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Forest Islands and Castaway Communities: REDD+ and Forest Restoration in Prey Lang Forest

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Academic Editors: Esteve Corbera and Heike Schroeder

Received: 31 October 2016; Accepted: 2 February 2017; Published: 17 February 2017

Abstract: Climate Change policies are playing an ever-increasing role in global development strategies and their implementation gives rise to often-unforeseen social conflicts and environmental degradations. A landscape approach to analyzing forest-based Climate Change Mitigation policies (CCM) and land grabs in the Prey Lang Forest landscape, Cambodia revealed two Korea-Cambodia partnership projects designed to increase forest cover that are juxtaposed in this paper. Case study data revealed a REDD+ project with little negative impact or social conflict in the project area and an Afforestation/Reforestation (A/R) project that created both social and ecological conflicts. The study concludes that forest-based CCM policies can reduce conflict through efforts at minimal transformation of local livelihoods, maximal attention to the tenure rights, responsibilities, and authority of citizens, and by improving, not degrading, the project landscapes. The paper presents the circumstances under which these guidelines are sidestepped by the A/R project, and importantly reveals that dramatic forest and livelihood transformation had already affected the community and environment in the REDD+ project site. There are deep contradictions at the heart of climate change policies toward which attention must be given, lest we leave our future generations with nothing but forest islands and castaway communities.

Keywords: Cambodia; climate change; landscape; REDD+

1. Introduction

On opposite sides of Prey Lang forest in central Cambodia are two Korea-Cambodia partnership projects that are part of a larger Memorandum of Understanding between Cambodia's Forest Administration and the Korean Forest Service to invest in Cambodia's forests and provide administrative assistance toward reducing climate change (Interview "NGO Forum" 15 February 2015; Interview Think Biotech 11 January 2016). The most recent is the Korea-Cambodia Tumring REDD+ Project (T-REDD), established in July 2015 between Cambodia's Forest Administration (FA) and the Korean Forest Service (KFS). The second is an afforestation/reforestation (A/R) project in Kratie Province, established in December 2010, between the Forest Administration and the Think Biotech Cambodia, co. ltd. Phnom Penh, Cambodia (TB), a subsidiary of Korea's Hanwha Corporation. Their juxtaposition as forest-based climate change mitigation (CCM) projects enacted in the same landscape highlights some of the contradictions through which such policies are enacted.

This paper engages in the emerging global discourse in forest-based CCM initiatives that facilitate international claims to forests in Cambodia. The green grabs described in this paper are an unapologetic initiative in "securing overseas forest resources" by the Korean government [1]. Issues explored through this investigation speak to a growing body of literature concerned with the structures of governance that control exclusion and access [2,3] in the wake of land grabs in both their conservation-oriented green varieties and their more traditional economically-oriented earth toned

versions [4,5]. This study situates conflict at the level of political, economic, and ecological policies and practices that privilege one type of land use over another and divest certain communities of their use rights.

A landscape approach to analyzing CCM and land grabs revealed the productive juxtaposition of two case studies enacted on opposite sides of the same vital protected area, which may have been analyzed in isolation using a project-based approach. Data were collected using a method that co-produced knowledge with citizen researchers, revealing the forest as a common pool resource that was and could continue to be sustainably managed by communities interconnected through it. Further, this research method supports actions for change, which generated alternative scenarios for project implementation discussed at the end of the paper. I argue that new tools are necessary for grappling with the profound contradictions of our coming green economy and that the three-part method of landscape perspective, local collaborations, and actions for change applied in this research can make space for fresh perspectives.

The data presented here contributes to critiques of market-based approaches to climate change policies [6,7] and discourses of sustainable forestry [8,9]. The forest restoration project is enacted as a for-profit business venture that can be green-washed because it claims to enhance forest carbon sequestration to mitigate global climate change [10]. The carbon utility of plantation forests is under debate [11], and TB has negative effects on the communities and natural resources in its area. The T-REDD project circumvents some of the pitfalls encountered by other REDD+ projects [12,13] for two reasons. The first is timing. The project area was already transformed and people already divested of their access to forest resources before the enactment of the project. The second is market orientation. T-REDD is a publicly funded project not directed toward supplying carbon credits for sale on the open market; it is designed to provide direct offsets for carbon-intensive Korean business practices inside Cambodia (Interview FA 5 September 2016).

I will demonstrate in this paper two distinct discourses engendered by climate change policies. The first involves the cynical green-washing of intensive extraction and the second shows measured attempts to grapple with the shortcomings of REDD+ governance structures in order to retain threatened forest areas. The TB project explicitly devalues traditional, sustainable livelihoods and citizen authority over land use in favor of planned reforestation and biodiversity conservation with corporate authority over land use. The discourse of the T-REDD project explicitly values citizen authority, sustainable livelihoods, and forest retention within the project boundaries. What is provocative about this juxtaposition, is that the landscape of the T-REDD project is the least conducive for meeting many of the project's objectives, it is already very degraded, is easily accessible by roads, and is under great pressure from a densely populated area. The landscape of the TB project, on the other hand, retains a great deal of biodiversity, has limited pressure for land conversion, and is in a very remote part of the forest. Both areas have a strong community, engaged in sustainable forest use, but in Kampong Thom they are pressured by incoming migrants. The evidence I will present suggests that switching project landscapes, or re-adjusting boundaries, could reach the full potential of each project's objectives with maximum benefit for the social and ecological communities in each location.

To support this claim, I first introduce the project landscape and the particular methodology deployed for this study. A brief review of the relevant literature on forest plantations and on REDD+, as carbon-reducing enterprises is followed by a discussion of those initiatives in Cambodia and descriptions of both projects from the ground, informed by the work of citizen researchers. The policy documents for each project are then evaluated considering Cambodia's national policies and the social and environmental objectives for each. The closing discussion describes the altered landscape possible through flexible planning that attempts maximum benefit for local communities.

2. The Landscape: Prey Lang

Prey Lang remains one of the largest contiguous lowland forests in Southeast Asia, ranging from 300,000 to 600,000 ha, depending on who reports the figures. The newly designated Prey Lang Wildlife Sanctuary (PLWS), is 431,683 hectares and captures most, but not all, of the forest recognized by long-term residents of the area (Figure 1).

