

Shifting regimes of management and uses of forests: What might REDD+ implementation mean for community forestry? Evidence from Nepal



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ABSTRACT

At a time when many developing countries are preparing to implement REDD+, there is debate on the possible implications for existing community forestry (CF) governance. Drawing on a REDD+ pilot undertaken in Nepal, this paper seeks to investigate how REDD+ has been downscaled into the community forestry context and with what implications for CF governance. The analysis is guided by three research questions: how are the objectives and discourses underpinning REDD+ translated into actions at the local level; how do the proponents of REDD+ make the problems and solutions technical in order to design the interventions; and what are the implications of REDD+ design for CF governance and what changes in rules and practices on forest management might result from these? The study comprised a review of the pilot project documentation and field study. In-depth interviews, focused group discussions and observations were conducted with forest user groups both within and outside the REDD+ pilot area. Findings indicate that the pilot design and implementation was essentially to show that REDD+ could be implemented in CF and focused on developing a carbon monitoring mechanism which local people could be engaged in. The community forest user groups (CFUG) in the pilot sites have increased forest surveillance and tightened the rules regarding certain uses of forests. We argue that the technical and financial logic of REDD+ have had implications for CF governance, risks of co-opting local voices and has contributed to an ongoing commercialisation of community forests, at the cost of the livelihoods of the poorest people.

1. Introduction

The REDD+¹ programme seeks to provide financial incentives for developing countries to reduce carbon emissions from forests. As it approaches its 10th anniversary, there are questions concerning its impacts.² In many countries, REDD+ implementation has aimed to build on existing community based forest management (hereafter community forestry or CF) and gain from their established institutional mechanisms and past achievements (Newton et al., 2015; Bradley, 2012). However, as Balooni and Lund (2014) suggest, demonstrating benefits from REDD+ in CF is hard given the need to demonstrate additional carbon sequestration gains and the costs of implementation.

Community forestry, a response to the failure of top-down approaches to forests conservation, is widely practiced. CF has been reported to be

better than state management in conserving forests and providing local benefits (Persha et al., 2011; Nagendra, 2007; Agrawal et al., 2008; Agrawal and Chhatre, 2006). However, there are mixed results concerning the benefits of CF management to poor forest dependent people with several reports about restriction on traditional uses (see Ribot et al., 2010; Adhikari, 2005). In Nepal, CF has been regarded as a success contributing to forest recovery and a better supply of products and services (Gautam et al., 2003).

The proponents of REDD+ suggest CF institutions can be used for REDD+ implementation and argue that REDD+ can contribute to CF objectives (Newton et al., 2015; Bradley, 2012). However, some sceptics fear this may lead to a recentralization of power by national governments (see Phelps et al., 2010). Others suggest that REDD+ can lead to enclosure (Bond, 2012), a valuing of forests in narrow financial terms (Leach and Scoones, 2015) and allowing “green grabbing” (Benjaminsen and Bryceson, 2012);

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¹ Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

² Reports suggest that the REDD+ has not delivered on its promise of tangible reduction in deforestation (see Angelsen, 2017; Lund et al., 2017).

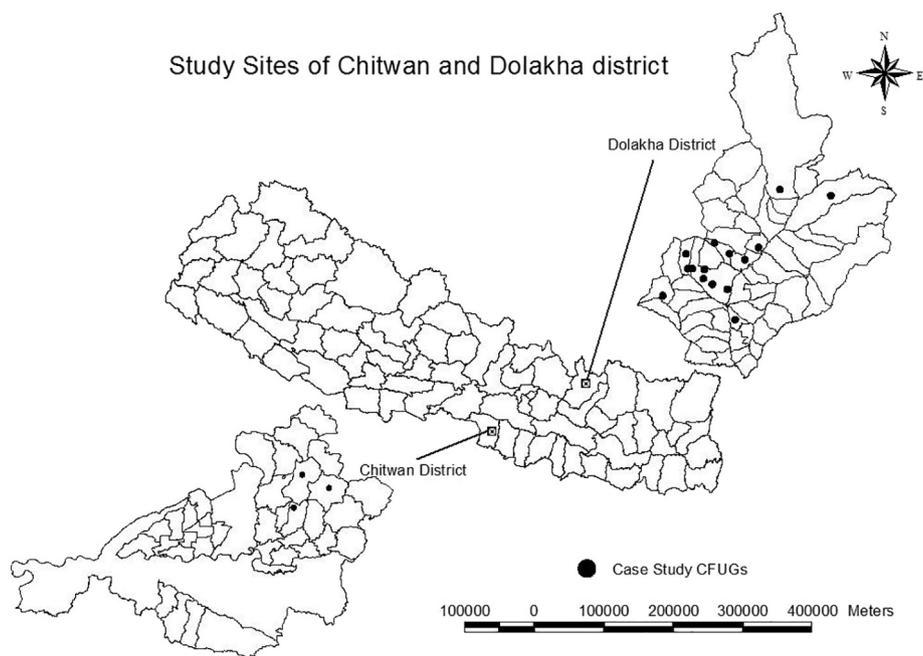


Fig. 1. REDD+ pilot sites and research locations.

Fairhead et al., 2012). Studies also point out a risk of decision making authority shifting from local to the external actors (see Leach and Scoones, 2015; Peluso and Lund, 2011), potentially undermining existing management practices and local use of forests (Chhatre and Agrawal, 2009; Groom and Palmer, 2012). There is emerging evidence that indicates this may be happening (see Svarstad and Benjaminsen, 2017; Leach and Scoones, 2015).

