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REDD+ Conflict: Understanding the Pathways between Forest Projects and Social Conflict

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Abstract: A growing body of literature analyses the conflict implications of REDD+ (Reducing emissions from deforestation and forest degradation in developing countries). However, the way these conflicts unfold is little understood. We address this research gap through the following question: What are the pathways that connect REDD+ projects and conflicts between local communities and other actors? We review 242 scientific articles, selecting eight that allow us to trace how the conflict pathways unfolded. We draw on a political ecology perspective and conceptualize 'conflict pathway' as an interaction of key events and drivers leading to conflict. We find six main conflict drivers: (1) injustices and restrictions over (full) access and control of forest resources; (2) creation of new forest governance structures that change relationships between stakeholders and the forest; (3) exclusion of community members from comprehensive project participation; (4) high project expectations that are not met; (5) changes in land tenure policy due to migrants, and (6) the aggravation of historic land tenure conflicts. Evictions from forests, acts of violence, and lawsuits are among the events contributing to the conflict pathways. To prevent them, the rights, livelihoods, and benefits of local communities need to be placed at the centre of the REDD+ projects.

Keywords: REDD+; conflict; forests; land tenure; political ecology

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1. Introduction

Reducing emissions from deforestation and forest degradation in developing countries (REDD+) is one of the key global instrument for mitigating climate change [1]. Since 2008, over USD 4 billion has been pledged to multilateral climate funds that support REDD+. Approved REDD+ activities have totalled USD 2.4 billion since 2008; in 2018 alone, USD 260 million was approved [2]. More than 50 countries are either in the readiness or implementation phases of REDD+ [3]. REDD+ is not only an instrument that has substantial funding and wide implementation—but it is also ambitious. On the one hand, REDD+ aims to enhance carbon stocks and reduce deforestation; on the other hand, it seeks to benefit local communities [3,4]. However, there is a growing body of literature that questions the positive effects of REDD+ on communities, or even identifies negative externalities, including conflicts within and between communities as well as between them and other actors such as project proponents and government representatives [5–9]. While these studies help to identify the key conflict actors and some conflict drivers, our understanding of how conflicts between local communities on the one hand, and project implementers, companies, and government agencies actually unfold is limited. The present paper addresses this research gap while asking the following key question: What are the pathways that connect REDD+ projects and social conflicts between local communities and other actors?

The literature on the conflict implications of REDD+ can broadly be grouped into two types. The first uses qualitative field research [10–13]. This approach can generate deep insights into specific cases but their applicability to other cases is limited. The second type of research is based on a literature review [14–16]. These reviews can synthesize knowledge and identify general conflict factors but lack detail as to how conflicts actually unfold. We chose an approach that lies between these two types and can combine their strengths. We first reviewed 242 relevant scientific articles, selecting eight that met our criteria for a comparative case study analysis of conflict pathways. A key selection criterion was that the article should provide enough detail on the key events and conflict drivers to enable us to determine how the conflict unfolded. We understand conflict as a situation in which at least two actors perceive their goals, actions, values, needs or priorities as incompatible with each other. In violent conflicts, at least one of the actors uses force to pursue its aim or to directly harm other actors [17].

This combination of literature review and comparative analysis of selected case studies has been successfully applied in a similar study on the role of resource scarcity in local conflicts [18]. Since the distribution of costs and benefits, governance structures and power dynamics play key roles in both REDD+ projects and conflicts, we have embedded our analysis in a political ecology perspective [19].

Section 2 below provides more detail on the theoretical framework, followed by Section 3's description of the cases and how they were selected. In Sections 4 and 5, we present and discuss the results, concluding how pathways between REDD+ projects and conflict may be avoided and interrupted.

2. Theoretical Framework

We use political ecology as the guiding concept for our analysis because it focuses on how power dynamics influence access to, and control over, natural resources, which are at the centre of the conflicts we aim to understand [20,21]. Political ecology further reminds us that we must pay attention to the governance structures and to the political, historical and cultural embeddedness of dynamics that are often reduced to and portrayed as "resource conflicts" [18]. Finally, the focus on the distribution of costs and benefits across actors and scales is a particularly useful feature of political ecology [22].

Figure 1 shows how we conceptualise the conflict pathway. In the upper part of the arrow, the key events contributing to the conflict pathway are shown in chronological order. In the lower part of the arrow, the key conflict drivers are listed. Conflict drivers are general factors that feed and accelerate the conflict pathway. Or in other words, without the conflict drivers, there would be no conflict. The arrow itself is composed of the interaction between key events and conflict drivers. The text at the end of the arrow indicates whether the REDD+ project aggravated an existing conflict already or created a new one. Using the concept of a pathway to analyse conflicts is not new. For instance, Ide et al. [23] recently used it to disentangle the interactions between water, drought and conflict in the Middle East and North Africa. However, what is innovative, and what we find particularly helpful in retracing how a conflict unfolds is the structure of the pathway figure. It allows us to show, at a glance, specific events as well as general conflict drivers and hence provides a foundation for our comparative analysis of social conflicts related to REDD+ projects.

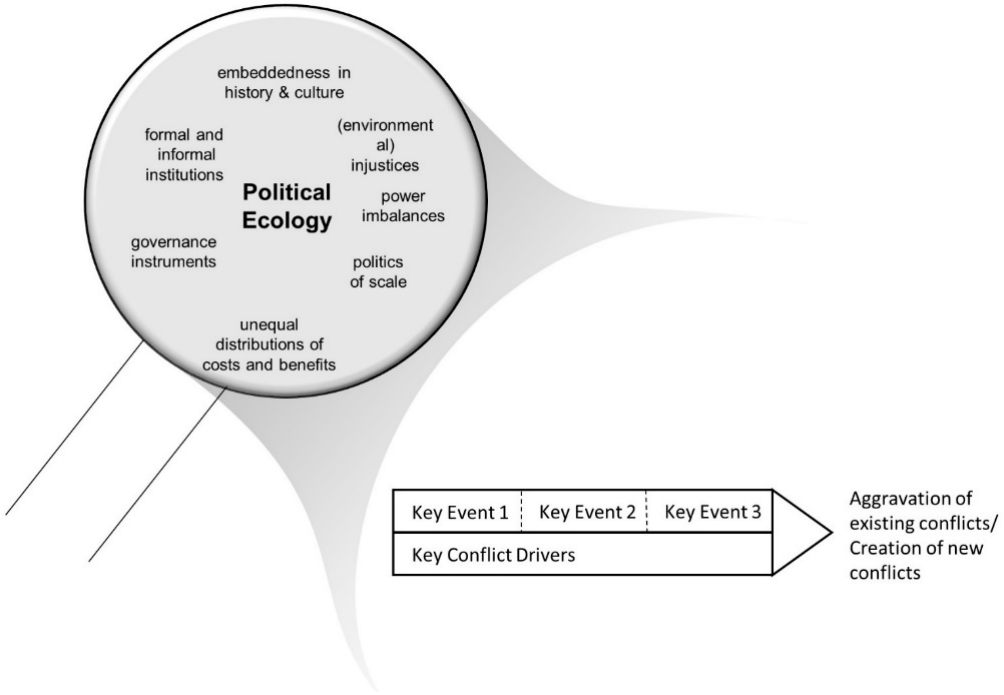

Figure 1. Conceptual framework [19].