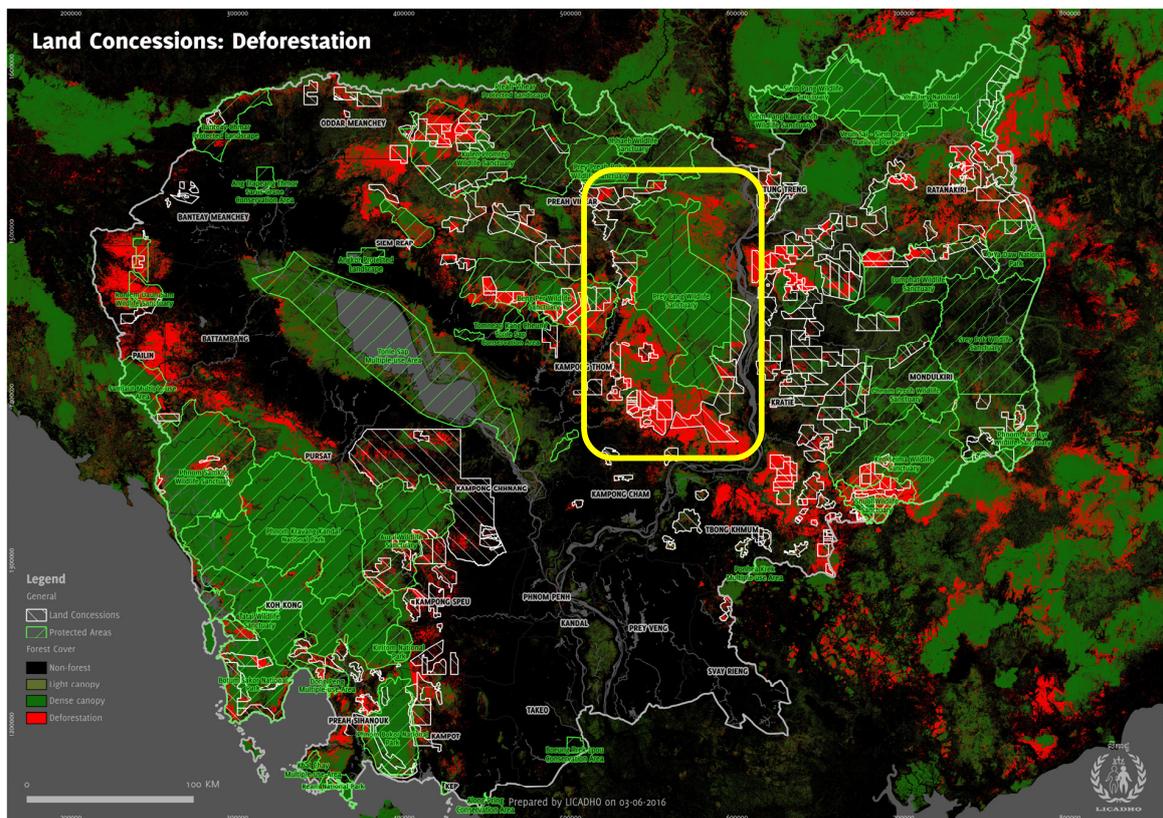


Figure 1. LICADHO (Cambodian League for the promotion and defense of human rights) forest cover map with Economic Land Concession (ELC) and protected area (PA) boundaries, 2016. Forest cover is green, deforestation is red. Green outlines are Protected Areas and white outlines are ELC [14].

The boundaries of the forest intersect four provinces: Preah Vihear, Steung Treng, Kampong Thom, and Kratie and sit between the Mekong and the Sen Rivers (Figure 2). Prey Lang is an important watershed for the Mekong and the Tonle Sap lake and the region is the site of a drawn-out struggle for forest resources that began with Cambodia's transition to a market economy in the early 1990s [15,16]. The degrading effects of this market transition on the landscape and lives of the people in Prey Lang makes the forest a target area for forest-based CCM policies [6]. The projects highlighted here, T-REDD and TB, are located in Kampong Thom and Kratie/Steung Treng, respectively (Figure 3) and each will be discussed in their affected areas and in relation to the larger landscape.



Figure 2. Prey Lang Wildlife Sanctuary (PLWS) in relation to provincial boundaries. Map from GoPhnomPenh <http://gophnompenh.com/phnom-penh-overview/>.



Figure 3. Tumring REDD+ Project (T-REDD) circled (project area is green); Think Biotech Cambodia, co. ltd. (TB, Phnom Penh, Cambodia) squared.

T-REDD is located at the south-western edge of Prey Lang forest in Kampong Thom province. It is an easy to access area of intense land conversion that began in the early 1990s with Forest Concessions (FCs) for industrial logging and continued through Economic Land Concessions (ELCs), a land titling campaign conducted by Prime Minister Hun Sen in 2012, and a Social Land Concession (SLC) in 2013. After Forest Concessions were cancelled in 2001 and before the land titling project in 2012, the national government awarded 16 ELCs (outlined in white) and 23 community forests (CFs) in Sandan District, Tumring, and Mien Rith communes (for more on the CF initiatives in Cambodia, please see [17–19]). Today, some stand as islands, cut off from Prey Lang forest by clear-cutting and ELCs, while others reach out from Prey Lang forest like archipelagos in a sea of cassava and rubber