Drawing on a study of the REDD+ pilot (hereafter pilot) implemented in Nepal from 2009 to 2013, this paper seeks to investigate the downscaling of REDD+ in the CF context and its possible effects on community forestry governance. In Nepal, REDD+ will be superimposed not only on CF but also on already recovering forests given past changes in the management of and access to forests by local people (Khatri et al., 2016; Dhakal et al., 2011; Adhikari, 2005). Certain activities such as the collection of fuel-wood, timber and fodder and grazing have been regulated leading to a decline in forest uses. Reports suggest that such decline has been, in part, due to the rise of a remittance economy and decline in livestock numbers (Marquardt et al., 2016; Dhakal et al., 2011). Yet, the community forests still provide important resources for many smallholder farmers and our analysis considers what REDD+ implementation might imply for the existing management and use of forests.

REDD+, an international climate policy (Buizer et al., 2014), has the primary objective of contributing to reduce carbon emissions through forest conservation but also seeks to contribute to the improvement of livelihoods of forest users (Lund et al., 2017). The translation of REDD+ objectives to national and local levels has been undertaken by international organizations such as the World Bank and United Nations Organizations through demonstrational projects (Pasgaard and Mertz, 2016) and national policy development (Angelsen, 2017). REDD+ objectives, underpinned by a market rationality of paying for carbon sequestration to achieve forest conservation, arguably can undermine the existing CF governance practices based on local benefits from forest management (see Balooni and Lund, 2014; Fairhead et al., 2012; Chhatre and Agrawal, 2009).

Three research questions inform this paper. First how the objectives and discourses underpinning REDD+ are translated into actions at the local

level? Drawing on ideas of policy translation, the analysis will explore how the ideas and discourses underpinning the policy are interpreted and communicated by the actors involved in the process (see Pasgaard, 2015) and how the objects of the policy, forests and communities, are made legible (Leach and Scoones, 2015). This leads to the second question, how do the proponents of REDD+ make the problems and solutions technical in order to design the interventions? As Li (2007a: 265) puts it, 'extracting from the messiness of the social world, with all the processes that run through it, a set of relations that can be formulated as a diagram in which problem (a) plus intervention (b) will produce (c), a beneficial result'. This process of rendering technical puts aside political complexities of community forest governance (Li, 2007b). Our analysis considers the extent to which the proposed technical solutions help (or does not) address the issues of inequality. The third question asks what the implications of REDD+ design for CF governance are and what changes in rules and practices on forest management might result from these. Answers to these questions will build on the work of others (i.e. Fairhead et al., 2012; Peluso and Lund, 2011) in deepening an understanding of how externally driven initiatives such as REDD+ can alter forest governance practices.

After outlining the methods in section two, a brief description of CF and the REDD+ pilot in Nepal is provided in section three. In section four the findings are organized in two sub-sections: first the processes of REDD+ implementation in CF and the design of interventions and second, the consequences of this for CF management and use. The discussion in section five explores the ways in which REDD+ implementation effects CF governance. A brief conclusion is then drawn in section six.

2. Methods

The findings draw from a three year study of how global public goods provided under REDD+ can be reconciled with the needs of local populations. The research had two parts. The first was a review of the pilot project documentation including procedural manuals (i.e. manual for forest carbon monitoring), progress reports, and publications. Senior staff

Table 1
List of interviews and informants.

Site/district	CFUG interviewed	Households interviewed	Key informants interviewed
Charnawati catchment Dolakha district	14 (5 from pilot site)	33 farming and forest user households	1 interview with international NGO staff 2 interviews with national NGO staff 7 interviews with the regional NGO involved in the pilot 3 interviews with government officials
Kayarkhola catchment Chitwan District	3 (from pilot site)	9 farming and forest user households	1 interview with the regional NGO involved in the pilot 1 interview with government official at regional level
Total no	17	42	15

involved in the design and implementation of the pilot was also interviewed. The second part was a field study undertaken between 2012 and 2015. Most of the fieldwork was carried out in Dolakha during 2012–2014. Dolakha was selected from three of the REDD+ pilot sites given its relatively strong CF program resulting from a long history of Swiss support.³ Its forest management practices are also characteristic of Nepal's mountain regions (Fig. 1). A less intensive investigation was undertaken in Chitwan in February 2015 to examine the contrast of Dolokha's mountain landscape and forests with the Nepalese foothills in the Chure⁴ and Terai (Chitwan).

In Dolakha, five CFUGs from the pilot site and nine from outside were selected based on their contrasts of forest size, forest composition and road access. The CFUGs in the pilot site were located close to a main district road and the district center, Charikot whereas the CFUGs from outside the pilot were from different locations: two were from villages adjoining the pilot site, four were from an area between Charikot and Singati, a town along the newly constructed road towards the Upper Tamakoshi Hydropower Project, two were from the Gaurisankhar Conservation Area⁵ further north from Singati and one was from Bhirkot (south along the highway to Ramechhap).

Three rounds of field visits were made in Dolakha. Discussions were held with the district staff and office holders of FECOFUN. In the 14 selected CFUGs, group interviews were held with executive committee members and forest users in the CFUG offices or in public places. Then two to three households were selected for interview in each CFUG, one each from high, middle and low income households (drawing on the household ranking done by the CFUGs in the Swiss project).⁶ In total 33 households were interviewed in their own house or farm. The low income group households in the pilot site were those who were targeted for support by CFUGs from the pilot money or the CF. Interviews were also held with the District Forest Officer focusing on pilot project implementation and forest management practices in CFUGs (see Table 1).