3. Materials and Methods

3.1. Selection of Cases

Table 1 shows the selection criteria for the case studies. While the thematic focus is obvious, the level of detail refers to specific information on how the conflict unfolded chronologically as well as a clear identification of key conflict drivers. The selection criteria follow Eisenhardt and Graebner's "replication logic", which implies that " . . . multiple cases are discrete experiments that serve as replications, contrasts, and extensions . . . " to existing or new theories. The selected case studies enable us to " . . . emphasize the rich, real-world context in which the phenomena (in our case social conflicts) occur" ([24], p. 21).

Table 1. Selection criteria for the case studies.

Thematic Focus	REDD+ (Carbon Offset)
Level of detail	High enough to retrace the conflict pathway
Method	Field research
Publication	Peer-reviewed journal article

In November 2020, searching a combination of the topics "REDD*/REDD+/REDD plus" and "conflict*" we found 178 entries in the Web of Science, Scopus, and Google Scholar. To ensure that we do not miss any relevant paper which did not have the word "conflict" in the title, abstract or keywords, we expanded the topic search using the terms "tension*", "harm*", "contestation*", "disappointment*", "disagreement*" and "violence*". This resulted in additional 64 papers. Similarly, we searched for a combination of these terms and "carbon offset*" instead of "REDD*/REDD+/REDD plus", resulting in additional 54 papers.

All available abstracts were read and evaluated by at least two authors. This led to a group of 130 papers that were fully read and again evaluated by at least two authors. Of these, only eight met our selection criteria [25–32]. Seven papers focused on REDD+ projects while one studied a carbon offset project [26].

The level of detail and the research method were the criteria that excluded most articles. The last criterion shown in Table 1 was applied to ensure scientific quality. Originally, we

had limited the geographic scope to Africa but, since the number of African cases that matched our criteria was incredibly low, we searched for cases globally. Several of the read papers that did not meet all our criteria were highly useful to strengthen the discussion of the selected case studies [33–36].

3.2. Overview of Cases

The selected case studies are located in East Africa (Ethiopia, Uganda, Tanzania), Southeast Asia (Indonesia, Vietnam) and Panama. Figures 2–4 provide more information on where the case studies can be found in each country. In Vietnam and Panama, only the approximate locations of the case studies are shown in the original papers. This was done to protect the local communities, as the authors of the respective studies explained to us via email. The selection of cases allowed us to analyse the pathways between REDD+ projects and conflicts in a variety of social, cultural, economic, and political environments.

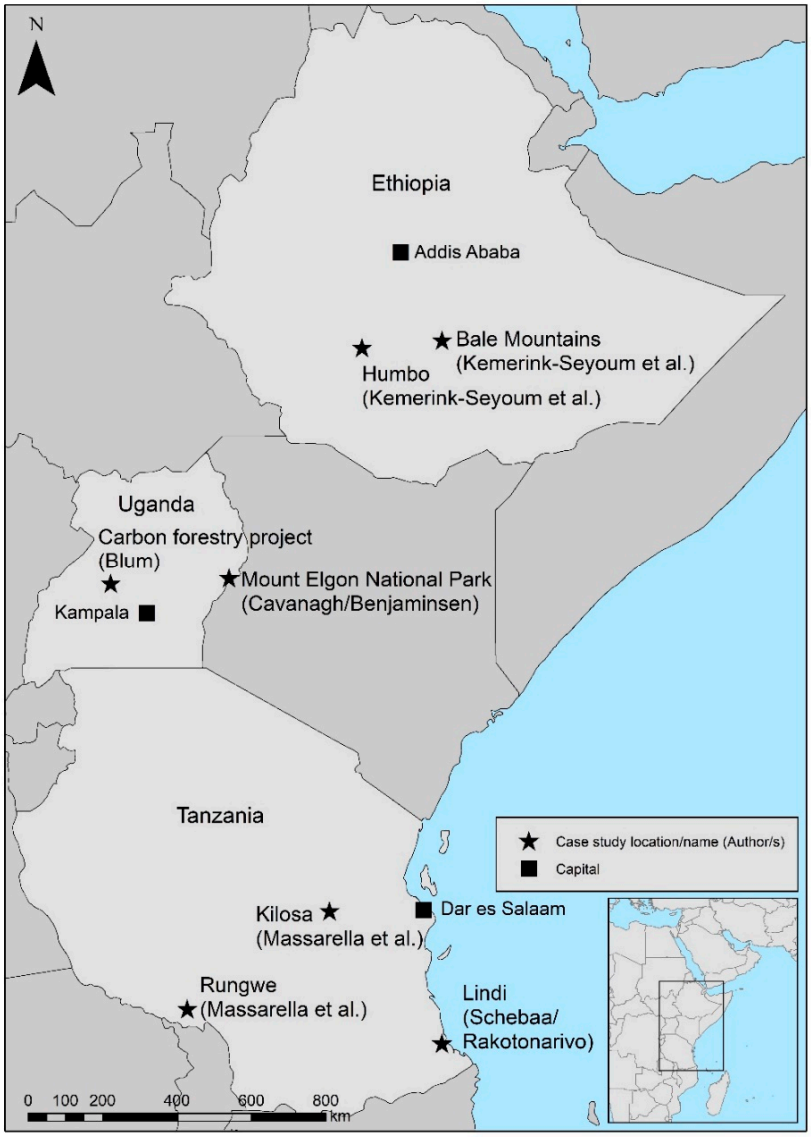

Figure 2. Location of case studies in East Africa (Syed Zulfiqar Ali Shah for the authors, based on [25–27,29,37]).