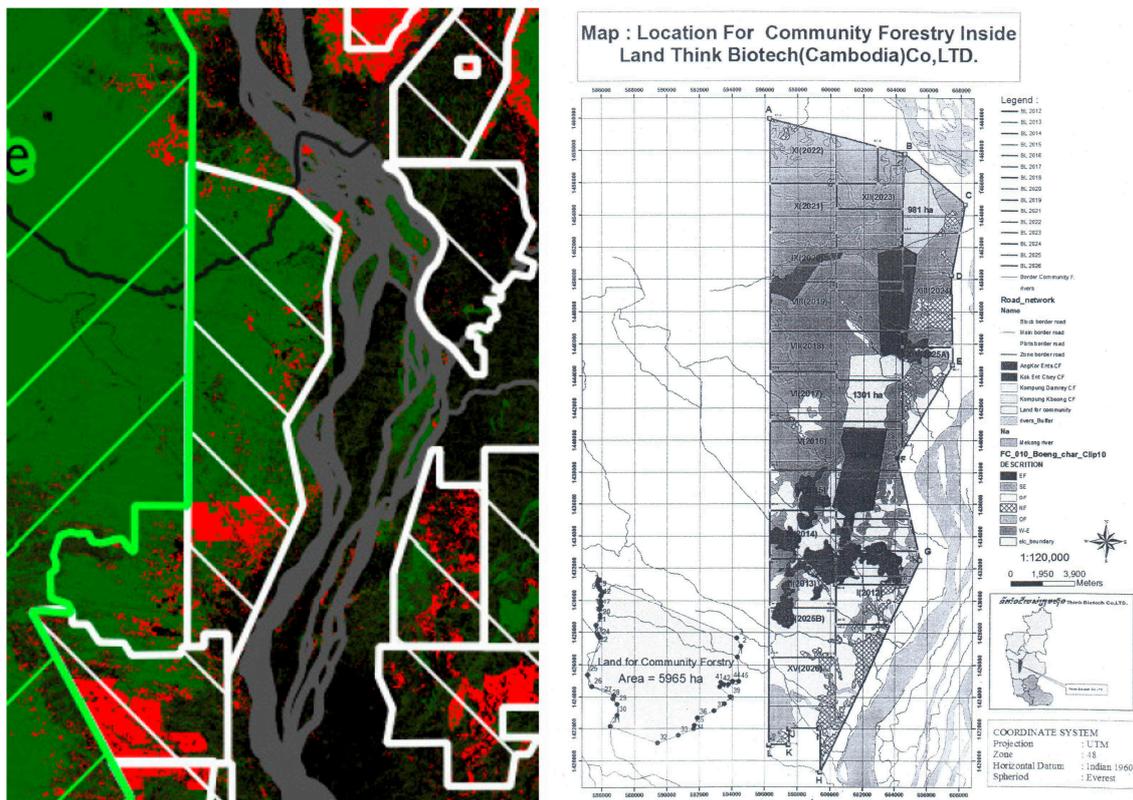


Figure 5. Think Biotech (TB) forest cover map (left). Think Biotech project map with four CFs labeled (right).

These two CCM projects involve the same governing bodies and are part of the same Memorandum of Understanding between the Korean Forest Service (KFS) and Cambodia's FA, designed to enhance forest resources, increase biodiversity, and enhance livelihoods. REDD+ does this by controlling cutting in natural forest; TB does this by removing natural forest and replacing it with, controlled plantation forest that will decrease reliance on the natural forest. The TB project is clear-cutting natural forest for a tree plantation on the most isolated edge of Prey Lang where customary cultivation practices were the norm and pressure on the forest was light. The company's dramatic land conversions have caused both environmental and social conflicts within and without its project boundaries. The T-REDD project, on the other hand, encompassed existing CFs along with remaining forested areas of state land. It was implemented on the most vulnerable boundary of Prey Lang in an area where customary livelihoods were already transformed and the forest was heavily degraded. This project has created few reported conflicts with local communities.

3. Methods

This paper is part of a broader research project, called "Mosaic: Climate change mitigation policies, land grabbing and conflict in fragile states: understanding intersections, exploring transformations in Myanmar and Cambodia". Mosaic develops a new research agenda that explicitly studies the interactions between climate change mitigation initiatives, land grabs, and resulting patterns of conflict [10]. The methodological approach has three parts. The first is to take a landscape perspective, the second is to co-produce knowledge between academic researchers and affected communities, and the third is to support actions for change. The landscape approach is outlined in the framework paper for this project [8], where the authors "conceptualize landscape as a 'place' where physical and socio-cultural elements occur in localized, spatially specific combinations and where human actors dynamically interact. Thus, a landscape is both ecologically and socially fluid and changeable,

but also holds continuities A landscape is thus a space larger than a farm but smaller than a region, in which physical, ecological, and human dimensions co-exist as a product of socio-ecological and cultural co-evolution There is no single formula for determining where a landscape ‘ends’.” For this project, the landscape is based on the interconnected ecosystems of the large forest, and on the social relationships among the Prey Lang Community Network (PLCN), collective forest activists from all four provinces since the early days of exploitation [9].

In this research project, the co-production of knowledge emerges through three main activities: training, research, and information sharing. First, Mosaic researchers trained the PLCN in research methods and forest-based climate change mitigation policies. Second, Mosaic researchers and the PLCN conduct research related to Mosaic objectives together. The PLCN also conducts research in their areas according to their needs, for example, researching the activities of new mining operations, elite capture of forest land, or the exploitation of CFs. Data and insights from this research overlaps with Mosaic concerns and are shared and discussed with Mosaic researchers. Third, the PLCN shares data with Mosaic about forest crimes and the activities of companies, government officials, and conservation organizations. In turn, Mosaic researchers share information from their desk and urban research by translating and explaining new policy and land use initiatives that may affect the PLCN and by sharing new information learned through interviews with donors or companies. Community and academic researchers are in regular contact and alert each other to emerging concerns.

The third part of the Mosaic research initiative, supporting action for change, entails bringing what academics know about the concerns and situations of affected communities to other stakeholders informing and influencing policy and projects. It also involves helping to bridge the divide between local authorities and the PLCN.

This method brings to light the spillover effects of climate change policies like REDD+ or A/R, which include the disjuncture between project documents and project activities, the privileging of monetary benefits over biodiversity or other benefits, and the leakage of deforestation outside the project area. These policies and projects also spillover and intersect through social and ecological feedbacks that shape each other within a given landscape. When that landscape lacks strong governance and is being rapidly converted toward commercial purposes, the dynamics of land use, conflict, and cooperation are instructive for understanding the political-institutional conditions in which just and inclusive solutions might be created.

Research was conducted between January 2015 and September 2016 (with the assistance of RONG Vannrith, THUON Ratha, SONG, Danik, and SEAKCHHY Monyrath, each connected with Mosaic partner organizations in Cambodia: Equitable Cambodia and the Cambodian Peace Building Network—data was importantly supplemented with reports from the PLCN), combining participant observation methods with formal and informal interviews, group discussions, and secondary literature reviews. All interviews were conducted in Khmer or English. Grassroots-level data were collected in cooperation with local research teams. Mosaic researchers conducted research during four forest patrol activities, each consisting of five days and four nights in the forest with PLCN members and in 18 meetings with government officials, non-governmental organizations (NGOs) and international non-governmental organizations (INGOs) and community representatives related to forest governance, climate change, and conservation initiatives. These activities provide important context for the interview data collected from the four communes affected by the two projects of this paper: eight interviews with local authorities, focus group discussions with 11 of the 14 CFs in the REDD+ project (researchers were unable to reach the last three CFs and since the data received from all the others was remarkably similar and corroborated with that of other participants during forest patrol and meetings this was not pursued further), focus group discussions with seven villages affected by TB, and individual interviews with seven key informants at the community level. Additionally, interviews were conducted with eight NGOs working in the area, and six interviews with national Forest Administration officials, two interviews with TB company representatives, and one with the company that performed the Environmental Impact Assessment for TB. National authorities and

company voices are underrepresented in this study, despite efforts to reach them. Especially missing are the voices of the Korean Forest Service, with whom every attempt at contact failed. Nonetheless, I feel confident that the data presented supports the claims of this paper.