In Chitwan, as in Dolakha, semi-structured interviews were conducted with FECOFUN staff and representatives from the district forest office. Three CFUGs from the pilot site were visited selected on the basis of forest size, geographical location and forest use. Interviews were conducted with CFUG leaders and selected households (9 from three CFUGs).

3. The context: Community forestry and REDD+ pilot in Nepal

3.1. Community forestry and changing practices of management and uses of forests

CF in Nepal was introduced as a response to widespread deforestation

³ In Dolakha, Swiss government had a long history of funding forest related interventions. Started in 1980s by promoting plantation, it supported establishment and strengthening of CF until 2010.

⁴ Chure is a foot hill of mountain and is frontier between mountain and southern plain (Terai).

⁵ Government of Nepal established Gaurisankhar Conservation Area in 2009 in northern part of Dolakha including number of CFs.

⁶ The Swiss project initiated the practice of wealth ranking and targeted support to poor households through CFUGs.

(Gilmour and Fisher, 1992). The original intent of CF was to restore the degraded hill-forests and improve provision of forest products to meet peoples' subsistence needs for fuel-wood, fodder and timber (Adhikari et al., 2007). A major reforestation programme and protection of the forests by local communities led to a remarkable shift in how forests were managed and accessed. Traditional grazing practices were banned in the newly formed CF and new rules regulated the collection of forest products (Adhikari et al., 2007; Khatri et al., 2016). Livestock numbers declined but there was an increase in stall fed cattle. People also started to grow trees in their private land to meet forest products' needs. These changes resulted in decreased use of forests (see Marquardt et al., 2016). Although, CF has been appreciated for its contribution to the recovery of the forests (Gautam et al., 2003; Yadav et al., 2003), there are costs to the households with small land holdings (less than 0.5 ha) who still rely on the forests for fodder and fuelwood (see Appendix A).

The policy reform under CF provided the framework to devolve rights to local people to manage and utilize forests through CFUGs. Community forestry now covers more than one-fourth of the country's forest area. In 2016, about 1.8 million hectares of forests were managed by 18,960 CFUGs comprising about 40% of the country's population (DFO, 2016). Despite the forest conservation benefits and improved supply of forest products and services, the CFUGs have also faced governance challenges with respect to equity in decision making (Nightingale, 2002) and the sharing of benefits (Paudel, 1999; Thoms, 2008), reflecting Nepal's deep rooted patterns of inequality. Powerful actors including local elites often dominate CFUG decision making processes (Nightingale, 2002; Schusser et al., 2015), and social groups such as Dalits, women, and the poor are often marginalised. The forest department exerts a greater control over CFUG practices in the forest resource rich regions of Chure and Terai where timber is harvested on commercial scale (Ojha, 2008; Lund, 2015). Thus the effects of REDD+ need to be seen in relation to existing rights of access and control of forests.

3.2. The REDD+ "pilot"

The REDD+ "pilot" was implemented between 2009 and 2013 in three Nepalese districts with one site per district and each covering a catchment. These were the Charnawati, Ludikhola and Kayarkhola catchments respectively in Dolakha, Gorkha and Chitwan districts. The total pilot area covered about 10,000 ha of forest, managed by 105 CFUGs.⁷ The sites in Dolakha and Gorkha districts are located in the mountains whereas the Chitwan site lies in the Chure in the foothills of the mountains (see Fig. 1).

The pilot funded by the Norwegian Agency for Development Cooperation (NORAD) was implemented by a consortium of three organizations. It was led by the International Centre for Mountain Development (ICIMOD) a regional intergovernmental organization, in

⁷ 58 CFUGs in Charnawati, 31 in Ludikhola and 16 in Kayarkhola catchments (ICIMOD et al., 2010:1).

partnership with two national NGOs: the [Asia Network for Sustainable Agriculture and Bio-resources](#) (ANSAB), a Kathmandu based NGO working in the field of bio-diversity and the Federation of Community Forest Users, Nepal (FECOFUN)—the apex organization of a network of over 15,000 CFUGs in the whole country. The pilot sought to ‘demonstrate the feasibility of REDD in [CF] involving local communities’ (ICIMOD et al., 2010:1).

ANSAB was responsible for technical aspects such as the carbon monitoring and FECOFUN mobilized the CFUGs. Based on the carbon monitoring the project made yearly payments totalling \$95,000 from the NORAD funding to the 105 CFUGs for three between 2011 and 2013 (Shrestha et al., 2014).

4. Findings

4.1. Implementation of REDD+ in the community forestry context

The primary objective of the pilot was to demonstrate carbon sequestration. To achieve this, the pilot established a carbon monitoring mechanism and designed interventions that were seen to enhance carbon sequestration. The pilot focused largely on the development of a monitoring mechanism suitable for CF. While it followed the UNFCCC (United Nations Framework Convention on Climate Change) standards of measurement and reporting, it paid particular attention to local participation in these processes. An operational manual was developed (ICIMOD et al., 2010) and the processes and methods presented ‘[were] intended to serve as user friendly training material for forest users’ (ICIMOD et al. 2010: 2). Some selected people from CFUGs were given training and were involved in taking measurements in the community forest.⁸ The technical calculations for estimation of carbon stock and increment were then done by the pilot’s technical staff. A baseline for carbon assessment was undertaken in 2010 and yearly assessments were made until the end of pilot in 2013.