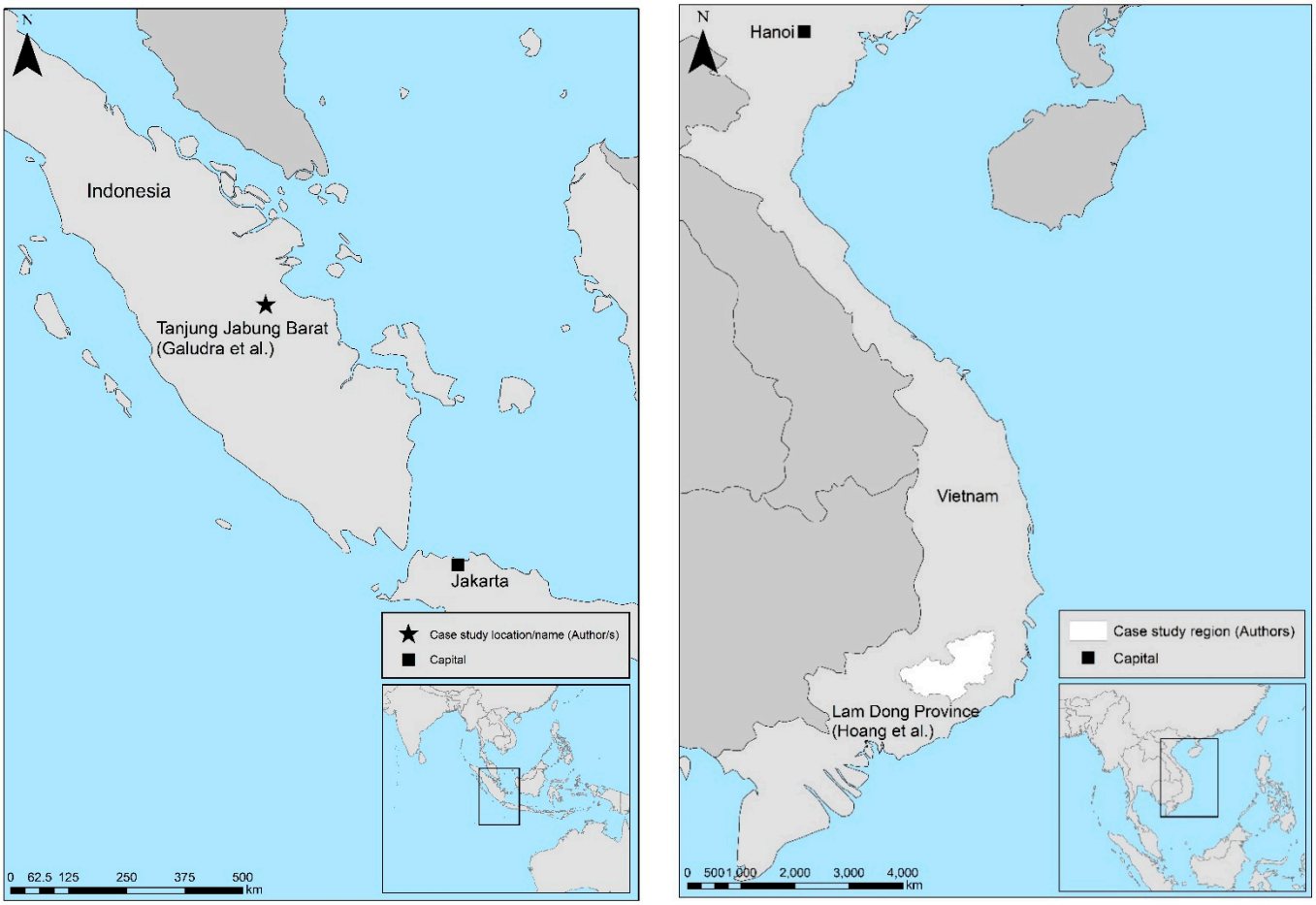

Figure 3. Location of case studies in Southeast Asia (Syed Zulfiqar Ali Shah for the authors, based on [30,32]).

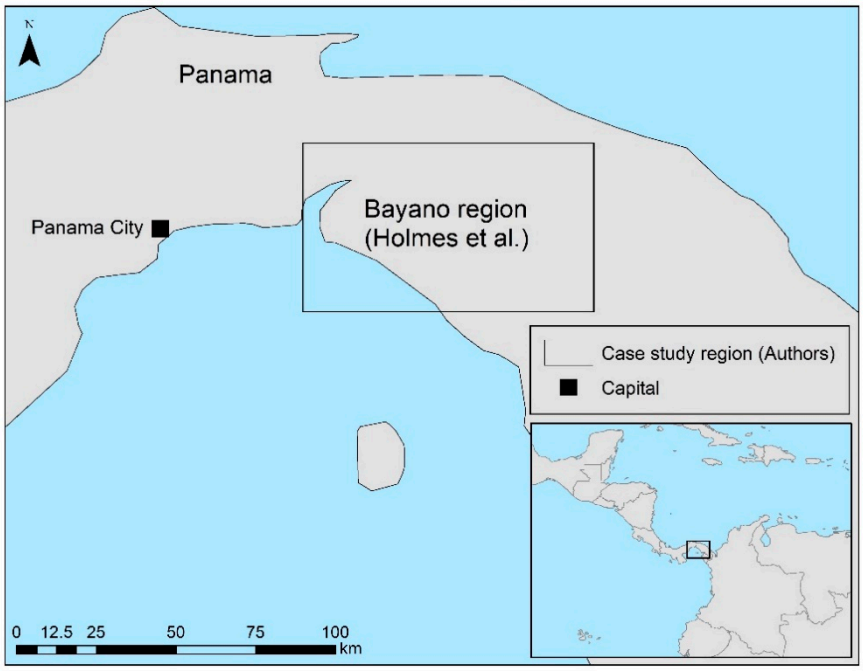

Figure 4. Location of case study in Panama (Syed Zulfiqar Ali Shah for the authors, based on Holmes [31]).

In the following paragraphs, we briefly introduce each case, providing an overview of the REDD+ project as well as the timeline, actors, and intensity of the conflict.

Kemerink-Seyoum et al. [29] investigated Central Ethiopia's reliance on organizational blueprints and how the focus on crafting institutions leads to unequal distributions of natural resources as a result of the enclosure of common land. There was ambiguity in the formation of associations of forest dwellers, leading to ineligible households having to leave the forest. Membership is through a small fee that increased during the project, preventing many people from joining. Non-members were restricted from the forest, leading to divisions between them and the members. The Clean Development Mechanism project involved the reforestation of 2700 ha of degraded communal land which was a source of livelihood to the residents. Some residents, however, opposed the initiation of this project by publicly protesting and marching to the implementing NGO's offices. On a few occasions, these turned into violent clashes with the police, and people being threatened and detained without conviction. The project's negative impacts included reduced fodder supply, which reduced the number of cattle kept by residents. Farmers also had to buy expensive charcoal from a neighbouring village and spend longer hours collecting firewood. They consequently indicated that they felt forced to illegally cut down trees or send their cattle into the forest without permission, leading to fines by the cooperative. Farmers who had been dispossessed of their land took legal steps: the courts ruled in their favour, but the land was never given back. On the other hand, the REDD+ pilot project built on an existing participatory forest management project, with institutional structures which proved to be a major source of tension and conflict. Youth were excluded from association membership and formed gangs that illegally cut down trees and sold timber. This led to violent clashes, causing severe injuries and lasting mental distress, which were not often prosecuted since the gang was feared by most residents. There have been disagreements between the cooperatives and project proponents due to a lack of transparency in benefit sharing and signs of elite capture.

Cavanagh and Benjaminsen [26] focused on a carbon offset project in Eastern Uganda in Mount Elgon National Park and evolving land-use conflicts. In 1992, the Forest Absorbing Carbon-dioxide Emission (FACE) foundation began reforesting degraded sections of the park as a carbon sink. The government opened the market for stored carbon dioxide for FACE to trade as compensation for carbon emissions. At that time there were around 25,000 ha of degraded forest. The process of reforestation at Mount Elgon Park was characterised by the ongoing violent evictions of communities with human right abuses and, in some areas, little or even no prior warning. Paramilitary evictions and controls continued over the next decade between 1993 to 2003. There are no official records of these evictions, but the overall figure is estimated at 6000–150,000 people, who were also not compensated for their loss of land and property or for their injuries. Although communities made accusations against the FACE Foundation and the Ugandan government, FACE denied that its activities had any impacts on land-use conflicts, and the Ugandan government insisted that all the evictions were legal. Mitigation measures were thus not implemented because of these denials of any wrongdoing.

Blum [25] focused on a REDD+ project in Western Uganda. In September 2001, a European forestry company acquired a 50-year license for 12,168 ha of forest reserve from the Ugandan government, to establish a pine and eucalyptus tree plantation as a carbon sink. After the official project start in 2002, conflicts began between the company and the local population who were no longer able to (fully) access the project area to graze animals, cultivate crops, produce charcoal or for cultural purposes. For several years, the company applied a "non-violent but confronting practice" as the CEO of the company phrased it, while "sweeping" ([25], p. 5) the local population out of the project area on a weekly basis. The local population consisted of the members of 20 villages surrounding the plantation and herders migrating to the project area from other parts of Uganda. In 2013, the situation between the company and the local population escalated as company guards burned down a hut located in the project area and beat three locals because they had

refused to follow the guards' orders. According to the company, the guards were dismissed, the police investigated the case and after some public pressure was put on the company in 2015, it paid 600 USD as compensation. Nevertheless, sporadic acts of violence still occurred, mostly when herders physically attacked company guards. The study identified limited access of the local population to the forest reserve and plantation as the key conflict driver. In addition, the criminalisation narrative used by the company to characterise the behaviour of the locals who accessed the project area worsened the tensions. Only when the company—partly as a response to criticism by the Forest Stewardship Council (FSC)—chose a more cooperative path did the relationship with the local communities improve.

