, brokers, and speculators (Corbera & Brown 2010). Some of the first major funders of CDM projects in the Global South were the World Bank, Ecosecurities and CantorCO2e. Together with large banks and insurance companies, they transformed the CDM carbon market in the mid-2000s into a lucrative new market for multinational investors (Corbera & Brown 2010). Indeed, CDM markets “exploded to become literally the jewel in the crown of the Kyoto Protocol” (Newell & Paterson 2010: 83).

To some analysts (Corbera & Brown 2010), the CDM projects are a win-win and the most inclusive of the three carbon markets: they allow industrialized countries to invest in “clean” projects in developing countries, and they can then use these credits to offset their own emissions during a given period. Carbon credit earners can also choose to sell their credits to another country. Critics have warned, however, that the reduction of global carbon emissions is not in good hands with private investors, and that carbon offsetting is effectively carbon colonialism.

The remainder of this paper reviews these competing arguments in greater detail, with a specific focus on CDM carbon markets for land tenure and land use change. Forest lands in the Global South are particularly important, as they have been targeted as a key area by multinational corporate carbon traders. Forest-based carbon markets are further underpinned by local government uptake of industrial forestry and industrial land management models (German et al. 2014). Collectively, this has profound implications for land tenure, use, and access in the Global South. The rapid increasing allocation of concessions to private sector international interests could easily result in a “Forestry Empire (Kroger, 2014)”, i.e. big corporates that have established managerial control over the world's forests and their extractive wealth. In what follows, I streamline this more generalized concern by engaging with three key streams of literature. The first stream focuses on the argument that carbon markets threaten land tenure security. In contrast, the second stream argues that carbon markets effectively strengthen land tenure security. The final stream argues that land tenure security itself is the key determinants for the just and effective implementation of these carbon trading projects.

3. CARBON MARKETS AS THREAT TO TENURE SECURITY

“Land grabs” (Larson et al. 2013), “green grabs” (Larson et al. 2013) “carbon rushes” (Larson et al. 2013), “carbon colonialism” (German et al., 2014), and “carbon colonial land grabs” (Bottazzi et al., 2013) denote the loss of local user rights to forest land in the name of carbon deals. For critics, these carbon deals entail “a new form of capital accumulation and enclosure” (Corson et al., 2013) that benefit the multinational corporates and the powerful domestic elites who enable them (Wiegratz, 2010; Lyons & Westoby, 2014). In Brazil, Silva et al. (2023) and Sauer (2024) see continuities between historical land dispossession and contemporary land dispossession via climate mitigation initiatives. Whether new or old, the fundamentals of these processes are effectively the same: land privatization, accumulation, and concentration; the expropriation and plundering of communities’ agrarian resources; the invasion of indigenous lands and the disruption of ecological rhythms, and the eviction of rural populations. The chilling similarities between historic and contemporary land dispossession call into question the true intent of the primary beneficiaries in these arrangements. Here again, critics would argue that the primary objective of multinationals and local elites is not to mitigate climate change but rather to commodify and financialize nature, only this time under the guise of environmental sustainability (see Sauer, 2024). Perhaps most significantly, these arrangements effectively enable the industrialized countries to maintain high levels of carbon emissions while restricting development options where offset activities are located (Bottazzi et al., 2013).

Civil society groups are no longer taking the bait. Following the December 2012 COP in Durban, South Africa^[1], a broad collective of community-based organizations and social movements denounced the current carbon rush in the global south as “the biggest land grab of all time,” one that “threaten[s] the very survival of indigenous peoples and local communities”. They lamented the lack of binding mechanisms to ensure that the rights of indigenous, local forested, and agricultural communities are respected, and they moreover highlighted the need for transparent and accountable institutions to protect the rights of customary landowners in the carbon deals. They hence call upon African states to reject the carbon market initiatives for compromising Africa’s real interests and priorities for development: energy, climate, biodiversity and resilience. While they acknowledge Africa’s right to demand compensation from polluting countries and companies in the global north, they argue that such compensation shouldn’t come in the form of carbon initiatives that benefit the polluters, fossil fuel companies and financial brokers. They fear that the carbon initiatives could thus drive industrial pollution beyond the climate’s tipping point (Chiderov, 2023).

In recent years, both wealthy nations and private financial actors have also participated in carbon markets by investing in African land titles (e.g. in Liberia, Zimbabwe, Kenya, Zambia and Tanzania) and critical minerals (such as lithium, graphite, nickel and cobalt). Zoomers and Otsuki (2024) note, however, that these programs effectively induce land grabs and communal displacement while contributing little to transition economies in the global south.

The fundamental issue raised in this literature is that capitalist industrial development is at the centre of the climate crisis. In short, it argues that the mess created by industrial capital accumulation cannot be corrected by engineering new mechanisms of capital accumulation. Carbon credits trading is grounded in capitalist market fundamentals for global accumulation, with similar results: Dispossession of the poor in the global south and worsening socio-environmental injustice (Bruna, 2024), while doing little to physically address atmospheric carbon concentrations (Gifford, 2020).