The benefits of gathering data using the approach here described is that it situates two CCM projects, REDD+ and A/R, together in the same social and physical landscape where research can draw out the historical, bureaucratic, and socio-economic intersections of each project. The input from citizen researchers brings important information to bear on the land-uses and use potentials of the respective project sites, as well as understandings of community capacity for conservation initiatives. This information was instrumental in considering how changes to project implementation and governance strategies could decrease conflicts while achieving project goals. Analyzed separately, these two projects show the characteristics of conflict-light or conflict-heavy implementations of CCM policies. Thinking about them together in the same physical, social, historical, and policy landscape, however, provides space to move beyond the silos of activities within individual projects and begin to address the implications of the system as a whole.

4. Forest-Centered CCM: REDD+ and Forest Plantations

REDD+ is an international instrument designed to preserve forest resources by creating a market for the carbon that they store. The mechanisms through which carbon is captured, measured, bought, and sold vary considerably, but the use of REDD+ to offset other carbon-intensive activities continues to create inequitable outcomes by privileging forest management programs under international frameworks over more traditional methods of sustainable forest management [10]. Globally, REDD+ exhibits multiple types of implementation “running ahead of policy processes and state-driven decisions” [12] and also ahead of any internationally agreed upon process [13]. The discourse and practice is increasingly dominated by donor-driven policy narratives and technological interventions that depoliticize climate mitigation, maintaining current structures [20] and obscuring the discourses and values that underlie them. By focusing on the value of carbon and future funds from donor organizations or rich countries, the issue of deforestation and forest protection becomes “a mere footnote” [21]; diminishing the value of biodiversity [22], and the value of healthy human communities in forests [23]. Additionally, situating shifting cultivation or charcoal production as the main drivers of deforestation in REDD+ project areas, devalues the benefits of shifting cultivation, and leaves the industrial drivers of forest loss unmentioned, unquestioned, and unaffected by REDD+ [24].

As forest-based processes, the main difference between REDD+ and A/R is their approach: REDD+ is designed to keep forests standing, while A/R creates plantation forests where there are no trees. A/R projects attempt to increase industrial forest conversion through the Clean Development Mechanisms that promote managed forest cultivation and increase leafy green canopy above the bare earth for carbon capture [25,26]. In doing so, tree plantation developers that are able to invest in large-scale forestry can provide sustainable forest management and climate change mitigation [27]. In many cases, however, A/R projects are implemented in forested areas and follow the patterns of the global land grab crisis [5,28], in which small holders and indigenous people are violently dispossessed of their lands and livelihoods [29]. Case studies suggest that industrial forest plantations are neither more profitable [30], nor sequester more carbon than REDD+ or business as usual timber harvesting [31].

Both REDD+ and A/R projects settle in landscapes with existing political and economic activities [32,33] and are affected differently by various tenure and documentation issues. Communal tenure in a Cambodian REDD+ site resulted in restricted access to forest resources and resin trees [34], while this case study shows how clarifying CF tenure made protecting forests easier (*cf.* [35]), but issuing individual land titles for market crops in the same landscape put significant pressure on the forest (*cf.* [36]). REDD+ is continually confronted by its dual focus at once enhancing forest protection and increasing commercial activities [37,38]. Forest plantations tend to have less varied and more destructive effects on the social and ecological environments of their enactment [39].

The TB project documents state that the project will “stop forest clearance . . . and reduce the utilization of natural forest” [40] (translation by author from original Khmer). This effectively excludes forest dependent people from using the natural forest for subsistence, and increases timber exploitation outside project boundaries because there is legal timber exported from the region (Interview community rep 15 February 2016). Additionally, it opens the region with roads and infrastructure that facilitates cutting high-value timber for elite markets [41], makes space for local elites to profit from the timber trade and also convert land to grow market crops, and it pushes marginal villagers to clear forest to replace land lost to the company and to replace subsistence economies with market-based crops. Plantation jobs are limited and the salary is incomparable to traditional livelihoods (*cf.* [42]). What is available is freelance logging and plantation crops, both of which put pressure on forest land and increase market-based economies.

REDD+, on the other hand, is not market based due to the limited market for carbon [13]. The process of offsetting was designed to function under free market principals, but after many years of attempts, REDD+ looks more like direct patronage. For example, a transaction orchestrated by the Wildlife Conservation Society (WCS), Disney corporation purchased 14 million metric tons of carbon dioxide equivalent emissions for \$2.6 million. Funds from this deal are “earmarked to help the government protect the Keo Seima Wildlife Sanctuary and will be handled through the Ministry of Environment” [43]. The influx of capital from the private sector and other governments flows into the newly created bureaucratic structures for managing climate finance in fragile host governments [44,45]. The emerging effects of this are ministries competing for environmental funding sources [46] and continued forest loss. The logics of a market economy seem to be unequal to the challenges of deforestation and of mitigating its climate changing effects.

In this environment of under-funded and donor-dependent state systems, the two cooperative projects between Cambodia and the Korean government are both framed using the discourse of climate mitigation and clean development. The next section will describe the state of carbon capture activities in which the projects under discussion were implemented.

5. Cambodia and Carbon Capture

Cambodia came early to internationally conceived climate mitigation initiatives. The first REDD+ project started in 2008. Cambodia’s Forest Administration in partnership with the International Non-governmental Organization (INGO) PACT administered the Oddar Meanchey REDD project [47,48] (PACT was not the original INGO on this project and they pulled out due to complications related to the actual sale of carbon (see, [48] for more details of this case)). The United Nations Development Program (UNDP) started REDD readiness preparations in Cambodia in 2009 [49], supporting the National REDD+ Program and REDD+ readiness activities (Interview UNDP 16 March 2015). Six years later, elaborate bureaucratic structures exist and four REDD+ projects are operating with another on the way: The Oddar Meanchey project, the WCS sponsored project in the Seima Protected Area (see, [34,50]); the International Tropical Timber Association (ITTO) project “SFM management through REDD+ mechanisms in Kampong Thom province, Cambodia” (PD 740/14 Rev.2 (F)); the Tumring REDD+ project described in this paper, and a new Japanese project in Prey Lang is entering a three year planning phase. The ITTO project objective is to get experience to do REDD on the ground. It is an office-centered capacity building exercise—not designed to sell carbon (Interview FA 9 May 2016). Even with these active projects, Cambodia is still transitioning out of the “readiness” phase and preparing to move into the implementation phase of the process [51]. Tree plantations for carbon capture have not had the same uptake, but were expected to contribute to the 60% forest cover by 2015 promised in Cambodia’s Millennium Development Goals (MDG) [52], and continue to play a role in achieving the 60% forest cover goal not yet reached [53].