Massarella et al. [27] focused on two REDD+ pilot projects in Tanzania (Kilosa and Rungwe villages) to analyse the expectations of the people involved in pilot projects that had different approaches to implementation. These projects were active between 2009 and 2014. At the national level, there were high expectations: strong statements were used to show the benefits of REDD+ to the people but the pilot projects began before key actors were fully aware of what REDD+ involved. Strong positive and negative expectations existed at the village level: some villagers feared eviction from their land which would be taken by Europeans, while others feared that wild animals would be introduced in their area. Village Land Forest Reserves (VLRFs) were then established and gazetted. VLFRs committees and leaders in both villages then evicted people with farms in the reserve areas. Kilosa's elevated expectations were influenced by the preliminary stages of project activity, with villagers receiving their first trial payment, the building of the project office and the establishment of some livelihood activities. However, due to the relocations that affected many people, conflict erupted between village leaders and people refusing to be evicted. The villagers were split between those who were for and those against the move. The conflicts continued even after the end of the project: about 25 farmers continued to farm in the VLFRs; threats of violence were reported by both parties and farmers who refused to move were taken to court. In Rungwe, however, the implementing NGO decided not to focus on the REDD+ hype. The NGO had concerns about " ... making promises to communities that you can't deliver" ([27], p. 380). Awareness of and participation in the REDD+ pilot project was only extended to village governments and committees. The village level actors had low expectation from the project. The number of people evicted from the VLFRs was also incredibly low and thus conflict was not experienced. The comparison of the experiences of the two villages emphasises the need for the recognition of trade-offs and their potential consequences for villagers.

Scheba and Rokotonarivo [37] investigated why REDD+ initiatives result in social conflict over land-use and negative outcomes for some stakeholders in south-eastern Tanzania, despite project proponents' commitments to pro-poor outcomes, social safeguards and good governance. Contestation over land boundaries and forest are frequent in this area. Forest loss was at 1.9% per annum in 2000 and 2006. Livestock keeping and small-scale agriculture through clearance of forestland are the main livelihood activities. In 2009, a REDD+ project commenced to reduce more than 110,000 t of carbon dioxide emissions. An emphasis during project implementation was put on obtaining free, prior and informed consent of project communities. Despite all these efforts, conflicts between villagers and local government emerged, due to unclear boundaries. The local government then threatened to put up a new land boundary by force. Much consultation and many project proponents raised the expectations of villagers concerning income from REDD+, so an agreement was reached. Forest bylaws were promulgated, governing the extraction of both wood and non-wood forest resources. New structures for forest governance at the village level were established. An equal payment scheme was adopted by the project to make trial payments, with the assumption that everyone should contribute and benefit equally from forest conservation. After this, however, inter-community conflict and contest restarted over forest ownership. Further confrontations arose when one village chased away farmers from another village from farming on their forest land; eventually, police dispersed them. Several conflicts were reported between other villages over land boundaries due

to the benefits of REDD+. Eventually, the project proponent, the local government and community members worked together to establish legitimate land boundaries. One farmer was, however, notably distressed over his lack of access to his farm, and many attempts to obtain justice from the village forest committee failed.

Hoang et al. [32] focused on a REDD+ pilot project in Vietnam's central highlands to explore the dynamics of conflict over forests. The area is inhabited by migrants and original landowners. Before 1975, the forest was customarily managed by three K'ho clan heads and the symbolic owners of the land. The community freely used the forest for cultivation, timber extraction, gathering forest products, and hunting. The state then abolished traditional customary rights to land and forest, and the K'hos' fallow land was considered "ownerless" ([32], p. 26). A state-sponsored migration programme then relocated thousands of people to the central highlands. They were allowed into the protected forest area for small-scale logging, cutting down small trees for house construction, and collecting firewood. Between 2003 and 2008, the forest sector changed, with a "red book" ([32], p. 26) (land certificate) being required for families to have rights over forest land. A Payment for Environmental Services (PES) programme resulted in the establishment of new and stricter rules for forest management and protection. Disputes erupted between the villagers and patrols because the former continued to exploit timber. Villagers and people from the surrounding areas "illegally" ([32], p. 27) encroached on the forest to grow coffee. The implementation of the REDD+ project was split into two phases—2009 to 2012 and 2013 to 2018—and was built on pre-existing institutional PES structures. REDD+ activities focused on about 55% of village households and commune officers. Some of the K'ho involved in PES raised the issue of injustice at different forums but their concerns received no response. Debates ensued over the agricultural development loan because the poorest households never met the criteria. Land tenure was also discussed regarding forest resources and PES. The K'ho regarded REDD+ as ineffective and oblivious to local norms of social equity. In interviews, they said, "REDD+ cares about trees, not about people" ([32], p. 30). They also engaged in "everyday forms of resistance" ([32], p. 30). They illegally cut down trees from the forest in the middle of the night or when the officials were on a break. Families with coffee plantations bordering the forest would expand their land by cutting trees each year around the forest boundary to increase their land.

Galudra et al. [30] showed how migrant communities to peatland in Jambi, Indonesia changed the dynamics of relations, land tenure and forest conservation. TanJaBar area changed land tenure from the 1970s to the present. The land was initially customarily owned but is currently both communally, privately and government-owned. The tenure changes are due to the influx of migrant communities; these migrants also changed the activities on the peatland from the original peatland forest. Conflicts between the local community and government started in 1997 when the Ministry agreed to increase the concession in the TanJaBar area from 35,580 ha to 43,750 ha. The area claimed was categorised as a non-forest area from 1993, although the government said the area is conversion production forest. In 2002, the land was demarcated, and 7224 ha of community land was identified as part of the new production forest area. The area belonged to migrants, some of whom had received documentary proof of ownership. The community held protests, but the company proceeded to convert the area into an acacia plantation. Conflicts became violent in 2010 at the "hot spot" ([30], p. 719) village of Senyerang. When about 1500 people demonstrated, two men were shot and one of them died. With political elections in 2010, one candidate promised the villagers that their land would be given back. After the candidates' victory, the community members became more aggressive. The land was then converted back to non-forest through the enactment of a new land-use plan. The company was reluctant to undertake any negotiations but bowed to pressure and the villagers became co-managers of the rubber plantation. While the villagers gained rights and access to the land, details of benefit-sharing remained under negotiation. In another village, conflict over access to forest peatland was reported. The regency forest agency (RFA) tried to claim the land back, but the migrants resisted the programme and it failed, prompting

RFA to consider changing the status of the land to non-forest. This will, however, lead to conflict with the national government due to their national emission reduction objective. The author emphasizes that successful REDD+ initiatives require a clear and secure tenure and that migrants influence over land tenure and relations with other stakeholders ought to be recognised in REDD+ projects.