The carbon economy moreover constrains local community usage rights to land and forest products (German et al., 2014). Part of the problem is that carbon deals in the global south are effectively being superimposed atop complex and contested tenure systems that transcend the customary–statutory dichotomy. People living in these rural landscapes often consider themselves to be the owners of not just their house plots and farms but also the forests, pastures and other natural collective resources in the rural settings where they live. This is a widespread phenomenon throughout Africa, regardless of whether the local political economy of land is structured around tribe, clan or another village-based entity (Wily, 2011). Hence, there is often considerable variation in perceptions about what rights the individual, household, community, and state have over forests and other agrarian resources (Benda-Beckmann, 1995; Merry, 1988; Moore, 1973; Lund, 1998). The overlapping of forest land tenure rights results from the interaction over time between many forms of often incompatible customary tenure claims (e.g., rooted in migration patterns or ethnic differences) and evolving statutory laws (e.g., colonial, though often not legally superseded by new laws). This produces a very wide variety of understandings about what law applies to whom, when, and how (Peters, 1994; Shipton, 1994). In short, forest tenure is often insecure, unclear or in conflict, and this allows more powerful domestic actors to grab land in collusion with multinational corporates in the name of carbon deals.

Tenure remains a complex and heavily contested terrain. Corbera et al. (2011:3) define tenure as “the right, whether defined in customary or statutory terms, that determines who can hold and use land (including forests and other landscapes) and resources, for how long, and under what conditions”. Accordingly, tenure is deeply complicated because it encompasses differentiated bundles of rights, including rights of access, withdrawal, management, exclusion and alienation that are mutable over time (Corbera et al., 2011). Access rights concern the right to enter a defined physical property while withdrawal rights allow users to obtain the products of a resource (e.g., to catch fish, collect firewood, appropriate water). Users with management rights have the right to establish the rules and sanctions under which the resources can be managed, and users with exclusion rights can determine who has access and withdrawal rights.

Finally, users with alienation rights have the right to transfer their acquired rights to other parties (Corbera et al., 2011: 3-4). Rural communities tend to combine different bundles of rights across different tenure systems (open access systems, state and public tenure, private property, common property regimes) that coexist in specific rural landscape contexts (Corbera et al., 2011). Forest tenure regimes, in particular, are often characterized by multiple claims on access rights and competing relations over how to manage resources and who to exclude (Corbera et al., 2011). For example, within a forest landscape formally owned by the state, there may be local groups or communities who have allocated customary property rights over specific trees and non-timber forest products to their members, while at the same time confronting settled migrants who are claiming exclusive rights over specific forest areas (Corbera et al., 2011). The state may also have embedded interests in these landscapes, mainly for forest conservation, thus resulting in complex situations of contested rights (Corbera et al., 2011). In many countries in the global south, these contested landscapes can in part be explained by colonial and postcolonial history. More recently, they have also been shaped by persistent agricultural frontier expansion, in which diverse actors, sometimes with active state intervention, compete to take advantage of timber resources and clear the forest as a way to claim land ownership rights (Corbera et al., 2011). This process creates conflicts with those who hold customary tenure and those who have tried to appropriate the land through other means (Corbera et al., 2011).





On state-owned lands, customary land users without formal rights are often subject to new rules and regulations, including restrictions on land use that lead to new hardships (Larson et al. 2013). Typically, the state uses its regulatory powers to make land available for private investors. Studies on carbon deals in Tanzania (Beymer-Farris and Bassett, 2012) and Uganda (Lyons & Westoby, 2014) found that these states have framed the local communities holding diverse, overlapping tenure rights as the key drivers of the deforestation and degradation of the countries' forest stocks. This narrative is used by the states as a moral justification for local evictions that facilitate carbon deals. In Tanzania, the government claims that the local communities in the Rufiji Delta region - who have been living there for over 2000 years - were "recent migrants and poor forest stewards" who contributed to forest degradation (Beymer-Farris and Bassett, 2012). Community members at both Bukaleba and Kachung central forest reserve in Uganda pointed to burial grounds, cultural sites, housing, and trading centres as evidence of their long-term connection to places that were targeted for carbon deals. They accordingly re-asserted long standing access and use rights, including for animal grazing, fishing, the collection of firewood, spear grass and medicinal herbs, accessing watering holes, and other uses (Lyons & Westoby 2014). The Ugandan and Tanzanian governments nonetheless re-designated the targeted rural landscapes as degraded so as to enable licenses for multinational investors. This is a state enabled land grab (Mugambe, 2007; Olanya, 2014), wherein neoliberal policy tools are used to expropriate prior user and access rights, thus undermining customary connections to land.

In this context, local villagers are now frequently vilified as "illegal encroachers" and "trespassers" on licensed forest land. The response to this often involves a collusion of public and private interests to "manage" such encroachment, including fines, arrests and jail sentences (Lyons & Westoby 2014). Even after the licences to forest land have been issued to the multinational investors, local communities have still been denied the minimum rights to use the forest resources prescribed in the law. For instance, in Uganda, the Tree Planting Act (2003) states that members of communities in close proximity to licensed areas retain rights to enter forest reserves to access resources (including the collection of firewood, for example). But this right is being denied to them as a carbon company - Green Resources - claims that "these villagers need to know the law", that is, they don't have any right to use the licenced forest land and resources therein (Green Resources representative, 2013). In this sense, the carbon deals are mimicking the same process of rural land concentration and dispossession that occurred with colonial-era agricultural takeovers (May et al., 2003). As Smith (2002) notes, the carbon deals exacerbate existing disparities in land distribution and deprive communities of customary land rights and livelihood needs.

