Synergies and Trade-offs between REDD+ Pilot Project and Communities' Livelihoods: Case study in Nepal

Priscilla Cubo

Supervisors: Per Christer Odén, Southern Swedish Forest Research Centre, SLU
Mulualem Tigabu, Southern Swedish Forest Research Centre, SLU
Indra Prasad, Sapkota District Forest Office Ministry of Forests and Soil Conservation of Nepal

Synergies and Trade-offs between REDD+ Pilot Project and Communities' Livelihoods: Case study in Nepal

Priscilla Cubo

Supervisors: Per Christer Odén, Southern Swedish Forest Research Centre, SLU

Mulualem Tigabu, Southern Swedish Forest Research Centre, SLU

Indra Prasad, Sapkota District Forest Office Ministry of Forests and Soil Conservation of Nepal
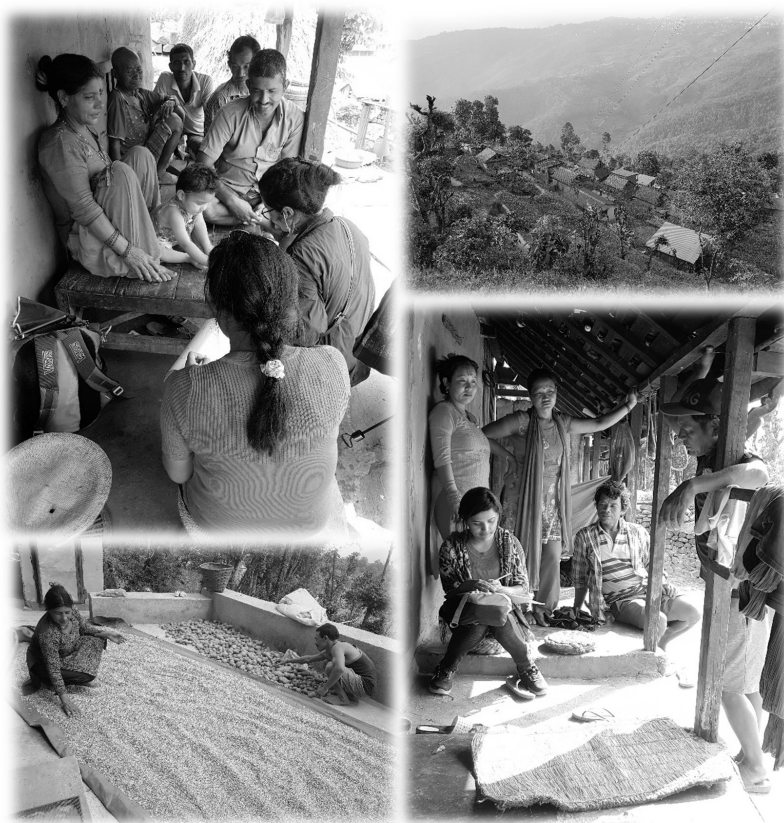
Examiner: Eric Agestam, Southern Swedish Forest Research Centre, SLU

ABSTRACT

Carbon trading through Reducing Emission from Deforestation and Forest Degradation, forest conservation, sustainable management of forests and enhancement of carbon stocks (REDD+) payment scheme has been initiated to reduce greenhouse gas emission from deforestation and forest degradation. However, there are several critics about the implementation of REDD+ in developing countries. Thus, this thesis work endeavored to identify synergies and trade-off between REDD+ Pilot Project and community livelihood in Nepal. The research questions addressed were (1) How are the benefits from the project distributed among members?, (2) Are there restrictions for access of non-timber forest products (NTFPs)? How is the need for NTFPs from community-managed forests addressed?; (3) Are there evidence of synergies between REDD+ pilot and community livelihood?, and (4) Are there mechanisms in place to address trade-offs between the REDD+ pilot and community livelihood? Data were collected through semi-structured interviews in three districts of Nepal, Gorkha, Dolakha and Chitwan (n = 63 for Community Forest User Groups (CFUGs), n=10 for authorities) and focus group discussions (n = 3). The data collected were analyzed using logistic regression and test of proportions. The results showed that there existed synergies between REDD+ Pilot Project and communities' livelihoods, such as infrastructure improvement, income generation, forest conservation awareness, capacity building and increase in governance. However, the project encountered some problems, including certain conflicts among members of the CFUGs, like unequal benefit distribution, lack of information, financial benefits and capacity building. As trade-off, there was a small reduction in the use of NTFPs, which was offset by an increase in forest conservation awareness and implementation of sustainable forest management in the project area. As a whole, it can be concluded that REDD+ Pilot Project brought lessons to people affected directly and indirectly, and it was certainly useful for REDD+ implementation at national level. A special attention has to be given to vulnerable groups (marginalized, women, Dalits, indigenous and poorer people) when providing capacity building and decision-making, so that REDD+ is considered an opportunity rather than an impairment.