Holmes et al. [31] show how a small bottom-up forest carbon-offset project which later became a 19 ha REDD+ project was impacted by existing land conflicts between members of an indigenous community and migrant farmers of Latino origin, called "colonos" ([31], p. 4), in Emberá, Eastern Panama. The study identified monetary compensation as the main interest of the community for participating in the REDD+ project. The conflict between the two groups began in the mid-1970s when the government displaced 400 indigenous Emberá and 2500 colonos to develop a hydroelectric dam. Both communities needed new land but, later, only the Emberá were officially given access to land while the colonos were not, losing their farms and grazing land. Tensions between the two groups heightened in 2009 when signs were put up, and a border and a community-based patrol were established to demarcate and protect the area for the REDD+ project. The colonos responded with threats of violence toward the Emberá and they continued to clear the forest inside the demarcated area. The conflict was resolved through the formation of an Advisory Council on Conflict Resolution that included local and national stakeholders. The council developed seven recommendations that mainly focused on the key underlying conflict driver: unclear land rights and confusion " . . . about the roles and responsibilities of government agencies in land law enforcement . . . " ([31], p. 10).

4. Results

We first describe the conflict pathways (Section 4.1) before presenting the effects of conflicts on local communities (Section 4.2) and their responses (Section 4.3), as well as conflict mitigation measures (Section 4.4).

4.1. Conflict Pathways

Key drivers of the identified conflict pathways include (1) injustices and restrictions over (full) access to and control of forest resources; (2) creation of new forest governance structures that change relationships between stakeholders and the forest; (3) exclusion of community members from comprehensive project participation; (4) high project expectations not being met; (5) changes in land tenure policy due to migrants; (6) aggravation of historic land tenure conflicts (Figure 5). There are differences, similarities and overlaps in the pathways.

Injustices and restrictions over access and control of forest resources were key conflict drivers that fed the conflict pathways in all case studies. Local community members were prohibited from accessing the project area for either farming, grazing animals, firewood, timber, or dwelling. However, one difference was noted in the Ethiopian case study. There, the membership fee for the cooperative societies was increased to reduce the number of those who could participate in the project and thus access forest: only association members were given (partial) access. Community members reacted differently to the restrictions that led to conflict (see Section 4.3). Elite capture was noted in influential members with connections to those in leadership who were allowed to (fully) access the forest [29]. The creation of new governance structures changed the relationship between stakeholders and the forest and led to the introduction of new powerful stakeholders—for example, the village council, the local village natural resource committee and the village assembly. Discrimination and injustice towards some villagers by the new village leadership were recurrent. Many people who sought justice for the loss of land and property from the leadership were unsuccessful, causing some to resort to the courts [27,37].