Another important element noted in this literature is the failure of existing global land governance regulatory frameworks to protect the local people's land rights under various carbon market trade regimes (Dieterle, 2022). In Uganda, for instance, there were attempts to use global governance mechanisms to secure the protection of land rights of people who were affected by three large-scale carbon investments. These efforts failed (Dieterle, 2022). Around 15,000 people living inside the 9,000+ hectare forest area licenced to a Norwegian carbon company ("Green Resources"), were evicted by the government, which claimed that they were "squatters" on state-owned land (Dieterle, 2022). The core argument in this literature is that the existing land governance frameworks (VGGT, responsible business standards, certification systems and principles of FPIC; and land titling and mapping efforts) that were largely developed to address land grabbing during the previous decade are not suitable to regulate the new wave of large-scale land grabbing driven by carbon markets. These latter projects are taking place at an unprecedented scale and speed, bringing in new actors, and targeting new areas (Zoomers and Otsuki, 2024). In fact, these international guidelines are increasingly being refracted to focus primarily on the environmental aspects of carbon investment and certification projects (Dieterle, 2022). Zoomers and Otsuki (2024) warn that the current climate-driven land acquisitions will have far reaching consequences that cannot be tackled by conventional policies and available instruments, hence there is a need to urgently rethink existing assumptions about land governance. New regulatory frameworks are needed to protect land rights for rural communities and prevent the mass commoditization of natural resources (Zoomers and Otsuki, 2024).





While the major concern in this literature is about land rights, the question about who owns and benefits from the carbon rights is also being hotly debated. The debate here is whether carbon rights are a public or private good. Carvajal (2024) analysed 20 carbon deals covering an estimated area of 5.570.095 hectares of forest land in Colombia and found that private owners have monopoly power over the benefits in these deals. In contrast, Greenleaf's (2020) assessment of the state-run environmental program "System of Incentives for Environmental Services" (SISA) in Brazil found that the programme bequeathed the ownership of forest carbon rights to the state (as public goods). This fairly distributed the revenues from carbon trading to the local population. Here, Greenleaf (2020) uses the concept of "green labor" to refer to the redistribution of the revenue to rural producers without land rights by the government. The Brazilian case is a classical example of carbon rights being treated as a public good, managed by state on behalf of the local population. Local residents are designated in this system as "ecosystem service providers" whose labor the state deems to be protective of the forest (hence the term "green labor"). This prevents private land owners from monopolizing carbon markets, as Carvajal (2024) found in Colombia. The significance of the Brazilian case is that it represents a deviation from the land rights-based approach, which does not fairly recognize the efforts of all those who contribute to carbon emissions reductions, particularly the rural populations without secure land rights (Larson et al., 2013; Corbera et al., 2011; Cotula and Mayers, 2009; Sikor et al., 2010; Ghazoul et al., 2010; Karsenty and Assembe, 2011). The Brazilian case shows that when carbon rights are treated as a "public good," even those without secure land rights stand to benefit from the carbon markets.

Between these two spectrums (private and state ownership of carbon rights), there are compelling points in the literature that carbon rights should be collectively owned by the holders of customary rights to land and natural resources. The major argument in this stream of literature is that communities should be the owner of carbon rights, as they are in the best position to protect the forest, sequester carbon, and actually reduce emissions (Vhugen et al. 2012). Communal ownership of carbon rights, while necessary, is also not sufficient. The case of Papua New Guinea shows that an effective and strong institutional framework is needed for communities who hold customary rights to be able to benefit from carbon deals. Customary land ownership is enshrined in their Constitution, and customary land owners in Papua New Guinea are thus in an extremely powerful position, as resource owners, to participate in carbon deals on their own terms. In practice, however, many customary land owners are not aware of their rights, and this leaves them vulnerable to exploitation (Babon et al., 2012). There have been substantial media reports in this country of customary landowners signing over carbon rights to suspect carbon project developers (dubbed "carbon cowboys" by the media) with virtually no legal framework or awareness of what they were doing (Babon et al., 2012). Similar shady dealings have been reported elsewhere. In one such high-profile case, an international company apparently bought up rights to 2.3 million ha of forest from an indigenous tribe for USD 120 million in the Brazilian Amazon (Sommer, 2012).

An important nuance in these debates is provided by Vhugen et al.'s (2012) work on carbon deals in five countries - Mexico, Indonesia, Nepal, Tanzania, and Mozambique. They argue that carbon rights should be delinked from forest property rights (whether private, customary or statutory rights) so that the rights holders could trade in the carbon markets without losing their natural resources.



4. CARBON INVESTMENTS AS STRENGTHENING LAND TENURE

This stream of literature on carbon deals is rooted in a well-established agrarian literature on the relationship between permanent land investment, especially tree crops, and land ownership in Africa (Raintree, 1987; Meinzen-Dick et al., 2002; Otsuka et al., 2001; Rocheleau and Edmunds, 1997; Fortmann and Riddell, 1985). In African smallholder tenure systems, trees are planted to delimit clear boundaries and to establish or increase security of tenure (Sjaastad & Bromley, 1997). This vast literature establishes the connection between customary tenure security and forms of investment, particularly tree planting (Saunders et al., 2002). There is a fairly robust consensus in the agrarian literature that investments in tree crops thus constitute forms of claim within customary systems, as tenure security is often contingent on the continuous use of the land in Africa (Braselle et al. 2002; De Zeeuw 1997; Otsuka et al. 2003; Sjaastad and Bromley 1997; Unruh 2008). Saunders et al. (2002:1765) argue that investments in tree crops “play an integral role in defining local cultures and institutions and are indicators of broad societal rights”.