In order to enhance carbon sequestration, the pilot prescribed certain forest management activities and it required that the CFUGs invest at least 40% of the payments received in these activities as a condition of further payments. These activities included planting trees and protecting forests from grazing and forest fires. The pilot also introduced improved cooking stoves and alternative energy schemes such as bio-gas in CFUGs in order to reduce demand for fuel wood.⁹ The pilot reported an average increment of 10–33 ton/ha of CO₂ (carbon dioxide equivalent) over three years in the pilot areas (Shrestha et al., 2014: 2434). However it is unclear to what degree this increment resulted entirely from the pilot interventions. No attempt was made to distinguish between ongoing effects of CF from those of the pilot interventions.

The pilot had secondary objectives of contributing to poverty reduction and promoting equity through the development of a payment and benefit distribution mechanism. The pilot sought to make the REDD+ payment more equitable by weighting social dimensions such as caste, gender and poverty in the payment criteria. It was assumed that by doing so would help certain marginal groups to draw benefit from REDD+. The payment formula gave a 40% weight to carbon enhancement and 60% to a social factors based on an index. This was based on the population of women and the number of households that were ethnic (*janajati* or indigenous people), low caste (*Dalits*) and poor. The formula was expressed as follows:

$$\begin{aligned} \text{REDD payment} = & f [\text{forest carbon pool (24\%)} \\ & + \text{change in forest carbon (16\%)} \\ & + \text{number of households of indigenous people (10\%)} \\ & + \text{number of Dalit households (15\%)} \\ & + \text{population of women (15\%)} \\ & + \text{population of poor people (20\%)}] \end{aligned}$$

The pilot also required the CFUGs to spend money on activities that helped as they saw it improve the livelihoods of people from the selected social groups i.e. (i.e. women, *Dalit* and *Janajati*). In Dolakha, the targeting of REDD+ built on the mechanisms of targeting poor households initiated by the Swiss funded project. The project reported that about 52% of the total payments was used for these social groups and mainly for income generating activities (Shrestha et al., 2014).

But to what extent did this categorization and social payments address the complex dimensions underpinning the long standing social inequalities in Nepalese CF or contribute to improved livelihoods of these social groups? The four dimensions used in the payment criteria are not exactly commensurate categories and financial support alone will not address the structural causes. The *Janajati* and *Dalit* groups are associated with different forms of marginalization. While *Janajati* are reported to be marginal in decision making processes they are not as deprived as *Dalits* who are still considered to be untouchable and associated with specific occupations other than farming. This suggests that addressing the equity issues for *Janajati* and *Dalits* would require fundamentally different interventions. Thus in using these categories for the calculation of payment levels and benefit distribution, the pilot at best addresses some of the symptoms rather than the causes of poverty. Saito-Jensen et al. (2014) reports how this strategy of targeting certain social groups has made other social groups unhappy and posed risk of social tension within some CFUGs.

Findings from the interviews showed that in some cases the distribution of pilot money to different social groups did not materialise. In Kankali CFUG in Chitwan the pilot income was invested in a fish pond with the idea that poor *Dalit* families would be able to farm and sell fish. However, the *Dalit* households could not afford the initial investments to start the fish farming. The CFUG then leased the pond to a group of local people and decided that 80% of the profit from the fish farming would go to the *Dalit* families. However, according to the CFUG leadership, the fish pond had not yet provided any economic return and therefore the *Dalit* households had not received any money so far. One of the *Dalit* men (interviewed in March 2015), said “we have not received even a single rupee from this fish pond. The group has promised to provide us fifty thousand Nepalese rupees last year but we have not received it yet”.

The targeting seemed to have worked relatively better in Dolakha as CFUGs there had experience of social support payments to households from the earlier Swiss project. However, although the money reached the target households, it was not an outright grant but a fixed term interest free loan with a pay-back period of six months to two years. Loans of about \$ 15–60 per household were provided to the poorest families with the intention that they would invest in activities such as buying small livestock, commercial vegetable farming or a small business. However, as one poor farmer from Bolde Setidevi CFUG (interviewed in November 2014) made clear, simply receiving a loan was no guarantee of increased income:

I got 5000 rupees from CFUG for buying a goat. The goat died after few months but the CFUG asked me to pay the money back in one year. I had to sell another goat I had. The CFUG sent a letter asking for paying back the money. I do not understand why they have not extended the time for pay back.

Providing a loan for a market based activity can actually impose risks for households with very little resources.

⁸ The measurement included surface (tree, sapling and litters) and underground biomass. Local people were involved in taking measurements of the trees and collecting soil samples.

⁹ Shrestha et al. (2014: 7) reported that 200,000 seedlings were planted covering 168 ha, 448 biogas plants were installed and 1490 improved stoves were distributed across the three districts.

Table 2a
REDD + payment and forest management practices in the CFUGs in pilot sites.