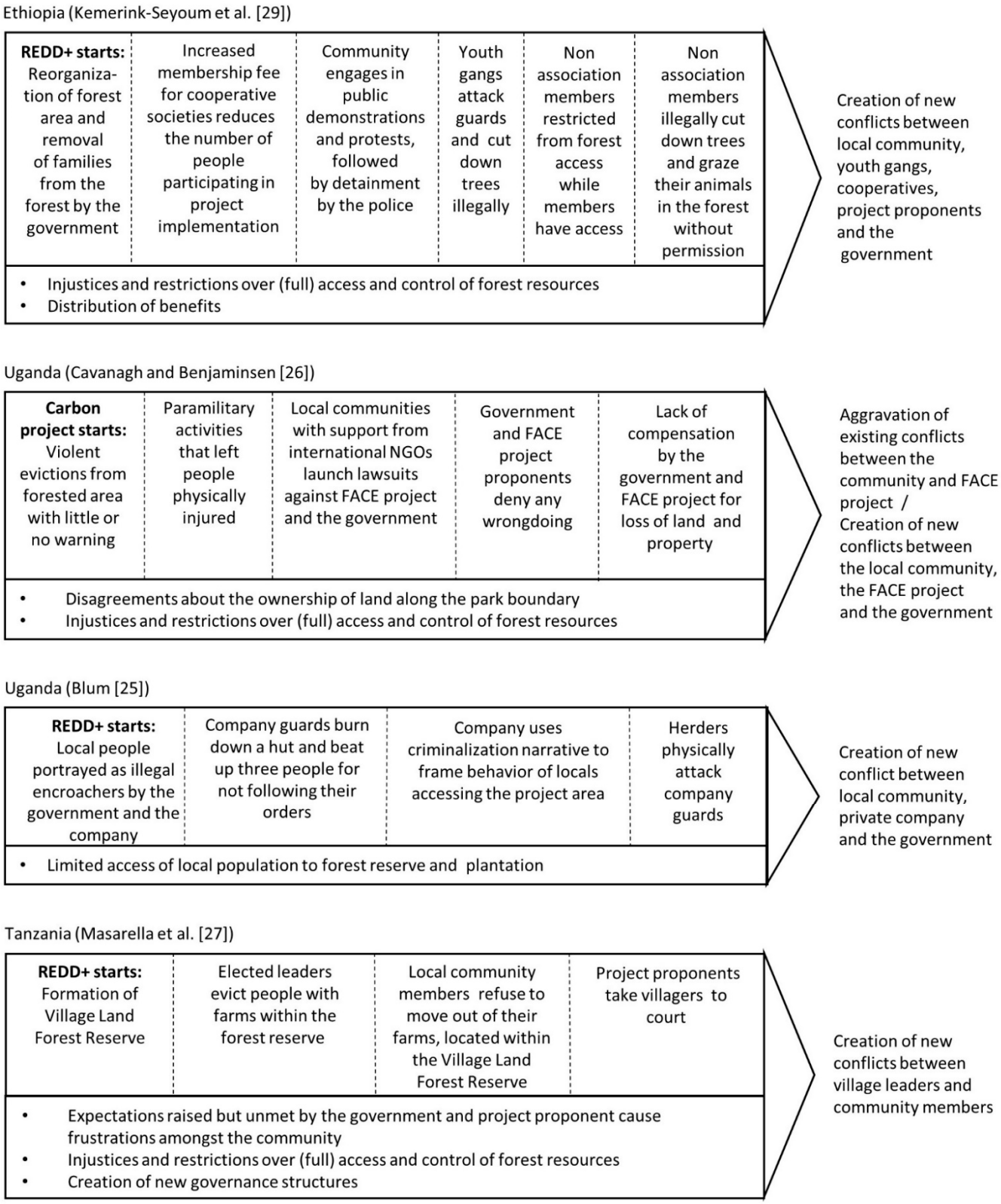

Figure 5. *Cont.*

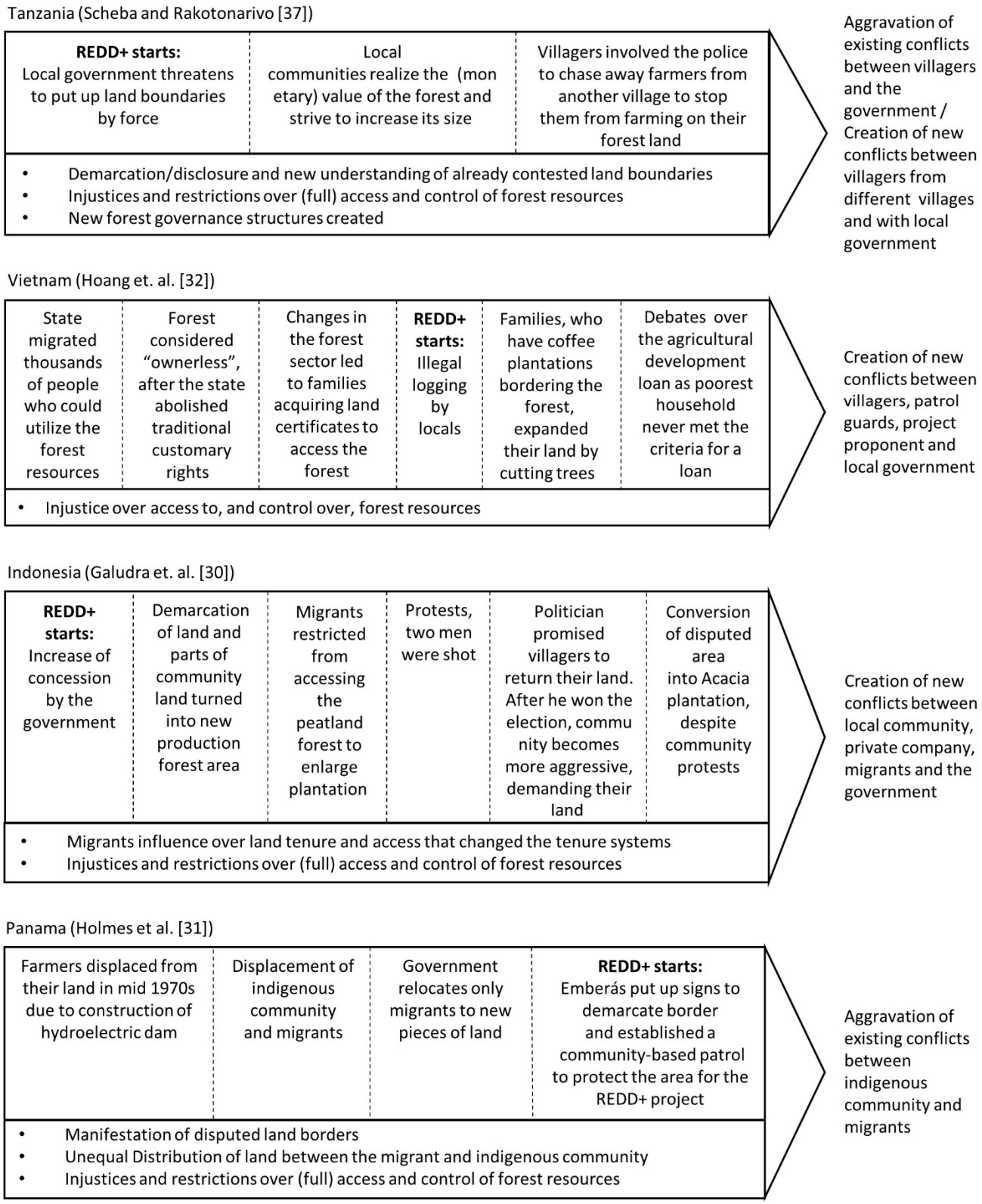

Figure 5. Conflict pathways (the authors).

Land tenure fed the conflict pathway in four cases. Two dynamics were identified: (i) migrants' influence over land tenure changed the interaction between stakeholders; (ii) the re-emergence of existing land tenure conflicts due to the implementation of REDD+ projects. Migrants were seen as intruders by indigenous communities because their pres-

ence changed the land tenure system and land utilisation, leading to conflict [30,31]. In Indonesia, migrants searched for more land despite being allocated holdings by the government while, in Panama, migrants were relocated after being displaced while the indigenous community was not. Scheba and Rokotonarivo [37] describe how a REDD+ project increased understanding of the importance of forests and their boundaries. Community members had a strong urge to conserve bigger pieces of forest with the expectation of higher carbon income. This resulted in conflicts with other villages. Historically, the four case studies experienced changes in political leadership that altered policies and legislation on land tenure systems. This led to misunderstanding and a lack of clarity for the community members as to who owned the land, creating tension and conflict. Confusion also existed regarding the roles and responsibilities of different government agencies in land law enforcement, derailing conflict resolution processes. For example, Hoang et al. [32] described the inability of two major agencies to resolve conflict because they lacked clarity on their mandate to address conflicts over land and land use.

Community members' participation in the REDD+ project was based on their hopes for high returns. Kemerink-Seyoum et al. [29] and Massarella et al. [27] described how national governments and project proponents invested heavily in raising local people's expectations on the project's benefits—which were not eventually met. These two case studies, however, used different approaches to raising community expectations. In Tanzania, local campaigns were conducted through the media and through roadshows to advertise the benefits of the REDD+ project to be implemented in a few selected sites. Unmet expectations then caused anger, a sense of betrayal and undermined the support for the conservation projects [27]. Similarly, in Ethiopia, cooperative members had been promised cash payments based on their shares. However, only well-connected members in some cooperative societies received financial gain through carbon benefits, leading to discrimination and anger amongst members [29].

The differences in the conflict pathways reflect the diverse perspectives of the forest-dependent communities towards land tenure. For example, four case studies had undergone changes in land tenure from communal to private ownership and then to government-owned. Before the implementation of REDD+ projects, forests in Tanzania and Indonesia were regarded as open access since the land was communally owned. The use of forest resources was viewed differently due to the different activities that communities practised. In all case studies, the forest was accessed for subsistence use. In two case studies [25,29], cattle herding communities depended heavily on the forest for grazing their animals; in three cases [30,32,37], communities owned plantations for palm oil, coconut, coffee and rice within the forest. Relationships and interactions with stakeholders from outside their territory shaped communities' reactions to the project. In one unsuccessful carbon offset project in Uganda [26], the local community experienced eviction by National Resistance Army paramilitaries, creating a sour relationship between communities, project proponents and the government. In seven studies, evictions were conducted by newly elected local leaders who sometimes involved the police or project proponents, creating division between those who were for and against the project. Lack of in-depth project understanding was also an issue in all the case studies. The local communities had an understanding of how the REDD+ project would positively change their livelihood while other important project features—for example, carbon markets and how prices were set—were not understood by the communities. This created agitation due to unmet expectations. Further differences were due to the diversified strategies used by the project proponents for project awareness, planning and implementation, and the varied stakeholders involved in project implementation. In one case study, an extensive community engagement strategy was used but conflicts occurred due to land tenure security, while, in seven of the case studies, community members were partially involved in the project cycle. This led to conflict in one case study, while six experienced conflicts due either to restricted forest access or new governance structures at the local level. Interestingly, Rugwe village in Tanzania did not experience conflict because very few people were evicted from the project area and the

project proponent did not inform the community about the benefits of REDD+. [27]. The major conflict actors included indigenous communities, migrants, government departments at the national and local level, and the project proponent (Figure 5). In some cases, cooperative societies, youth gangs and patrol guards were also involved.

In summary, we observed that the occurrence of a conflict caused by all the stakeholders involved in a project contributed to accelerating conflict pathways. Project proponents and governments contributed to the conflict by restricting communities' access to forests and full project engagement. Community reactions to these restrictive measures eventually led to conflict. In addition, the current and potential impacts of REDD+ on local communities often disrupted people's livelihood strategies, institutions, and socio-cultural systems, eventually leading to conflict.

4.2. Effects of Conflict on Local Communities

The analysis of the eight case studies shows that most of the local communities were severely affected by the conflicts, with some experiencing fewer negative impacts on their livelihood. More violent conflicts had more severe effects on local communities. Furthermore, it is evident that forest resources are a source of livelihood to all the communities in the eight case studies. They use these for farming, grazing animals, gathering firewood, timber, and non-timber forest products (NTFPs). We are in full agreement with other authors [38–40] who acknowledge that poor and indigenous people are vulnerable as they are often highly dependent on forest resources for their livelihood. However, due to conflict, local people can no longer (fully) access these resources. The effects of conflicts on local communities and their responses are summarised in Table 2.