Barbier & Tesfaw (2013) add that landowners with customary tenure in Africa can be efficient providers of carbon forestry if tree planting helps secure their permanent claims to the land. They argue that planting trees for the specific purpose of carbon sequestration can actually improve informal tenure rights to the land (Barbier & Tesfaw 2013). de Aquino et al. (2011) reach a similar conclusion in Niger and Kenya, where carbon financing has been found to enhance land tenure security for landholders and communities participating in reforestation projects. These findings challenge the common perception in the carbon forestry literature (reviewed in the next section) that tenure security is necessary for the success of carbon deals. Indeed, the reverse can also occur: tree planting and other land investments can improve tenure claims through an endogenous property right effect (Barbier & Tesfaw 2013). The policy implication is that if tree planting for carbon sequestration does improve tenure security on customary land, then carbon forestry schemes should be encouraged where formal land titling is either absent or ineffective (Barbier & Tesfaw 2013). If arranged in this way, carbon land deals would significantly reduce smallholders’ risk of eviction by the state and private interests (Barbier & Tesfaw 2013). Barbier & Tesfaw (2013) accordingly see the carbon land deals as the remedy, not the disease, for insecure, unclear, and contested forest tenure systems. One major problem with their argument, however, is their assumption that carbon deals target the local smallholder land users. The carbon rush literature makes abundantly clear that carbon credits accumulation is driven by multinational corporates and domestic elites, both of whom work together to squeeze out (not assist) local land users.

Unfortunately, tree planting is also being used by powerful outside interests to claim land, effectively transferring that land to the outsider’s control. Thus, because tree planting, particularly large-scale tree planting, changes social relations with regard to land, carbon forestry projects can still serve to remove the rights and benefits of some, obfuscate the rights and benefits of others, and expand the rights and benefits of still others (Unruh, 1995, 2006). This could explain why carbon forestry projects which provide trees to customary occupants often encounter significant difficulty due to the perceived changes in land rights that result (Unruh, 1995). Such acts of claim can aggravate pre-existing formal and informal land contestation (Brokensha and Glazier, 1973; Chavangi, 1987; Fortmann, 1987). This serves as an important reminder that those who hold, or attempt to hold a variety of rights (weakly, strongly, partial, individual, group, etc.) will generally seek to ensure security of access at least, and expansion of access where possible (Riddell, 1987; Unruh, 1995).

5. FORMALISATION OF LAND TENURE AND CARBON MARKETS

The central focus of this body of literature is that the formalization of property rights is the most important determinant for the success of carbon markets (Deininger & Goyal, 2024). Land tenure and land law may thus prove to be the strongest hindrance in implementing the carbon deals in the absence of formalized property rights (Makundi, 1998). Luttrell et al. (2007) argue that formulating international contracts for carbon deals will prove to be challenging if the targeted rural landscapes have an ambiguous legal status and are governed by various legal standards. Antle and Diagana (2003:1182) are more explicit in their conclusion: “significant issues would arise where land and property rights are not formalized. It is not clear how afforestation and reforestation contracts would work if farmers did not hold legal title to the land they manage”. The lack of secure rights is presented in this literature as one of the major uncertainties facing buyers and producers in the carbon market. The argument here is that if the land user has no de facto control over the land, he or she cannot act as a reliable service provider because he or she cannot effectively exclude external actors who might endanger the provision of services (Wunder 2005). When no effective rights of exclusion exist, or when land and resource rights overlap between communities, the carbon credits trading becomes impossible unless the carbon trading is accompanied by robust processes that explicitly clarify land rights (Wunder 2006). Unruh (2008) and Larson et al. (2013) discuss how Tenure insecurity thus limits the effectiveness of carbon sequestration projects in Africa. They accordingly conclude that without institutional and policy reform in land titling and formalisation, the prospects for these initiatives are quite dim (Unruh, 2008 & Larson et al., 2013).

The process of land titling itself is also contested, particularly when it consists of top-down approaches through which governments formalize tenure rights through communal demarcation and the exclusive granting of property rights to individuals. For critics, this guarantees a title but not much else, and it is incapable of dealing with complex webs of access to natural resources. It also fails to empowering marginalized actors’ struggle to protect and control their natural resources (Corbera et al., 2011). When it comes to environmental outcomes, land tenure reforms aimed at clarifying property rights and recognizing the rights of indigenous peoples have shown mixed results. In many instances, these reforms have proved insufficient, leading to the emergence of grassroots movements that occupy land and demand land redistribution (Corbera et al., 2011). When undertaking these reforms, the state has often retained alienation rights on its lands, meaning that the forests cannot be transferred or purchased by third parties (and thus privatized). These conditions put the state in a better position to re-allocate forest land for climate deals when the opportunities arise (Corbera et al., 2011).

6. CONCLUSION

Carbon projects in Africa and elsewhere in developing countries are being implemented in a context of complex and continually evolving tenure systems. These tenure systems are shaped by governments' policies and public discourses on climate change mitigation strategies. To critics, the commodification of the climate represents a significant threat to the users of local natural resources. They see carbon deals as yet another resources grab by powerful multinational companies. To supporters, the carbon deals could provide a remedy to the problem of tenure insecurity, thus ensuring the inclusion of marginalized rural communities in carbon market profit-sharing. Regardless of one's position in this ongoing debate, it is becoming increasingly clear that land titling and formalization are key elements for the development of effective carbon interventions. To date, however, there remains a lack of consensus about the extent to which (and the circumstances in which) carbon markets can support local rural communities by reorganizing tenure relations for their benefit.



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Silva, A.A., Leite, A.Z., de Castro, L.F.P. and Sauer, S., 2023. Green grabbing in the Matopiba agricultural frontier. IDS Bulletin, 54(1).