The most successful commercial tree plantation industry in Cambodia is rubber, accounting for over 900,000 hectares in 2013–2014 [54]. This does add green leafy canopy in a manner that satisfies the Food and Agriculture Organization (FAO) guidelines for forests, but they were planted on forested

land and are thus not a vehicle for carbon capture [11]. Timber plantations in Cambodia reported by FAO in 2010 covered 70,000 ha [55]. Many of these were discontinued due to the destruction of local livelihoods, alienation of local communities, negative impacts on the environment, decreased biodiversity, and reduced water quality [56,57]. Satellite data from 2013–2014 [58] shows less than 1000 ha dedicated to timber production activities in Cambodia, and TB is one of two public-private industrial tree plantation initiatives currently active in Cambodia (the Oji Paper Co., Ltd (Tokyo, Japan) will not be discussed here). These new attempts at timber plantations also have negative impacts for society and the environment, but when confronted with the destructive activities of TB by a news reporter, Cambodia's environment minister, Say Samal, conceded a loss of biodiversity, but maintained that development was more important. "We have to be realistic, we want to build our economy, we want to create jobs for our people so we have to balance that out" [54].

According to a recent study conducted for the Technical Working Group on Forest Reform in Cambodia, the implementation of industrial tree plantations lacks strategic planning, adequate forestry skills, and would benefit from more intensive and thorough study [59]. REDD+ in Cambodia suffers similar effects from rapid implementation in advance of policies or frameworks to support it, and the Disney purchase was the country's first official sale of carbon since 2008 (policies were not in place with the Ministry of Finance to effectively manage a carbon sale in Oddar Meanchey, which remains stalled at the time of this writing). In the current environment of increasing climate financing, government officials are under pressure to adopt REDD+ schemes both from the ministry's need and desire for funding, and from international discourses of climate change mitigation. The role of donor organizations and private companies pushing carbon capture schemes was critiqued by both UNDP and Forest Administration representatives in Phnom Penh. They are "approaching the government trying to push carbon capture . . . [they put] the sale of carbon before the community and before there are legal systems in place" (Interview UNDP 16 March 2015).

Not only are the legal systems to manage REDD+ still emerging, Cambodia currently has multiple systems for managing forests. This is changing, and in April 2016 almost 100,000 hectares of forest for conservation were transferred to the Ministry of Environment (MoE), while the Ministry of Agriculture, Forestry, and Fisheries (MAFF) lost control of those same areas for conversion purposes. This is an emerging and interesting conflict in the arena of climate change policies in Cambodia, as the land conflict between MAFF and MoE precedes climate funding. This environment of shifting jurisdictions amid flows of money and policy initiatives exacerbates competition among ministries for climate finance (see also, [45]), thereby obscuring the rampant deforestation.

"We have done enough damage with our money," says UNDP representative Napoleon Navarro. Working on both sides on this project, trying to facilitate government capacity building and community awareness development, Navarro contends that "you can't organize anyone around the promise of money" (Interview 16 March 2015). This sentiment was contextualized by Chhun Delux, administrator of forest finance for the Forest Administration. "Among the government and business people, there is this push for money—they are less concerned with the ecological aspects, it is a new business incentive . . . Everyone is working for their own benefit and no one looks at the big picture." He mapped out the donor tree and the breakup of the various NGO activities "...this one biodiversity, this one community forests, this one capacity building . . . see? islands. But the whole landscape [Prey Lang] is under served, which fact goes unrecognized by the officials and donors...." (Interview FA 13 July 2015).

The speculative and non-transparent nature of land conversion in Cambodia in the context of weak state institutional systems is not ideal for sustainable forest financing. This issue is exacerbated by the problem of forest financing itself, which has yet to produce a systematic framework for this endeavor. The situation in Cambodia consists of bureaucratic structures staffed by inexperienced officials, large expenditures by donor organizations, a focus on carbon over forest and community health, and continued pressure on forest resources from market-based activities like industrial plantations, selective logging, and market-crop conversion. The next section provides a closer inspection of the T-REDD project area, which has overcome some of the pitfalls related here, but remains mired in others.

6. The T-REDD Project Area

Multiple land claims, including ELC, FC, SLC, private homestead land, CF and permanent forest estate influence the T-REDD project. The history of war, forest exploitation, and marketization remain embedded in resource claims at this site. After 1993, in the post-election “transition period”, abundant forests were identified by the World Bank as key export commodities [60,61]. By 1998 all forests outside of protected areas were granted as forest concessions to well-connected governors and Southeast Asian corporations [62]. This initiative provided none of the expected state-building revenue-generating effects; it was de-emphasized by 2001 [63] and replaced with ELCs.

The T-REDD site wraps around the first ELC in Prey Lang. A 6200-ha “state-led development project”, the Tumring Rubber Plantation [64] was issued well inside the locally conceived boundary of the forest. People previously accustomed to shifting agriculture and collecting forest products (almost 60% of reported income, 31% and 28%, respectively) were divested of forest resources and shifting cultivation lands and asked to grow rubber [65].

In the opening ceremony for the plantation, Prime Minister Hun Sen explicitly encouraged citizens to “... change from collecting resin, tapping resin ... to tapping rubber” (GW 2007, 30). This was a dramatic revaluation of the land and people echoed in the TB sub-decree described below. Effects of these land-use policies are palpable for local communities, “Before the companies we rarely got sick, and if we did we could go find medicines from the forest. Now we look [for medicine] in the CF but don’t find it and the people are more and more sick” (Group Discussion KT 28 February 2016). Effects are also visible in the landscape, and by 2012 the forest had given way to all the concessions outlined in white in Figure 4.

The CF initiatives started in response to the forest concessions, but due to ministerial back logs and inattention, few were in place before the implementation of ELCs. Between 2001 and 2012 a nation-wide initiative to establish community forests ensued, and communities around Prey Lang worked to establish CFs and defend the remaining unprotected forest. This was, and remains a disputed initiative in Prey Lang, as it limits community use to small designated areas. For good or for ill, by 2010, Kampong Thom had 46 CFs totaling over 35,000 ha, more than any other province [66]. Local participants say that protecting their CF “was so difficult, even the police were involved in cutting the CF” (Group Discussion KT 27 February 2016), after official ministry recognition, this task became much easier. These CFs are visible in Figure 4 as the green patches that spread from the forest, like island archipelagos.

The red deforested area surrounding the CFs and the Tumring Rubber Plantation in Figure 4 represents small-holder cassava plantations. These areas were converted in increments and sold to migrants by local elites until the roll out of Hun Sen’s “Order 01 on Measures for Strengthening and Increasing the Effectiveness of the Management of Economic Land Concessions” (Order 01) in 2012. Instigated to address growing unrest over the effects of ELCs across the country, Order 01 morphed to include issuing land titles for citizens, which drove elite land capture in advance of titling (this was a terribly complicated and controversial initiative that affected people differently across the country—for a comprehensive discussion of this complex process, see [36,67,68]). Another effect of Order 01 is the replacement of ELCs with SLCs for economic endeavors. In 2013, an SLC was awarded right behind one of the T-REDD community forests. There are no landless settlers in this Social Land Concession, which is for “poor citizens who are landless or land poor” [69]. There are no landless settlers inside the SLC area, only sawmills operated by one of the same well-connected Cambodian businessmen involved in creating the Tumring Rubber Plantation [64,70].