In five out of the eight case studies, people lost farming land which was previously in government, private or communal ownership. The land in one project area was used for commercial oil palm farming. In four of the cases, the community used the land for subsistence farming. New restrictive rules and regulations on forest-related livelihood options led to a decline in forest-based income and reduced yields, leading to food insecurity and poor nutrition. Scheba and Rokotonarivo [37] give an example of a farmer who was distressed over his lack of access to his farm which was his sole source of livelihood. Many attempts to get justice from the village forest committee did not succeed, leaving him more vulnerable than before the project's implementation. Additionally, in seven case studies, the community was left with either physical or mental injuries, with some living in fear of being attacked by youth gangs and others being taken to court by the local government. In one case study, the conflict led to two people being shot, one died. Conflicts between different stakeholders led to divisions between those supporting and opposing the project. In four cases, the division was seen either within communities–between lower and higher social class households, the project proponents and other community members–or between the local community and the government. These divisions have led to further mistrust and injustice towards those opposing the project. For example, in Ethiopia, people who were against the project were denied positions in cooperative societies that ran the project. Additionally, in three of the case studies, communities experienced the loss of grazing land. In Ethiopia, due to the lack of grazing land, the prices for fodder drastically rose and farmers decided to sell some of their animals. Loss of land and property was a major issue experienced in four of the case studies. In two different projects from Uganda, people were violently displaced from their homes within the project area and their houses torched. Lastly, firewood and timber for subsistence use were not easily accessible. In Ethiopia, it was reported that the prices for firewood rose steeply. In Vietnam, the villagers illegally stole timber to build their houses.

Table 2. Effects of conflicts on local communities and their responses.

Country (Authors)	Effects of Conflict on Local Communities	Communities' Response
Ethiopia (Kemerink-Seyoum et al. [29])	Loss of • land/physical displacement. Division between • association members and non-members. Other effects • Immigrants evacuated from the forest back to their original homes. • Some community members are living in fear of being attacked by a youth gang. • Decline in the supply of fodder for animals, leading to increase in its price. • Decline in daily household nutrition and resilience for dealing with negative events. • Increase in price of firewood. • Severe physical injury and mental stress. • Detention without conviction by court of law. • Court decision for farmers to be compensated with their land not honoured. • Threatened with exclusion from access to public services. • Relinquishing positions held in the association.	• Farmers reduced the number of cattle they own. • Youth excluded from membership formed gangs that illegally cut down trees in the protected forest area. • When caught, gang members attacked forest guards with knives. • Illegal loggers bribed police to carry logs without licenses. • Gang members and project proponents taken to court by the community. • Fear of testifying against wealthy members of the association due to their influence on the association's decisions. • Walking longer distances to the neighbouring village to collect firewood.
Uganda (Cavanagh and Benjaminsen [26])	Loss of • land for crop cultivation. • property through evictions. Other effects • Injury and physical pain from paramilitary evictions. • Basic rights to access common property resources denied.	• Litigation against the government for seizing ancestral land. • Encroachment into the protected area.
Uganda (Blum [25])	Loss of • property: houses burned down. • grazing fields. • livelihood/increased poverty. Other effects • Physical pain caused by beating received from forest guards. • Defiant people taken to the police station to pay large fines while their cattle were confined and often injured.	• Migrant pastoralists and locals' resort to resistance and violence to access the restricted area. • Disobeying authority by continually "encroaching" ([25], p. 6) on the restricted areas. • Hunters and herders sometimes start fires in restricted areas to encourage the growth of new grass for their animals. • Farmer helped other cattle herders from 20 km away enter the forest reserve. • Afraid to approach project proponent. • Refuse dialogue with project proponent when they are wrong.

Table 2. *Cont.*

Country (Authors)	Effects of Conflict on Local Communities	Communities' Response
Tanzania (Masarella et al. [27])	Loss of • source of livelihood. • farmland through evictions. Division • within villages. • across villages. Other effects • Defiant farmers taken to court.	• People refuse to move from their land. • 25 farmers defiantly continue to farm in restricted areas. • Some villagers feel disappointed, cheated; lose confidence in the pilot project and any other future project. • Blaming village leaders as a source of the project's failure.
Tanzania (Scheba and Rakotonarivo [37])	• Anger, discomfort, and threats of economic and physical displacement. • Restricted access to farms.	• Villagers fight to increase their forest size and thus potential carbon income. • Villagers seek assistance from the district or police in their attempts to displace "illegal squatter" farmers. • Adversely affected farmers individually contest majority consent to expand forest reserve area.
Vietnam (Hoang et. al. [32])	Loss of • farmland.	• Illegally felling trees in the forest. • Illegally expanding farming land at the forest edge.
Indonesia (Galudra et. al. [30])	Loss of • land. • livelihood from oil palm farming. • life: two people shot, one fatally.	• Increased aggression in retrieving lost land. • Opposition to new forest conservation programmes from the government. • Demonstrating against the pulp and paper industry.
Panama (Holmes et al. [31])	Loss of • farm and grazing land to the migrant community. Division between • indigenous community and migrants. Other effects • Farmers paid a fine of $1000–$1500 and ordered to cease any "environmentally detrimental" activities.	• To prevent migrants from accessing the project site, forest landowners: (i) posted signs to delineate deforestation parcels to avoid; (ii) trained a community-based patrol to ensure compliance; (iii) established a reforestation border in the conflict area. • Migrant community continued to clear an estimated 36 ha. of forest. • Community leaders initiated dialogue to resolve conflict.

4.3. Community Responses to Conflict

Community responses to conflict differed according to the land tenure system (communal, government or privately-owned land), whether the conflict was violent or not, past experiences with conservation projects, and already-existing conflicts before project implementation. These responses were either by individuals or groups. Some private landowners and community leaders developed strategies to resolve conflict, though the process failed and the conflicts continued [31]. On the other hand, in five case studies, communities on communally-owned and government land reacted more aggressively against government officials, project proponents and the immigrants [25,26,29,30,37]. In five case studies, community members took part in demonstrations, attacked forest guards and, in some instances, beat them up or threatened them with knives, organised for migrant herders to invade the protected areas, or started fires in the project area, while others went to court. Youth gangs were also formed in one case study: they involved themselves in illegal logging and were seen as a threat to the entire community. However, in three case studies, the communities decided to engage in "power to resist" ([25], p. 2) by illegally felling trees, farming on either the edges or within the protected area, and refusing to participate in new projects or dialogue as suggested by the government or project proponents [27,31,32]. In one turn of events, the Vietnamese local state forest management agency was involved in illegal tree felling from the protected project area due to conflicts that had arisen between them and the project proponent; this demonstrates the power held by the local government vis-à-vis global intervention [32]. In three project sites, local communities were both actively aggressive and engaged in everyday resistance [25,29,30]. Furthermore, illegal loggers without licenses bribed the police, some people walked for longer distances to collect firewood, and some community members, due to fear, chose to remain silent rather than testify against the government, wealthier groups, or youth gangs. Finally, a feeling of disappointment, of being cheated and a lack of confidence in the conservation programmes were observed in two case studies [27,30].

4.4. Conflict Mitigation Measures

Conflict mitigation measures were implemented in six of the eight case studies. The measures were implemented either by project proponents in collaboration with local and national governments and local communities or by a court ruling. It was observed that in five case studies, mitigation measures were implemented because of litigation against the government and project proponents, criticism by the media and human rights organisations, reviews and recommendations by international auditors, and external pressure from other stakeholders [25,26,29–31].