In this paper, authors argue that there is continuity between the historical land dispossession in Brazil (known as *grilagem*) and the current land grab manifestations in the context of climate change mitigation initiatives; in terms of dimension, speed, and actors involved in the land grabbing process. Using the Cerrado's Matopiba frontier as case study, they argue that the mechanisms (digitalization of land-use claims and the financialization of nature reserves) provided by the 2012 Forest Code to combat fraud in the Brazilian land tenure system have actually led to the expansion of traditional land grabbing (*grilagem*), eventually reaching peasant lands that were spared during the past land dispossessions.

Bruna, N., 2024. The carbon rush: expropriation of emission rights and socio-environmental (in)Justice. LDPI working paper 2024-022. The Hague: The Land Deal Politics Initiative.

In this paper, Bruna places capital accumulation at the centre of the climate change crisis and forcefully argues that the mess created by industrial capital accumulation cannot be corrected by engineering new mechanisms of capital accumulation such as carbon credits trading, that use similar capitalist market fundamentals for global accumulation, with similar results: Dispossession of the poor in the global south and worsening socio-environmental (in)justice. Her paper brings in the debates on carbon rush in the global south the micro-level analysis of the effects of carbon markets at the household level in terms of labour allocation, reconfiguration of the rural household's livelihoods strategies, and social reproduction. Seen from this perspective, she concludes that one of the major outcome of the carbon markets in Africa is the continuation of the exploitation of the African labour, particularly female unpaid productive and reproductive labour, which mirrors the same colonial and extractivist model that resulted in the impoverishment of Africa.

Carvajal, S., 2024. REDD+ and the Climate rent: The reorganization of value relations through forest conservation in Colombia. LDPI working paper 2024-022. The Hague: The Land Deal Politics Initiative.

This paper uses the Marxist concept of "value" and "climate rent" to analyse 20 REDD+ projects covering an estimated area of 5.570.095 hectares of forest land in Colombia. The analysis focuses specifically on how payments accrued from carbon credits are distributed among the different actors participating in the creation of this credits through REDD+ projects, with particular attention to the conflicts that emerge over the distribution of the surplus value that is appropriated through the climate rent. In this paper, climate rent is defined as rent relationship between those entitled to the ownership right of the carbon credit and those required to purchase them to offset their emissions. The core argument in this paper is that, just as in the case of capitalist agriculture, rent in REDD+ carbon offsetting is also based on the monopoly power of private owners of land and forests that store carbon.

Cavanagh, CJ, Vedeld, PO, Petursson, JG and Chemarum, A. 2021. Agency, inequality, and additionality: contested assemblages of agricultural carbon finance in western Kenya. *Journal of Peasant Studies* 48(6): 1207-1227.

This paper uses an interdisciplinary, mixed-methods approach, with qualitative data from semi-structured interviews and focus group discussions with quantitative data from a structured household survey; to investigate the outcomes of one of the world's flagship carbon finance projects: the Kenya Agricultural Carbon Project (KACP), with a particular focus on livelihoods, sustainability, and climate mitigation (also known as "triple win" outcomes of carbon finance). The paper investigates these outcomes from a political ecology perspective. KACP targets 60,000 farmers with a total land holding of 45,000 hectares of land in western Kenya, and the project involves a complex web of organizations, agencies, and institutions that include the World Bank's BioCarbon Fund, the Swedish International Development Agency, an implementing NGO known as Vi-Agroforestry, and thousands of local farmers' organizations. The paper finds that farmers receive a meagre annual income from the KACP amounting to 0.33 US dollars per household and year. Based on these insignificant payments, the authors conclude that agricultural carbon finance increase rural households' livelihood risks, and exacerbates local farmers' disembeddedness in both regional and global political ecologies of agrarian change.

Deininger, K. and Goyal, A., 2024. Land policies and institutions for equitable and resilient growth in Africa. *The World Bank Research Observer*, p. Ikae005.

This paper argues that the African countries need to urgently undertake a profound institutional reform to improve the quality of their land registries in order to reap the benefits from the climate finance investments without fuelling corruption. The proposed reforms include adoption of digital technologies in national land registries and cadastres consisting, digitization and interoperability, remote sensing, and mobile phone connectivity. The paper argues that the fully digitalisation of the African land registries could significantly improve demarcation and transparent decentralized management of public land to attract investments. The paper provides some selected examples where these reforms have been undertaken in Africa with a particular highlight on Rwanda which is the only African country with a fully digital nationwide registry and cadaster. The paper fails to show, however, how these institutional reforms in Rwanda have increased carbon finance investments to benefit the population.

Dieterle, C., 2022. Global governance meets local land tenure: International codes of conduct for responsible land investments in Uganda. *Journal of Development Studies*, 58(3): 582-598.

Using qualitative method consisting of over 100 interviews and 10 focus group discussions, Dieterle, (2022) asks whether the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests that were initiated at the peak of global land rush are still relevant to protect local people's land rights under various land tenure systems. The paper focuses on three cases of large-scale land investments in Uganda. The case of the Busoga Forest Company consists of over 9,000 hectares of the Bukaleba Forest Reserve on the northern shores of Lake Victoria, in Mayuge District, Uganda's Eastern Region. This carbon project is owned by the Norwegian Company Green Resources involved in carbon markets. When Green Resources first acquired the investment licence in 1996, there were around 15,000 people living inside the forest area licenced to the company. In 2000, they were evicted by the government from the Reserve, claiming that they were 'squatters' on state-owned land. Efforts to use the global governance mechanisms in order to secure the protection of land rights of these people failed. Instead, the thrust of the international guidelines was refracted and came to focus on environmental aspects of the investment project, and the involved company obtained certification for carbon trading.