All the land use strategies described above occurred before T-REDD and were known at the time the documents were signed; the sub-decree was not acknowledged in the first map (Figure 4), but the map was revised (Figure 6).

The once forest subsistent people now administering T-REDD were divested of their modes of production and forced into the market economy 13 years before the project. After two meetings with the Forest Administration in June and July 2015, REDD+ CF communities had low, but positive

expectations. They receive patrolling equipment and 50 USD/month “if we keep the forest they will help us—if not, they won’t” (Group Discussion KT 28 February 2016).

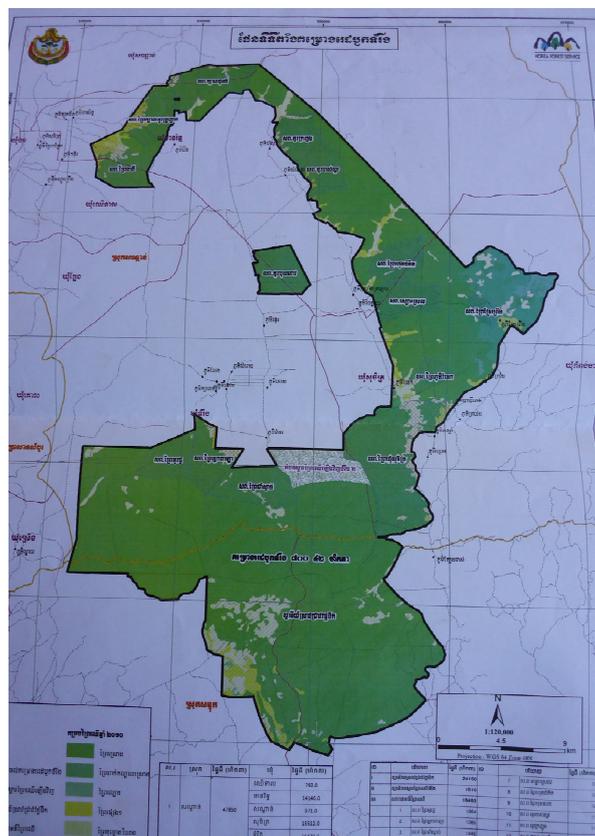


Figure 6. Photo of T-REDD Map 2 taken by author.

Community forest committees directly involved in the project reported moderate added benefits. “The FA trained us about REDD+ and now they support us with equipment and money for patrols” (Group Discussion KT 28 March 2016). “If we can get help from the government to protect [the forest] it is better for us” (Group Discussion KT 30 March 2016). In terms of the community’s ability to protect the CF area, “REDD+ does not change much for us, only that we get training, equipment, and patrol money, not enough money though. It doesn’t replace money we can make doing other things, so it’s hard to get people to patrol. It only pays for our gas” (Group Discussion 29 February 2016). When asked directly about conflicts involving REDD+, people reported conflicts with illegal loggers, companies, elites, NGOs, or neighbors, not with REDD+, except that it did not do enough. It did not solve their problems with forest protection or getting support from the Forest Administration to arrest loggers or evict encroachers, “we call them [the FA]. Sometimes they come, but mostly not” (Group Discussion KT 29 March 2016). Neither did it capture all the CFs in the area, and the excluded CF committees wished they too would receive the benefits (Meeting, Prey Lang Working Group, 16 August 2016).

This site was purposefully chosen for REDD+ because of its high deforestation rate [71]. The project uses a simple system for measuring carbon and deforestation through a projection scenario based on historical deforestation data. Success demonstrates less deforestation than projected (Interview FA 5 September 2016). The T-REDD project documents give thoughtful attention to the challenges of REDD+ and attempt to foster community empowerment. Household uses of the forest, like shifting cultivation or charcoal production, are explicitly not considered part of the deforestation problem and community capacity to “keep the forest” is honored. T-REDD aims to, “assist community

forests to scale up their forestland management area to cover the remaining permanent forest estate ... legalized as parts of the provincial and commune land-use planning framework" [72].

As the law stands at the time of this writing, however, citizens do not have the authority to patrol the larger PLWS protected area. "They give us the CF to protect while they cut the Prey Lang as they like ... even the police go too" (Group Discussion KT 28 February 2016); "they take trucks every day along the new road ... into the forest" (Group Discussion KT 29 February 2016). "If they give us authority, we can protect it [PLWS]," people say, "it has use for us—this is our resin forest" (Group Discussion KT 28 February 2016). The T-REDD project description cannot contain all the contradictions and pitfalls of REDD+ projects described above, but those it can transform suggest that that climate change policies may benefit from non-market approaches, and that effective REDD+ implementation should not degrade and at least marginally benefit local economies.

7. Think Biotech Cambodia, co. ltd.

Think Biotech was established as a public-private partnership between the Forest Administration of Cambodia and the Think Biotech Cambodia, co. ltd. in December 2010. Think Biotech is a subsidiary of the Hanwha corporation that specializes in the manufacture of explosives and military equipment. Before 2010, the Think Biotech Cambodia, co. ltd. was not listed in Hanwha's annual report and Hanwha had no experience in forestry initiatives [72].

Nonetheless, in Article 2 of the sub-decree signed by MAFF, it states that Think Biotech will establish an A/R project that will "improve soil fertility through reforestation and biodiversity conservation ... [and will be] part of Clean Development Mechanisms or other mechanisms that contribute to the reductions of greenhouse gas emissions and climate change mitigation" [40]. The conflict drivers in this case are the other objectives in Article 2 that include, "to stop slash and burn activities, and ... illegal claims to trees ... " [40]. The project deliberately alters the local economy in ways that also increase pressure on the PLWS outside the project boundary by pushing subsistence and market activities deeper into the forest.

In June 2012, the company began operations in Kampong Cham commune, Sombor District, Kratie province. Unlike in Kampong Thom, there was a period of 10 years between the slowdown in Forest Concession activity and the rise of ELCs, during which time freelance logging rose considerably. Even so, when TB came in 2012, traditional livelihoods of shifting cultivation, wet-rice agriculture, and resin collecting were the primary economic activities (Group Discussion KR 13 February 2015). As is typical of ELCs in Cambodia, TB started operations with no community consultation. At first people thought the excavators were for road development, it then became clear that they were making a business and some people took small jobs creating the tree nursery or other buildings (Interview Mr. Som No 15 February 2016).