SN	CFUG	CF area (ha)	Area included in pilot	Number of HHs	Annual income before REDD +	Major sources of income	Annual income from REDD +	Investment of REDD + money on forest management	Rules and practices on using forests	Remarks (steps towards commercialization)
REDD + CFUGs Dolakha										
1	Charnawati, Bhimeshwar Municipality	835	733.67	315	80,000–90,000	Timber within CFUG & NTFPs (<i>lokta</i> , <i>argzili</i>)	222,667	Plantation of 2000 pine and <i>argzili</i> . Patrolling by forest guard and EC members (controlling grazing and harvesting of pole). Plantation of 5400 pine and <i>argzili</i> . Patrolling by EC members for grazing and cutting poles.	Grazing is restricted.	Investment in paper industry (NRs 48,000). Plan to demand payment for water source to Charikot municipality. Was part of forest certification scheme
2	Bhittaripakha, Boch	378	377.67	242	80,000–100,000	NTFP and timber to local furniture but stopped after felling ban in 2010	157,000	Plantation of 5400 pine and <i>argzili</i> . Patrolling by EC members for grazing and cutting poles.	Grazing is not allowed except in a patch for traditional yak headers.	Investment in NTFP processing enterprises (paper and essential oil). Was part of forest certification scheme before
3	Bolde Setidevi, Boch	172	113.69	225	50,000–60,000	NTFP and timber within CFUG	79,500	Plantation of 1500 pine and <i>argzili</i> . Paid for forest guard.	Grazing is not allowed except in a patch	Was part of forest certification scheme and investment in paper enterprise
4	Simpani, Ramkot	64	8.05	89	10,000	Forest product distribution and water sources	31,106	Plantation of 1000 fruit and fodder trees.	Grazing is banned. No patrolling needed.	Close to the town of Charikot
5	Thansa Deurali, Bhimeshwar Municipality	217	59.08	287	70,000	Timber and NTFPs (<i>lokta</i>)	117,333	Plantation of 3000 pine and fodder spp. Paid for forest guard for controlling grazing and harvesting of pole sized trees.	Grazing restricted and needed more surveillance after plantation	Sold timber earlier but not allowed since 2010.
REDD + CFUGs in Chitwan										
1	Kankali	749.1	90	2200	10,00,000	Sale of timber and recreational spot.	397,389	NA	Grazing banned after CF formation	Investment in picnic spot and summing pool
2	Indreni, Siddi	445.5	NA	185	NA	Timber both in CFUG and outside.	NA	Some plantation and rules to restrict grazing, but not succeeded.	Grazing continues and number of goats increased.	Majority is Chepang population and practices of shifting cultivation (<i>khoria</i>)
3	Janapragati	150	118	280		Timber sale before Chure regulations.	98,000	Bamboo plantation in CF	Grazing controlled after CF.	

Table 2b
Forest management practices in CFUGs outside of pilot site in Dolakha.

SN	CFUG	Forest area	HHs	Annual income	Major sources of income	Investment in forest management	Plantation and choice species	Grazing rules	Move towards commercialization
1	Sukram, Sundrawati	399	449	30,000–40,000	NTFP (<i>machino</i> , <i>argali</i> , <i>lokta</i> , cardamom)	No forest guard now, yearly management operations	Pine plantation before CF handover. Planted <i>argeli</i> and cardamom recently (4000 no.)	Grazing regulated but people still graze in plots close to water sources	Forest measurement and carbon stock calculated with help from FECOFUN expecting to participate in REDD+ scheme in future.
2	Kalika, Sundrawati	84	136	20,000–25,000	Cardamom	Yearly management operations	Pine plantation before CF handover. Cardamom planted after CF handover	Rules to restrict grazing but not enforced fully	
3	Ghumaume Pani, Bhusapheda	84.6	120	30,000–50,000	NTFPs (<i>lokta</i> and <i>argeli</i>)	Forest guard with monthly salary	Pine planted before CF handover and <i>Argeli</i> plantation	Grazing is restricted in rules but exist in practice	Adjoining to REDD+ site
4	Mature Sipringeswari, Khare	800	255	30,000–40,000	Fish that comes out in spring for breeding	No yearly operations in forest	No plantation	No grazing restriction	Increased pressure on forest for timber and fuelwood due to hydropower project. Collection of bamboo for basket
5	Sirimala, Sunkhani	292	268	20,000–200,000	Timber in CFUG and outside and resin	Yearly operations in forest	No plantation, grazing regulation helped for natural regeneration	Grazing controlled since last year but not fully enforced	Extracted resin for 6 years and was earning NRs 200,000/yea. Timber harvested for road and electric line was sold outside
6	Katike Beniswara, Lamidada	92	149	20,000–22,000	No timber sale outside	Yearly management operations	Upper Tamakoshi hydropower project supported for plantation (2000 no.)	Grazing is not allowed after plantation. Pay forest guard	NRs 30,000 investment in local micro-hydro
7	Sideshwari, Virkot	99.94	300	145,000	Timber within CFUG	Yearly operations in forest	No plantation, natural forest of good condition	Grazing is regulated and enforced. Pay forest guard	
8	Setidevi, Lamabagar	700	70	90,000	<i>Lokta</i> and other NTFPs	No major activities in the forest	No plantation, and forest use is not regulated	Grazing is allowed for both cattle and yak. 30–35 yak headers	Expect to receive some hydropower revenue in future
9	Khorthali, Bhimeshwar	736	186	40,000–50,000	Timber within group	Forest guard and forest operations	Pine planted before CF handover. No plantation recently	Grazing is not allowed and rule is fully enforced	Selected by DFO for scientific management scheme - first one in the district

Source: Field study.