Gifford, L., 2020. “You can’t value what you can’t measure”: a critical look at forest carbon accounting. *Climatic Change*, 161(2): 291-306.

This paper discusses the political and contested nature of forest carbon accounting. The paper questions the concepts used to determine carbon measurement, like “baselines” and “additionality,” arguing that they are deeply subjective and remain open to different interpretations. The paper argues that these concepts are vague, inconsistent, and inaccurate; and abstractions required to construct both “carbon” and the markets upon which to trade it (refers to in the paper as “endless algebra of carbon markets”) are questionable, wonky, and often blatantly dishonest. The paper, then, raises an important question of how monetary value can be attributed to something that cannot be measured; thereby questioning all together the logic for determining the carbon price on the market. The paper concludes that all these inconsistencies associated with the measurement of carbon show that carbon accounting is an uneven technical and political process used for accumulation purposes through the market fundamentals, but that does little to physically address atmospheric carbon concentrations.

Greenleaf, M., 2020. The value of the untenured forest: land rights, green labor, and forest carbon in the Brazilian Amazon. *The Journal of Peasant Studies*, 47(2): 286-305.

Using the case of the state-run environmental program called the “System of Incentives for Environmental Services (SISA) in Brazil, the paper introduces the concept of “green labor” in the debates on ownership of forest carbon rights. The paper argues that SISA bestows ownership of forest carbon rights to the state (as public goods) which, in turn, fairly distributes the revenues from the carbon trading to the local population through “green labor”. This prevents, the paper argues, the local wealth private land owners to capture the local carbon markets (elite capture of carbon trading). The concept of “green labor” refers to the redistribution of the revenue to rural producers without land rights by the government. In this approach, local people are framed as “ecosystem service providers” whose labor the state deems to be protective of the forest (hence the term “green labor”). This is an important deviation from the land rights-based approach that considers unclear land rights as posing serious challenge for the sustainability of carbon markets as well as the redistribution of the revenues from carbon trading in the global south.

Huff, A., 2023. Frictional commodities: Virtuality, virtue and value in the carbon economy of repair. *Environment and Planning E: Nature and Space*, 6(4), pp.2203-2228.

This theoretical paper uses the Marxist concept of “commodity fetish” and Polanyi’s concepts of “fictitious commodities” and “embeddedness” to conceptualise the carbon forestry and voluntary carbon market (VCM) offsets, using the case study of Mikoko Pamoja carbon project, located on Gazi bay on the southern coast of Kenya. Mikoko Pamoja is the first carbon forestry project in the world that was funded through the sale of “blue forest” carbon offsets. This is an exceptionally virtuous project, comprising of a complex web of actors, organisations, ecological elements and technologies to produce a singular variety of what have been called “boutique”, “gourmet” or “premium” carbon offsets. The “blue carbon” refers specifically to the atmospheric carbon stored in oceans and coastal ecosystems, and “blue forests” refers specifically to mangroves. The paper makes four interlinked arguments: 1) Polanyi’s notion of fictitious commodification falls short for explaining how technologies of extracting value from nature have evolved because it is situated in a specific moment, institutional configuration of capitalism and logics of value extraction. 2) it rejects the widely held view of VCM carbon offsets as “embedded” fictitious commodities because such view conflates how different “natures” are constructed and made to produce

market value for conventional markets versus the VCM, which reifies central fictions and contradictions of carbon markets and the model of the market-world envisioned by dominant market environmentalist ideology more broadly. 3) The paper argues that this fallacy is masked by some forms of abstraction needed to construct the commodity work through both disruptive and productive politics that create slippages between concrete and imagined natures and geographies of development and repair; and 4) The paper proposes an alternative, post-Polanyian conceptualisation of carbon offsets as “frictitious” commodities that inhabit a complicated, only provisionally stabilised and transient commodity form.

Kotsialou, G., Kuralbayeva, K. and Laing, T., 2022. Blockchain’s potential in forest offsets, the voluntary carbon markets and REDD+. *Environmental Conservation*, 49(3):137-145.

This paper assesses the potential and prospects of the digital technologies in carbon trading, with particular focus on the blockchain technologies. The paper analyses the current projects utilizing blockchain in the forestry space and finds that the advantages of the use of digital technologies are potentially multifaceted. The paper argues that the potential for blockchain technologies in carbon trading include, among others: 1) providing automatic validation and reducing transaction costs between buyers and sellers within carbon projects; 2) providing new information through blockchain prediction markets; and 3) eliminating coordination problems between actors and via the guaranteed execution of smart contracts.

Manda, S. and Mukanda, N., 2023. Can REDD+ projects deliver livelihood benefits in private tenure arrangements? Experiences from rural Zambia. *Forest Policy and Economics*, 150, p.102952.

This paper uses the qualitative methods - household interviews, key informant interviews and group discussions – to investigate the livelihood impacts of the forest carbon projects undertaken in private land tenure systems in Zambia. The paper focuses on two conservancy private companies– a landowner and developer – as case studies. The paper found that private tenure arrangements: 1) increase resource restrictions; 2) increase unequal benefit sharing mechanism; and 3) affects community agency. The paper further found that while the forest carbon projects may have, indeed, improved rural infrastructure through carbon payments, but the impact of REDD+ projects on the local economy has been minimal, and often these projects were identified as key drivers of inequalities and gender differentiation.