The director of TB stated that he knew there were people living inside the concession boundaries (Interview TB 1 November 2016). The commune chief confirmed this as well, but suggested that the company cleared community land because they did not recognize it; community land for shifting cultivation looked like degraded forest (Interview KR 14 February 2015). The company signed an agreement with MAFF to begin operations in 2012 and hired CES co. ltd. (Phnom Penh, Cambodia) to conduct an environmental impact assessment (EIA). This assessment was completed in February 2013 and the project was found to have "a lot of problems" and "would be bad for the community" (Interview CES 8 November 2016). This information was shared with the MoE and with the company. According to an unpublished report by NGO Forum, the project would affect approximately 1900 families, 4412 hectares of rice fields, 3534 hectares of plantation land, 5970 hectares of community forests, 5 hectares of spirit forests, and 5 hectares of burial grounds ("NGO Forum" notes 17 November 2015).

After the negative EIA, in May of 2013, company bulldozers began clearing community lands along the old road. During this clearing, 178 households lost nearly 1000 hectares of farm and shifting cultivation land. Strong community protests kept the company from clearing more land

(Interview community rep. 14 February 2015), but there remain 400 hectares of disputed land inside the company boundaries (Interview commune chief KR 3 February 2015). In addition to community rice fields and farm lands, the company cleared nearly 5000 ha of forest land in the southern end of their project next to the affected villages (Figure 5, red deforested area). In so doing, they cleared the forest right up to the banks of the streams. The effects of this on rain-fed streams are visible (Figure 7). The sun exposure kills fish eggs in the streams and causes them to dry completely when the rains stop (Field Notes, personal communication, Mr. Som No 6 August 2016).



Figure 7. Stream *O Sro Lork* in the rainy season, 9.7.2016. Photo by Seay Monyrath.

At peak production, the company employed approximately 800 workers earning between 150–180 USD per month (Interview KR 16 February 2016), which is well below the 250–300 USD people report from tapping resin and selling market crops (Field Notes Steung Treng 19 December 2016, see also [73]). The commune chief sees the benefit of the jobs (Interview 16 February 2015), but was not pleased that the promised road was never built (Field Notes, personal communication Mr. Nak Virak 9 February 2016). The only roads built by the company were for company use and community members had to protest to gain access (Group Discussion KR 14 February 2016). Since February 2016 the company has been quiet. They laid off most of their workers and the saw mill stopped operations. In September 2016 there were about 200 workers planting saplings, many of whom are migrants (FN KR 7 September 2016).

While in the south the company seems quiet, in June of 2016 they conducted a public consultation in Steung Treng with about 100 members of the soon to be affected community. A local researcher accompanied company representatives and provincial and national level ministry officials on their mission to mark the TB boundary. At the most isolated edge of the project bordering the PLWS they placed company boundary markers and drew a map. While mapping this territory, the researcher informed the officials they will need a map of community holdings to conform to Order 01 guidelines that require companies to develop around, and not through, community lands. The Forest Administration representative told him, “we don’t have to follow the rules of Order 01, this is not an ELC. It’s a government partnership” (Action Research Interview ST 18 August 2016). Since the boundary mapping, community researchers have mapped 15 of the 19 resin forests in use at the present time (Figure 8).

That the company moved to map and begin developing the northernmost region of their project could be because they have cleared the area in the south right up to the boundary of the southernmost CF that is inside the concession (Figure 9). In many ways the company is frustrated with this project as well. The CFs inside project boundaries were a surprise according to the company director, and his

face was visibly concerned when the author showed him the mapped boundaries of resin forests inside “his” company boundaries (Interview TB 1 November 2016).

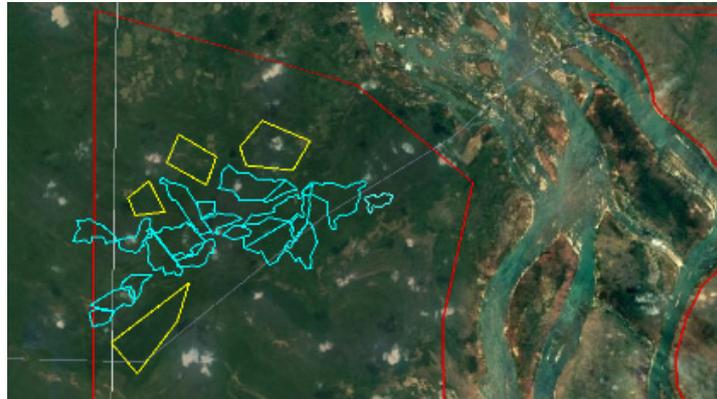


Figure 8. Community resin forest shapefiles. Red is project boundary, white N-S line is PLWS boundary, white E-W line is provincial boundary (Steung Treng to the north, Kratie to the south). Blue are mapped forests and yellow are remaining areas to be mapped. GoogleEarth screen shot by author.

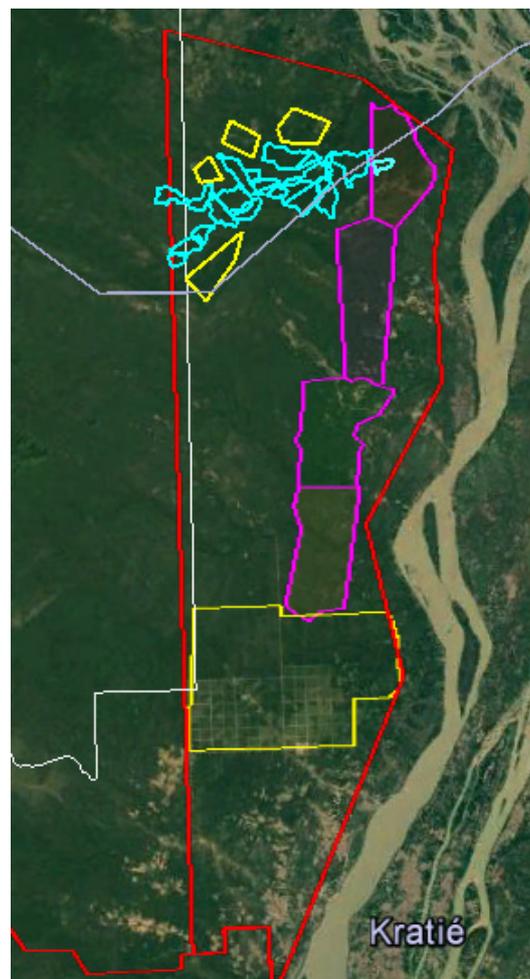


Figure 9. Google Earth screen shot with shape files. Pink are CFs and yellow is cleared company area as of September 2016. Affected area boundaries created using GPS data points collected by PLCN and author in September 2016. CF shape files are from Cambodia’s Forest Administration (FA).