Keywords: Carbon trading, Community forestry, Nepal, NTFPs, REDD+, Rural livelihood

LIST OF ACRONYMS

ANSAB	Asia Network for Sustainable Agriculture and Bioresources
CF	Community forestry
CFUG	Community Forest User Group
DANAR	Dalit Alliance for Natural Resources Greenhouse
DFO	District Forest Office/District Forest Officer
EC	Executive committee (of a CFUG)
FCTF	Forest Carbon Trust Fund
FECOFUN	Federation of Community Forestry Users Nepal
FPIC	Free, Prior and Informed Consent
GHG	Greenhouse gas
HIMWANTI	Himalayan Grassroots Women's Natural Resource Management Association
ICIMOD	International Centre for Integrated Mountain Development
IPCC	Intergovernmental Panel on Climate Change
MoFSC	Ministry of Forest and Soil Conservation
MRV	Measurement, report and verification
NGO	Nongovernmental Organization
Norad	Norwegian Aids for International Development
NTFP	Non-timber forest product
PES	Payment for Ecosystem Services
RECOFTC	Regional Community Forestry Training Centre

RED	Reducing Emissions from Deforestation
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD+	Reducing Emissions from Deforestation and Forest Degradation, forest conservation, sustainable management of forests and enhancement of carbon stocks
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation in Developing countries

TABLE OF CONTENTS

1. INTRODUCTION

1.1.   Background

It is known that greenhouse gases (GHG) are essential for keeping the warmth in the atmosphere, making it possible the diverse life forms on Earth. However, GHG emissions have been increasing markedly since the pre-industrial times, due to anthropogenic activities (IPCC 2007), which increases concerns about global warming and its consequences to the economy, environment and society. Early signs of disruptions associated with climate change have brought the GHG topic, especially terrestrial emissions, in sharp focus for researchers, activists and decision-makers alike (Agrawal, Nepstad, and Chhatre 2011). Currently, initiatives of policy implementation such as climate change mitigation and sustainable development are present everywhere in order to avoid worse consequences due to the increasing temperatures of the globe.

Along this line, carbon emissions trading, a type of Payment for Ecosystem Services (PES), has been implemented as an incentives-based mechanism to make different countries to compromise in reducing greenhouse gases (GHG) emissions through payments. Reducing Emission from Deforestation and Forest Degradation (REDD+) is an example, which is being developed by the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) to make an international framework to halt carbon emissions from deforestation and forest degradation. Its brief concept is that it rewards forest users in developing countries for keeping their forests instead of cutting them down. According to UN-REDD (2015), the energy sector is the greatest responsible for GHG emissions; the second one is deforestation and forest degradation, with 11% of global emissions. As these activities mainly come from developing countries, REDD+ aims to incentivize them to contribute with mitigation actions in the forest sector.

REDD+ was first known as RED (Reducing Emissions from Deforestation) when it was conceived by the eleventh conference of the parties (COP 11) in 2005. The additional "D" was given in 2007 in the COP 13, including forest degradation in the scope. Finally, the name REDD+ came in the COP 15 in 2009 and formalized in 2010 in the COP 16, including the so debated social aspects among other requirements to its

processes. UN-REDD (2015) then defined REDD+ as "reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks". The idea behind is that the economic value of forest conservation given by REDD+ accounts for the opportunity cost of forest exploitation and conversion, giving value to standing forests (Torpey-Saboe et al. 2015). However, many scholars have criticized REDD+ approach because of the risk of many negative impacts. For instance, it may raise existing tenure issues and compete monetarily with the use of common pool resources, especially affecting weaker forest-dependent groups (Larson, 2011). REDD+ is also constantly being submitted to changes and updates, which may generate uncertainties about its future, and may impact mostly grassroots stakeholders. Also, there are uncertainties about scales of carbon leakage of REDD+ projects (IPCC 2007); in other words, it is not well known how much emissions are displaced out of project areas.