Two case studies had courts of law rule in favour of the community members, who were then allowed to return to their farms, with further evictions and destruction of property ceasing [26,29]. In cases of land tenure conflict, the project proponents worked together with the government and the local community to develop legitimate land boundaries and integrated land-use practices with the project [30,37]. Community members were also fully involved in the project cycle and in co-managing a private rubber plantation company operating within the project area. Furthermore, access to restricted forest areas was regulated through the formulation of a formal protocol. Community members were permitted partial access to the project area for their livelihood. The formation of an advisory council on conflict resolution and an emphasis on peaceful co-existence between "good neighbours" [25] was achieved by project proponents and the government [25,31]. In the case study that featured conflict over the sharing of benefits, the cooperative made the unilateral decision to pay cash to their members under the pretext of micro-credit services, an equal payment scheme created, and benefit-sharing of the rubber plantation was under negotiation [29,30,37]. Finally, in Uganda, the project proponent built boreholes for the community to freely access water for their animals and daily use [25]. In two case studies, no mitigation measures were implemented [27,32]. Table 3 provides a summary.

Table 3. Conflict mitigation measures.

Country (Authors)	Conflict Mitigation Measures
Ethiopia (Kemerink-Seyoum et al. [29])	Court ruled in favour of farmers as legal tenants of land, and they should be allowed to return to it. Forest cooperative's unilateral decision to pay cash to its members under the pretext of micro-credit services.
Uganda (Cavanagh and Benjaminsen [26])	Project subjected to a series of independent examinations by one of the world's largest and most respected audit firms. Favourable consent judgment that recognised the community as the "historical and indigenous" inhabitants of the Mount Elgon Forest. Further evictions and destruction of property stopped by the court.
Uganda (Blum [25])	Regular meetings between government and local community to clarify land titles. Changes in the enforcement policy from a strict one-to-one dialogue. Collaborative livelihood support programmes established. Dismissal/reduction of the number of forest guards. Grievance procedure to investigate conflict claims was carried out by a carbon market consultant. Company stopped tree planting on 1000 ha. of land, contested by neighbouring farmers. Matter forwarded to NFA to seek clarity about its owners. Depending on the age of planted trees, the company tolerates cattle grazing within the reserve. Company built six boreholes and 15 valley dams close to the project area for the farmers to freely access water. Access to restricted area regulated by formal protocol. Collaborative monitoring with local leaders. Company emphasizes peaceful co-existence between "good neighbours", as well as attracting enough rain for the future.
Tanzania (Masarella et al. [27])	No mitigation measures implemented,
Tanzania (Scheba and Rakotonarivo [37])	New forest governance developed and implemented. Equal payment scheme created. Legitimate land boundaries developed. Integrated land-use planning exercises discussed, mapped, and documented.
Vietnam (Hoang et. al. [32])	No mitigation measures noted.
Indonesia (Galudra et. al. [30])	New land-use plan developed. Villagers co-manage a private rubber plantation company. Benefit-sharing of rubber plantation under negotiation.
Panama (Holmes et al. [31])	Formation of Advisory Council on Conflict Resolution and REDD+.

5. Discussion

This paper takes a political ecology perspective to analyse the conflict pathways of eight REDD+ projects in sub-Saharan Africa, Southeast Asia, and Panama. Six key conflict drivers which have accelerated these conflict pathways were identified: (1) injustices and restrictions over (full) access and control of forest resources; (2) creation of new forest governance structures that alter the relationships between stakeholders and the forest; (3) the exclusion of community members from comprehensive project participation; (4) high project expectations which are not met; (5) changes in land tenure policy (party due to migrants); (6) aggravation of historic land tenure conflicts. Several events caused by either the government, project proponents or the local communities further contributed to the conflict pathways. Forest-dependent community members were restricted from forest access because they were labelled "illegal encroachers" ([25], p. 5). This led them to embrace "power to resist" ([25], p. 2.) through engaging in public demonstrations, assaulting forest guards, organising migrant herders to graze their animals in the forest reserve, and illegally encroaching the forest reserve for farming and logging. In most instances, they were not successful since they were opposed by elected local and association leaders, the government and project proponents who had more power. Forest conservation projects change relations of power, accountability and representation between stakeholders [41,42]. Our findings are therefore in line with other authors in illustrating that power disparities within local communities lead to inequitable benefit-sharing across actors [43–46]. REDD+ ought not to forcefully remove the rights of existing communities nor restrain local forest access [47]. To ensure equitable development and socio-environmental justice, communities should be equal stakeholders with full information access and consent to REDD+ [35,48]. Migrants have influence over land tenure, changing the policies and interaction between stakeholders and exacerbating existing land tenure conflicts. Land tenure security is a major challenge for REDD+ projects [49–51]. Our findings support scholars who argue that rights over land and forests are layered and overlapping, often contested and usually ambiguous, and exist in a pluri-legal setting [52–54]. Tenure arrangements play a critical role in determining equitable participation in and access to REDD+ benefits [55–57] and the attainment of social and livelihood outcomes [50,58–60]. The clarity and security of land tenure are key to the success of REDD+ and access to its benefits. We identified signs of forest decentralisation in some case studies, in line with the concerns raised by several authors [61–65]. The creation of new governance structures empowers and authorises those in leadership and hence creates a potential for abuse.

To prevent abuse of power and the described negative effects of REDD+ projects on local communities, the United Nations Framework Convention on Climate Change (UNFCCC) has guidelines and safeguards in place. One of the safeguards demands "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" ([66], p. 26). Further, the UNFCCC calls for "The full and effective participation of relevant stakeholders, in particular, indigenous peoples and local communities [. . .]" ([66], p. 26). Contrasting these demands with the findings of our study, one can conclude that the safeguards in the analysed case studies were ineffective because they were either disregarded or poorly monitored and implemented. Approaches such as Free Prior and Informed Consent (FPIC) had very limited success in empowering local communities as examples from the extractive industry have shown [19]. One reason is that FPIC is often seen by project proponents and implementers as a way to legitimatise a project and to minimise risks, rather than to actually protect indigenous or community rights [67]. Milne and Mahanty ([34], p. 133) provide detailed insights into the techno-bureaucratic regime behind REDD+ and its "audit culture" which they call "apolitical and indifferent to local realities". Based on their case study on a REDD+ project in Eastern Cambodia, Milne and Mahanty ([34], p. 133) even argue, that the certification and monitoring mechanisms behind REDD+ allowed the national government

to exert "bureaucratic violence" on local communities to silence criticism and implement unjust (project) measures. Similarly, Pasgaard ([35], p. 122) identifies a "risk of procedural inequity in REDD+". Inequity and inequality also determine whose values matter [36]. In extreme cases, this can lead to a situation in which local community members "[...] see themselves as subjects of controlled lab experiments, or guinea pigs, rather than as having agency and control of their options [. . .]" as Sanders ([33], p. 79) conclude based on their case study on a REDD+ pilot project in Indonesia.

Against this background, we not only call for an assessment and revision of the REDD+ safeguards and their implementation but more generally for a shift in how local communities are considered in REDD+ projects. Rather than seeing or portraying locals as obstacles who, at best, need to have some co-benefits and "effectively participate", it is local communities and their rights, livelihoods and benefits which need to be placed at the centre of each REDD+ project. This implies switching the priorities of REDD+, which should thus become community development programmes with some carbon reduction effects rather than the other way around. Without this change, REDD+ will continue to undermine local livelihoods and (re-)produce conflict pathways.

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