Mashingaidze, N., Chirisa, I., Mutambisi, T. and Matamanda, A.R., 2021. Paradoxes surrounding carbon credits and local area development: the case of Mbire District, Zimbabwe. *Local Environment*, 26(10): 1175-1185.

This paper uses documentary analysis and secondary data to investigate the role of carbon markets in promoting economic development, using the Kariba REDD+ carbon-trading initiatives in Mbire District, located in the north of Zimbabwe in Mashonaland Central. The paper identifies positive contributions to local economic development that include: provision of income to local people, local employment creation, development of rural infrastructure such as educational and energy infrastructure, and housing development using sustainable construction materials. But the paper also identified a number of constraints including: Various conflicting land legislation, lack of clarity on the ownership of carbon rights, conflicting interests of actors in the management of environment, diverging objectives and myths surrounding REDD+ initiatives, different land administration authorities, incapacitation of key environmental institutions, and high cost of project development.

Power Shift Africa. September 2023. The African carbon markets initiative: wolf in sheep’s skin (Downloaded from: <https://www.powershiftafrica.org/publications/the-africa-carbon-markets-initiative-a-wolf-in-sheeps-clothing>)

This 54-page report is produced by a think tank called “Power Shift Africa (PSA)” which forms part of a platform of African civil society organisations involved in climate change advocacy in Africa. The report calls upon the African states to reject the carbon market initiatives as they consider them to be compromising the Africa’s real interests and priorities for development, energy, climate, biodiversity and resilience. While the report acknowledges the Africa’s right to demand compensation from polluting countries and companies in the global north, who have caused the climate crisis that is devastating African people, economy and nature; The report argues that such compensation shouldn’t come in the form of current market-driven carbon initiatives. The report argues that these initiatives benefit the polluters, the fossil fuel companies and the market brokers. They will drive pollution beyond climate limits and puts neo-colonial obstructions to the attainment of genuine African development pathways. The report uses the terms “wolf in sheep’s clothing” to describe the carbon markets initiative that will bite back creating numerous new and serious problems while not providing any real benefits.

Purdon, M., 2022. Evaluating the transformational impact of a forest carbon offsetting programme in Uganda: Lessons from a ten-year investigation into the Trees for Global Benefits programme. Chair in Decarbonization Working Paper No. 2022-1, École des sciences de la gestion (ESG), Université du Québec à Montréal (UQAM).

This paper uses the comparative, quasi-experimental and longitudinal methods to investigate the developmental potential of the Trees for Global Benefits (TFGB) programme, a forest carbon offset programme in Uganda operating on the voluntary carbon market under the Plan Vivo standard. The particularity of this case study is that Plan Vivo differs from other forest carbon standards, such as those under the Clean Development Mechanism (CDM) of the Kyoto Protocol, in terms of its emphasis on directly collaborating with smallholder farmers, offering upfront carbon payments and working with native tree species. First introduced in Uganda in 2003, by 2020 the TFGB programme has grown to involve 11,798 households from 86 community groups in 12 districts across the country, involving 9,242 hectares of land, and has paid out \$3.4 million US dollars to participants for 1.95 million tonnes CO₂e of emission removals. The key finding of this paper is that the TFGB programme has led to social differentiation among the local population as it allowed the better off rural households with relatively large land holdings to accumulate through self-selection to participate in forest carbon offsetting, while excluding the poor households.

Sauer, S., 2024. Eco-agrarian question: Land and green grabbing in the Brazilian agricultural frontier. LDPI working paper 2024-006. The Hague: The Land Deal Politics Initiative.

New dynamics of land grabbing in Brazil exhibit continuity with previous waves of land grabbing in the colonial period. Whether new or old, processes of land grabbing are part of capitalist land accumulation. The fundamentals of these processes are the same: expropriation of traditional community lands , invasion of indigenous lands, destruction of environment, eviction of the rural population. These constitute the what he calls the “eco-agrarian question”. The carbon trading market in Brazil can be understood from this logic: Its intent is not so much climate mitigation but rather the commodification and financialization of nature, creating another tool for green grabbing in Brazil. Carbon markets enable the appropriation of agrarian resources with environmental justification, and this necessitates an urgent need to discuss the contemporary eco-agrarian question.



Streck, C., 2020. Who Owns REDD+? Carbon Markets, Carbon Rights and Entitlements to REDD+ Finance. *Forests*, 11 (9), 959.

This legal essay uses the methodology of comparative legal research to analyze the concept of carbon rights in different tropical forest countries' legislation and their implications for carbon pricing instruments. This paper revisits the legal concepts that inform the debate on carbon rights and tradable carbon credits in order to identify the legal principles that inform REDD+ projects across all countries, and shed lights on how these principles translate into REDD+ implementation. The concepts reviewed in this paper includes: Emission reductions and removal (ERR), carbon unit, offset credit, carbon allowance, carbon rights, voluntary vs. compliance credits, and avoided deforestation (AD) vs. REDD+. Following this review, the paper identifies the basic methodological requirements for creating tradable forest carbon credits, and highlights some ethical, methodological and accounting barriers that the creation of a tradable carbon currency faces. The paper argues that while the definition of carbon rights and the legal nature of carbon credits depend on local laws and circumstances that differ between countries, the underlying legal principles of the carbon rights are relevant for the understanding of REDD+ across different geographies. By linking the notion of carbon rights to both carbon markets and government's decision on benefit sharing, the paper contributes to the debates about the ownership of carbon rights by clarifying the nature and limitation of rights pertaining to REDD+ market transactions to addresses the question about who can claim participation in REDD+ and voluntary carbon market projects.