The situations on the ground at the TB project site differ widely from those at the T-REDD site. Most importantly, the evacuation of local subsistence practices was explicitly part of the project's goal. There are many other factors that contributed to the conflict-heavy implementation of this project, these include the lack of community consultation, ignoring EIA recommendations, clearing community land holdings, providing undesirable jobs, and restricting access to company roads. The company is actively avoiding the CF area inside their project, which is commendable, but are surprised and dismayed by the presence of community holdings inside their northern boundary. This issue is currently under negotiation.

8. Discussion

The evidence presented in this study shows two governance strategies for CCM projects as well as the social, economic, geographic, and historical circumstances of the people and the regions in which each operates. Through this analysis, focused on the potential for decreasing the incidence of conflict in CCM policies, some fundamental differences between the projects are visible. First, in the project with little conflict, both project documents and implementation practice were focused on granting tenure rights and management responsibility to participants. By contrast, in the conflict-heavy project, the language of the project documents, the implementation of project activities, and the voices of company representatives were all directed at divesting communities of their rights and responsibilities. Second, the conflict-light scenario is not focused on monetary trade or profit, a source of regular conflict in REDD+ case studies [74]. Communities know exactly what to expect from this initiative. It is not a lot and the \$50/month does not compensate them for their time, but it covers the costs of patrolling. The TB project gives rise to multiple financial conflicts beyond clearing village resources for company profits: the wages are low, salaries are often late, large lay-offs have occurred, and locals accuse the company of selectively logging high-value timber from the deep forest.

These data suggest that conflict-light CCM projects can be implemented with close attention to the relationship between selective project outcomes and the physical, social, and economic landscape in which it is implemented. The evidence from these two case studies suggests that the TB restoration project is not executed in the best landscape for an industrial tree plantation and that both the social and physical landscape is better suited for a REDD+ project under the Korea-Cambodia MoU for enhancing forest resources and mitigating climate change. First, it is in an area populated with people actively protecting the forest and using the forest for subsistence. Second, it is in a remote area with very little infrastructure, which adds to transport costs for industrial production and limits encroachment, enhancing conservation. Third, it is covered with forest that in many parts of the project area is quite dense and diverse.

There is very little support for creating industrial timber plantations in already forested landscapes. Guidelines insist that A/R activities should be on degraded forest land [26], but the practice of labeling rich forest as degraded forest is widespread [75], with profoundly negative effects on social and ecological communities [28,39]. Increased deforestation beyond project boundaries is a recorded effect of forest-conversion for development. The map of the Tumring area shows clearly what this looks like (Figure 4). The TB project is in a very remote area, but is currently building roads to transport timber and equipment. Not only does this add costs to their operation, but satellite imagery shows increased forest conversion all along these roads and researchers have mapped these roads to points well inside the PLWS.

The final, and most important reason that suggests a successful REDD+ project on this site is that the community is both capable and willing to engage in forest protection activities. This most important fact, coupled with the very progressive and flexible project design of the T-REDD initiative could go a long way to protecting valuable and biodiverse forests in an isolated and naturally protected forest landscape.

Korea is innovative and is engaged in a number of development experiments; juxtaposing REDD+ and A/R is not new for them [76]. The KFS currently partners with 12 countries in forestry initiatives

and is well-known for public private partnership funding arrangements [77]. The implementation of T-REDD was unique, according to the technical partner in the Korea-Cambodia T-REDD project (Meeting FA 13 July 2015), who claimed that waiting for the legal frameworks was too slow and government to government initiatives do not need them. Local sources in the community and in the Forest Administration, suggest that the government has more power to implement a REDD+ project, “the NGO has no power and local authorities have no reason to do what they ask” (Interview FA 17 December 2015); “this project is strong because it is with the government, they have to help us” (Group Discussion 29 March 2016). It is worth discussing if a Korean-led publicly engaged REDD+ development project could be instituted at the TB site and if the already cleared SLC in Tumring could be reforested for commercial timber production.

What I suggest here is a radical, perhaps impossible, undertaking of project manipulation. However, had the governments and companies involved adopted an un-cynical approach to their projects and attended to larger project landscapes for maximum project/public/forest benefit, it could have produced conflict-light CCM policy enactments.

9. Conclusions

The case studies presented here demonstrate how a particular method to analyze the relationship between CCM and conflict exposed the social and ecological impacts of two related projects. The negative impacts of the TB project hit at the intersecting agendas of a loosely accountable government and a for-profit business investment, both focused on monetary benefits T-REDD project effects cannot really be called positive, but by all accounts from participants they are not negative, and the project design makes explicit attempts to mitigate the known challenges to REDD+ implementation. These case studies also reveal a possible pathway to avoided conflict. The T-REDD and TB data suggest that forest-based CCM policies can reduce conflict through efforts at minimal transformation of local livelihoods, maximal attention to the tenure rights, responsibilities, and authority of citizens, and by improving, not degrading, the environment in project landscapes.

In the A/R study cited here, each of these conflict-reducing practices was violated, resulting in a conflict-heavy CCM enactment. TB was typical of other Cambodian economic land grabs, but was also explicitly designed to relieve citizens of their livelihoods with no considerations of tenure rights or respect for community authority. In addition, the environmental impact of large-scale clearing of forested landscapes spreads the conflict into the environment both within and beyond project boundaries. On the other hand, T-REDD did enact the conflict reducing practices. The explicit attempt to put communities at the front of managing state forest reserves marks a turning point for Cambodian forestry policy. It is important to note, however, that the project was conflict-light primarily because livelihoods had already been transformed through ELCs and other tenure schemes and its lack of reported conflict from project participants should not overshadow the “perverse logic” [78] under which it works. For \$50/month the T-REDD+ project uses “if not blatantly exploits” those least responsible for causing climate change to do the “messy, time-consuming, labor-intensive and dangerous work of protecting forests, which are of global benefit” (ibid). They are put to this work to offset the carbon-intensive activities of Korean companies in Cambodia.

It is important at this historical juncture to make explicit political claims about the effects of pretending that preserving forest in one place can mitigate the large-scale emission of carbon in another place [24,37,79]. Climate change is a complex issue and each attempt to mitigate it through bureaucratic and/or market-based endeavors exposes a dangerous ambivalence. This study suggests that conflict is at the heart of CCM policies, connected as they are to the resource capture necessary for economic growth. This is a fundamental contradiction with which we must all grapple, lest we are left with nothing but forest islands and castaway communities.

Acknowledgments: Funded by the Dutch National Science Foundation (NWO), and the Department for International Development (DFID) through the CoCooN—Conflict and Cooperation in the Management of Climate Change—Integrated Project. See: <http://www.iss.nl/mosaic>.

Conflicts of Interest: The author declares no conflict of interest.

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