While focusing on these technical solutions, the pilot portrayed REDD+ as a source of additional income to CFUGs, without need to compromise the existing patterns of management and uses of forests. CFUG leaders were invited to a workshop organized by FECOFUN in the district centers where the senior project staff from Kathmandu made promises about the payments that would be received. As a FECOFUN official (interviewed in February 2013) said; "staff from Kathmandu explained about REDD+ and its benefits". The pilot organizers conveyed the message that taking part in the pilot would be an opportunity for the CFUGs to become a pioneer in the REDD+ process and they would receive money from the REDD+ scheme (observation by first author). The pilot staff also assured the CFUGs that the REDD+ implementation would not affect the rights of using the forests. The CFUGs were then asked to hold meetings in their respective group and decide if they wanted to take part in the pilot project. CFUG leaders in Bhitripakha (in November 2015) reported that the "FECOFUN facilitators attended our group assembly and told that the group will receive money under the pilot which we can use for forest management and supporting poor people in the group. We decided to join the pilot project as we did not want to lose the opportunity". The chairperson of Bolde Setidevi CFUG in Dolakha noted (interviewed in August 2013), "if we protect more trees, we will get more money".

By being involved in the pilot implementation, FECOFUN became a promoter of REDD+ and its officials in both Dolakha and Chitwan were found to be very positive about the pilot. They did not express any concerns of possible costs from REDD+ or trade-offs from implementing carbon-centric management such as access restrictions to the forests by smallholders. However, as we report in the following section, the pilot interventions have given rise to some subtle changes in the existing management practices and forest use with possible negative effects for certain groups of people.

4.2. Implications: Shifting regimes of management and uses of forests

We examined patterns of management and uses of forests in CFUGs within and outside the pilot and found differences in the rules and priorities of forest management. The CFUGs in the pilot site tightened rules for certain uses of forests, thus reinforcing an ongoing shift in forest management priorities towards more commercial interests.

Table 2a shows that the pilot payment was significantly greater than the average annual incomes of CFUGs before the pilot. In Dolakha, the payment was about double. During the pilot period, the CFUGs income from forest products declined because of the ban on harvesting timber by Forestry Department to mark the International Year of Forest in 2011. In Chitwan, the CFUGs had a higher income from the sale of timber and other sources than from the pilot. For example, Kankali CFUG had had on average 2.5 times greater annual income from its previous activities than it received from the pilot. However the harvesting and sale of timber was restricted in Chitwan from 2010 by the Chure conservation policy.¹⁰ For these CFUGs the pilot was a replacement income.

However, the pilot required CFUGs to use the payment in certain way to make sure it contributed to the REDD+ objectives. As shown in Table 2a, the pilot CFUGs in Dolakha spent the REDD+ payment on planting (of both timber and NTFP species) and paying forest guards or executive members to patrol the forests. These practices were not new for most of the CFUGs, although the level of investment in them had been low in recent years. Most of the CFUGs outside the pilot area had not carried out tree planting or patrolling in the last five years. However, they had planted pine (*Pinus patula*) and patrolled the forests when the CF was established and some CFUGs had been planting NTFPs

such as *Argeli* (*Edgeworthia gardneri*) and *Lokta* (*Daphne bhoulua*).

The increased forest surveillance in the pilot CFUGs was not only because of the newly planted trees. It was also to control the illegal felling of trees particularly those of pole size that some people use to construct animal shelters during winter. This increased surveillance tightened the rules regarding uses of forests. Except for two CFUGs from the Gaurisankhar Conservation Area, all the non-pilot CFUGs have grazing rules but these are not effectively enforced. In contrast, all five CFUGs in the pilot side claimed that they were enforcing the rules for grazing control. However, we observed no major change in the regular management operations between CFUGs in pilot areas and outside. All the CFUGs outside the pilot area except those located within the Gaurisankhar Conservation Area have been removing the less valuable trees, pruning and clearing bushes and shrubs. The CFUG leaders reported that these operations were for fuelwood supply as well as promoting the growth of trees for timber.

We found a general trend of increasing interests of CFUGs on monetary benefits from CF management. Such interests were also reflected in the choice of species in planting of trees and NTFPs. Four of the five CFUGs in the REDD+ pilot site were also part of a forest certification scheme undertaken by ANSAB and FECOFUN few years before the REDD+ pilot which was designed to promote NTFPs and link them to international markets. These CFUGs had also invested in NTFP based enterprises promoted by different donor funded interventions including the Swiss project. Thus CFUGs have been gradually moving towards commercializing forest management for revenue generation. This follows the more general shift from subsistence farming to off-farm activities and semi-commercial farming in the rural economy. Farmers in Dolakha have started to grow fruits and vegetables and adopt improved breeds of cattle and goat for commercial sale. They have also started to plant or protect trees on their farms for sale to plywood and furniture factories established in Charikot and a neighbouring district.

CFUGs have also started to explore the possibilities of income from ecosystem services provided by forests, e.g. water and recreation. For example Simpani CFUG in Dolakha, located close to Charikot, has received \$1500 (Nepalese rupees 150,000) as a onetime payment for a water source in their community forest used by a neighbouring village. The CFUG also receives a yearly payment of \$18 (Nepalese rupees 1800) for the conservation of this water source (group meeting in February 2013). Some other CFUGs close to Charikot have started to negotiate with the municipality for payment for the use of water sources located in their CF. Similarly, Kankali CFUG in Chitwan has been managing picnic spot with a swimming pool from which it received an annual income of about \$2000.

Further, REDD+ had attracted interest from CFUGs close to the pilot sites who were concerned about being excluded from the pilot. Four of the non-pilot CFUGs we visited had requested FECOFUN to explore the possibility of including them in the pilot. Sukram CFUG in Dolakha had even carried out forest measurements and a carbon assessment to prepare itself for any future possibility for joining REDD+.