Tamba, Y., Wafula, J., Magaju, C., St-Jacques, B., Stiem-Bhatia L., Arias-Navarro C., Aynekulu, E. and Winowiecki, L., 2021. A Review of the Participation of Smallholder Farmers in Land-based Carbon Payment Schemes. *TMG and ICRAF Working Paper*. <https://doi.org/10.35435/2.2021.4>

This paper uses the qualitative methods (participatory approaches) to analyse smallholder farmers' participation in the various stages of land-based carbon offset ten projects registered in the voluntary carbon market that operate in a smallholder context. The projects cover a range of carbon certification standards and different geographies, including Africa (8), Asia (1) and North America (1). The uniqueness of this paper in the context of this annotated bibliography is that it focuses on the trading of the soil carbon credits (as opposed to the carbon stock in the trees) in the context of smallholder production systems in the global south. The paper found that the carbon payments were relatively low across the projects investigated, and argues that non-carbon co-benefits were found to be the main incentive for smallholders' participation in land-based carbon payment schemes. These include improved farm productivity, reduced on-farm degradation, access to financial advisory services and credit, and investments in local infrastructure. The paper concludes that these non-monetary factors are crucial to the sustainability of carbon payment projects, as they can enhance the likelihood of permanence: a central issue related to the credibility of soil carbon credits.





Vhugen, D., Aguilar, S., Peskett, L., Miner, J., 2012. REDD+ and carbon rights: Lessons from the Field. United States Agency for International Development, USAID Contract No. EPP-I-00-06-00008- 00, Task Order 2, under the Property Rights and Resource Governance Project (PRRGP) Task 3.3, Climate Change and Tenure Policy Framework Task Order, under the Prosperity, Livelihoods and Conserving Ecosystems (PLACE) IQC.

This paper is based on five in-depth REDD+ case studies - Mexico, Indonesia, Nepal, Tanzania, and Mozambique - conducted by Landesa and the World Resource Institute to address the question of who holds the “carbon rights” to the benefits associated with REDD+ activities. For each case study, the paper investigates the extent to which national laws “explicitly”, “implicitly”, or “contractually” establish a secure right to benefit from the REDD+ activities. A review of relevant laws, practices, and REDD+ strategies under consideration across all case studies reveals an urgent need to modify the legal regimes in the global south in order to participate effectively in an international REDD+ mechanism, particularly if this is linked to carbon markets. The paper makes nine proposals to achieve this goal: 1) Rights to benefit from reduced forest carbon emissions or forest carbon sequestration should be housed within clear, state-sanctioned rights to land and forest resources, whether customary or statutory rights. 2) The system should give the carbon right to the individual or community who is in the best position to protect or manage the forest so that the system will lead to reduced emissions and/or increased sequestration. 3) Carbon rights should be separate from property rights to the trees or forests if policymakers want to enable rights holders to trade in the carbon markets without selling the trees or forests that are the source of the right. 4) Any restrictions on those holding rights to forest products to benefit commercially from no extractive uses such as carbon sequestration should be eliminated or made subject to very simple and accessible licensing procedures. 5) A carbon rights system should not undermine existing tenure rights, including customary rights. If possible, the system should make such rights more secure. Care must be taken not to negatively impact secondary rights. 6) The law should not harm the rights and circumstances of women, indigenous peoples and marginalized groups. If possible, the enactment of such a law and a REDD+ system should actually improve those rights and circumstances. 7) Any requirement that a rights holder “develop” the forest by clearing or making other physical changes must be eliminated unless protecting the forest is specifically deemed to satisfy such a requirement. 8) Compliance and enforcement procedures and penalties, and effective, accessible dispute resolution mechanisms should be included to comply with international REDD+ obligations, including permanence requirements, use restrictions, and safeguards. 9) And finally, improved institutional capacity is required to ensure fair allocation and distribution of REDD+ benefits.



Zoomers, A., Otsuki, K., 2024. Rushing for land in the context of climate change: Seven theses about why climate justice requires radical changes in land governance. LDPI working paper 2024-003. The Hague: The Land Deal Politics Initiative.

The core argument of this paper is that the existing land governance frameworks (VGGT, responsible business standards, certification systems and principles of FPIC; and land titling and mapping efforts) that were largely developed to address land grabbing during the last decade are not suitable to regulate the new wave of large-scale land grabbing which is currently underway, at an unprecedented scale and speed and with new actors and targeting new areas. The paper argues, therefore, that there is a pressing need to introduce new concepts and ideas to make land governance more oriented towards ensuring climate justice as earlier policies were framed mainly to encourage more commoditization of natural resources that led to exacerbation of the land grabs in the global south. In fact, the paper questions whether investment-driven project-approach is the right move to addressing climate change outcomes. It argues that, in the context of carbon markets, new investments in critical minerals (lithium, graphite, nickel and cobalt) or investments from oil rich United Arab Emirates, that promises to use oil money to purchase the land rights in many African countries (Liberia, Zimbabwe, Kenya, Zambia and Tanzania) in order to sell carbon credits to major polluters, induce more direct land grabs justified under the climate agendas. The rapidly increasing rush for land for climate initiatives, the paper argues, intensifies the green grabbing and the associated displacement while exonerating the capitalist industrial countries who are the main polluters, and who contribute very little to the transition of the economies in the global south. The paper concludes that these climate-driven land acquisitions will have far reaching consequences that cannot be tackled by conventional policies and available instruments, hence there is a need to urgently rethink existing assumptions about land governance in the rapidly changing context.

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