However, the shifting values and priorities in CF appear to represent more the interest of leaders who are, as mentioned earlier, from relatively better off families. The interviewed households from middle and low income categories were less concerned about REDD+ but more about use of forests to meet daily needs. Household interviews in CFUGs in and outside of the pilot showed that particularly those with less than 0.5 ha of land, rely heavily on CF as they get more than 50% of their fodder and fuelwood from the CF (see Appendix A). As the tables in Appendix A shows, although there is a general decline in use of the forests, poorer households with limited land have few trees and therefore rely more on the community forest for obtaining fodder for livestock, fuelwood and litter for bedding. The better-off farmers have trees on their agricultural land and are not necessarily affected by a more restricted access to the community forest.

We found some people from the pilot site worried about future restrictions on grazing and collecting fodder. Farmers in a group meeting

¹⁰ Restriction on felling of green trees was imposed in Chure region of Nepal after initiation of the President Chure Conservation Program in 2010 (see Bishwokarma et al., 2016).

in Bhittri Pakha CFUG (Interviewed in November 2014) commented that people with limited land need the access to forest. A poor farmer from Bhitari Pakha CFUG said (Interviewed in February 2013):

I need to bring my cattle into the community forest because I do not have adequate fodder to feed them. I keep a buffalo and a few cows which I sharecrop for a neighbour. I hear from neighbours that leaders from the CFUGs are planning to stop grazing even in the small patch (of grazing areas) that remains. If it happens, I cannot keep my cattle. I neither can afford to buy improved breed cow or buffalo nor feed them as this requires good quality fodder.

Although CFUGs leaders claimed that there were no changes in the rules regarding the use of the forest, there seem to be trade-offs between enhancing carbon sequestration and meeting local needs to the disadvantage of the latter.

5. Discussion

The pilot design and implementation was essentially to show that REDD+ could be implemented in CF and focused on developing of a carbon monitoring mechanism which local people could be engaged in. This participation was seen to help keep the cost of monitoring lower and build ownership of the pilot among CFUGs (ICIMOD et al., 2010). Thus the pilot enrolled CFUGs into international policy and “buy in” to achieve its objective, a feature of the practice of development interventions in general (Li, 2007b).

The technical interventions in monitoring mechanisms and forest management in CF involved the process of simplifying forests and making the CFUGs amenable to greater bureaucratic control of REDD+. The CFUGs were required to follow the prescriptions and payments were conditional on this. As others have noted (Arora-Jonsson et al., 2016; McDermott, 2014), the pilot reduced forest value to a single metric of carbon content that could be monitored, allowing the commodification of forests and subjugation to fictive markets (Bracking, 2015). The REDD+ interventions driven by a technical and financial logic (see Leach and Scoones, 2015), ignore the wider range of non-monetary values that forests provide.

With the intention to ensure equitable REDD+ implementation, the pilot rendered the complex social dimensions of CFUGs technical (Li, 2007a). The process reduced individuals and households to discrete social categories to be targeted and addressed through a payment formula, ignoring the multi-faceted social inequalities that persist in Nepal. Caste and ethnic based discrimination (Lawoti 2008), gender inequality (Nightingale, 2006) and poverty are thus reduced to deficits which can be remedied through money. As Li (2007b) would put it, this abstract exercise simplifies and makes technical something that is fundamentally about power and patterns of social exclusion. In doing this, the project has ignored the historical structural basis of socio-economic relations underlying inequality and processes of marginalization. Thus despite the claim made by the proponents that the pilot contributed to improve livelihoods of targeted communities (see Shrestha et al., 2014), the interventions at best only partially addressing the symptoms with no evidence effects on the causes of inequality. Instead, it has increased risk of social tensions in the CFUGs (Saito-Jensen et al., 2014).

The pilot has not landed in an institutional vacuum (Leach and Scoones, 2015) and in Nepal it has been superimposed on CF institutions. The interventions under the pilot have given rise to a new layer of forest governance over the existing management and use. This has contributed to accelerate the ongoing shift in the way CFUGs value forests and their priorities for forest management. Abstract artefacts such as carbon and other ecosystem services (such as water) have come to have monetary value in Dolkaha and Chitwan. Some CFUGs are managing parts of their forests for water supply and receive payments and one has also been generating income from recreational activities. These initiatives along with REDD+ pilot are part of the discursive shifts from subsistence needs to monetary benefits of ecosystem services (Leach and Scoones, 2015). These have diminished the non-monetary forest values such as subsistence uses of fodder,

litter and fuel-wood. The findings also support earlier studies in the same project (Poudel et al., 2014), showing that the CFUG leadership have increased forest surveillance and tightened the rules regarding certain uses of forests. This commercialisation of community forests which REDD+ has contributed to, are at the cost of the livelihoods of the poorest people (Leach and Scoones, 2015; Groom and Palmer, 2012). REDD+, as an exemplar of international climate policy is contributing to a shift in authority in forest management from local to external actors and risks to subsume specific local interests (see Leach and Scoones, 2015). The ability of CFUGs to self-manage will thus be undermined by the requirements to meet international objectives (see Leach and Scoones, 2015; Peluso and Lund, 2011). However, CFUGs have seen REDD+ as additional source of income. In part this was because of declining CFUG revenues from forest harvesting due to restrictive measures imposed by forest authorities (Baral et al., 2017; Bishwokarma et al., 2016).

The pilot has also drawn in FECOFUN, previously an activist for forest rights, to promote REDD+ by involving it as one of the implementing partners, thus again “buy in” of support to make REDD+ implementation possible. However, FECOFUN also had an interest in accessing donor funding. But the enrolment of FECOFUN in international policy objectives has implications for CF governance as it may not now represent the interests of certain groups in CFUGs. Thus the way pilot was undertaken risks co-opting local voices into the technical and financial logic of REDD+.

6. Conclusion

In this paper we investigated how REDD+ was superimposed on community forestry and what implementation might mean for the management and uses of forests by local communities. The analysis paid particular attention to how the interventions gave rise to changes in the values and perception of forests and the rules regarding uses of forests. The pilot, designed with the clear intent of justifying REDD+ in community forestry, involved processes of making community forests and its institutions governable to meet international policy objectives. The governmental interventions were driven by the objective of demonstrating carbon sequestration and equitable REDD+ benefit distribution. They used a process of rendering the forest and the complex social dimensions of its users technical. We suggest that technical interventions have implications for community forestry governance as they may shift priorities and rules regarding management and forest use. REDD+ may accelerate shifts in the way people perceive forest value, moving from subsistence uses towards monetary benefits. A discourse about potential monetary benefits portrayed by the proponents of the REDD+ has been well received by the local elites and FECOFUN, turning them into advocates for REDD+. In subtle ways, the REDD+ interventions has reinforced restrictions to traditional uses that were already evident in community forests before the pilot. The superimposition of REDD+ on community forestry thus can reduce the contribution of non-monetary forest benefits to local smallholder farmers. Given the aid flows associated with REDD+ projects, and the uncritical acceptance of the REDD+ as a international payment mechanism, the role of REDD+ in undermining existing governance practices in Nepal's CF should not be underestimated.

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Appendix A

Appendix A.1

Use of forest in CFUGs from pilot site in Dolakha.

HH code	Income category	Land holding (ha)	Livestock	Access to forest products			Trees in private land
				Fodder	Grazing	Fuelwood	
DO-R1	Poor	0.15 (bari)	2 cattle, 5 goats	Major portion from CF but rules are restrictive (timing)	Used to graze in forest before CF	About 70% from CF	Few fodder trees
DO-R3	Poor	0.05 (bari)	3 goats	Mostly from CF	Install feeding	Mostly from CF	Few fodder trees
DO-R4	Poor	0.2 (bari)	1 cattle, 2 goats	Mostly from CF	No	Mostly from CF	No
DO-R7	Poor	1 (0.5 khet)	6 cattle, 8 goats	Mostly from CF	No	60% from CF	Some fodder trees
DO-R10	Poor	0.25 (bari)	4 cattle, 4 goats	50% from CF	No	50% from CF	Fodder trees in rerrace
DO-R2	Middle	0.65 (0.5 khet)	2 cattle	Mostly from own land	Install feeding	Mostly from own land	About 50 fodder trees
DO-R5	Middle	0.6 (bari)	2 cattle, 2 goats	About 60% from CF	No	About 50% from CF	Fodder and other trees
DO-R8	Middle	0.4 (0.2 khet)	4 goats	50% from CF	No	50% from CF	Few trees
DO-R11	Middle	0.5	No	No	No	Mostly form own land and LPG	Fodder and other trees
DO-R6	High	0.75 (bari)	2 cattle, 3 goats	About 20% from CF	Install feeding	Sufficient from own land	20% land covered with trees
DO-R9	High	0.8 (0.3 khet)	3 goats	Own land	Install feeding	Own land and LPG	50% of land covered by trees
DO-R12	High	0.5 (0.15 khet)	No	No	No	20% from CF and LPG	Fodder and other trees

Appendix A.2

Use of forest in CFUGs outside of pilot site in Dolakha.

HH code	Income category	Land holding (ha)	Livestock	Access to forest products			Trees in private land
				Fodder	Grazing	Fuelwood	
DO-NR3	Poor	0.1 (khet)	5 goats	Mostly from CF	Install feeding	From CF	Few trees
DO-NR5	Poor	0.6 (0.1 khet)	7 cattle, 2 goats	Mostly from CF, rules limited access	No	Mostly from CF	Some fodder trees
DO-NR7	Poor	0.4 (0.15 khet)	1 cattle, 3 goats	70% from CF	Install feeding	Mostly from CF	Few fodder trees
DO-NR8	Poor	0.4 (khet)	1 cattle, 4 goats	Mostly from CF	Restricted now	Mostly from CF	
DO-NR1	Middle	0.75 (0.4 khet)	3 cattle	About 60% from CF	Goats in margin of forests	About 50% from CF	Few fodder trees
DO-NR9	Middle	0.8 (0.5 khet)	2 cattle 4 goats	60% from CF for goats	No	40% from CF	
DO-NR2	High	1 ha (0.6 khet)	5 cattle, 5 goats	Mostly from own land	Sometime in margin of CF	About 30% from CF	
DO-NR4	High	2.5 (1 khet)	3 caattle, 4 goats	Mostly from own land	Install feeding	Mostly from own land	Fodder and other trees
DO-NR6	High	1 ha (0.2 khet)	2 cattle, 3 goats	80% from own land	Install feeding	Mostly from own land	Fodder and other trees
DO-NR10	High	0.5 (0.2 khet)	2 cattle, 4 goats	Mostly from own land	No	About 20% from CF	Fodder trees

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