Under technical support of the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), REDD+ is being implemented according to the UNFCCC requirements. It has three phases: readiness, demonstration and implementation. The first one consists of getting ready for its implementation in national level, by designing political and technical strategies with different main stakeholders. The second phase is when the planned strategies in the readiness phase are applied, and the demonstration of results is possible. The third, is the implementation in national level, when the measurement, report and verification (MRV) are applied on the existing projects, so that the payments can be concretized based on the results (Bhandari 1993).

Nepal, which is the chosen country to conduct this study, is engaged with REDD+ and is currently in the end of the readiness phase. The country that joined UN-REDD in 2009 has been supported by UN-REDD Target Support with management of REDD+ at national level, formulation of strategies to address drivers of deforestation and forest degradation, national REDD+ strategy, and Readiness Grant (Acharya et al. 2014).

1.2.　Synergies and trade-offs for sustainability

While implementing such processes in the country, concerns about synergies and trade-offs between carbon emissions trading and forest-dependent people arise. A key concern in the UNFCCC debates is whether REDD+ processes can make assertive results in international and local levels, by promoting synergies for the sustainability in its different areas, such as climate change mitigation, biodiversity conservation, sustainable forest management, and better livelihoods for traditional communities (Visseren-Hamakers et al. 2012).

As synergy, it is understood as the emission-reduction being considered an opportunity for the country rather than a threat; trade-off is, for example, the result of the efforts to reduce these emissions through innovation (Ignaciuk and Boonstra 2017). Therefore, REDD+ is theoretically not only for carbon emissions trading, as also for non-carbon values, to ensure both legitimacy and effectiveness of its processes (Visseren-Hamakers et al. 2012; Brown, Seymour, and Peskett 2008). Some examples of co-benefits from REDD+ program are poverty alleviation through financial support, legislation enforcement in favor of human rights and biodiversity conservation through avoiding monoculture and exotic species (Brown, Seymour, and Peskett 2008).

It is still not clear how REDD+ affects livelihoods of forest-dependent communities. There are several speculations about if it is more harmful than beneficial, and several scholars dedicate their researches about this topic (Saito-Jensen, Rutt, and Chhetri 2014; Poudel et al. 2013; Damgaard and Harrer 2015; Visseren-Hamakers et al. 2012; Bottazzi et al. 2014).

1.3.　The Nepali forests and the community forestry

With 147,181 square kilometers, Nepal is a small country located between China to the North, and India to the South. The country is divided into five physiographic regions: High mountain, Middle mountain, Hill, Siwalik and Tarai (Uddin et al. 2015). Its altitude varies between 59 and 8,848 m, from tropical lowlands to the Mount Everest.

The forest covers 44.74% of the country area; a value that increased since a survey published in 1999, when it was 39.6% (GoN and GoF 1999; GoN 2015). However,

the country also faces current problems with deforestation and forest degradation that may be caused mainly by the demographic expansion, ineffective laws and land use changes (D. Acharya et al. 2014).

Regardless of its relatively small size, Nepal has one of the richest biodiversity in the world, due to its complex geographic arrangement. It has a variety of biomes: tropical savannas, subtropical broadleaf, coniferous forests, temperate broadleaf, montane grasslands and shrub lands, rock and ice. Most of its forest is broadleaved closed and open forest (14.4% of country area); needle leaved open forest is the least common of the forest areas covering 5.62% of the country; and agriculture corresponds to 29.83% (Uddin et al. 2015).

The majority of the population is from rural areas, consisting of 76% of the households from farms (CBS 2011). In 2011, about 50% of the population lived in the Tarai region, 43% in the mountain/mid-hills areas, and 7% in the high mountain areas (Acharya et al. 2014). Nepal has 75 districts, divided into 14 administrative zones, which are grouped into five development regions: far western, mid-western, western, central and eastern.

Nepal has its forests divided into private and national forests. The national ones are classified into five categories: government-managed forests, protected forests, leasehold forests, religious forests and community forests. This study focused only on the last one, as it was the target for REDD+ Pilot Project.

After 21 years of nationalized forests, community forestry (CF) was introduced in Nepal in 1978, when the relationship between the population and the natural resources of Nepal started to be reviewed (K. P. Acharya 2002). A great mark for CFUGs was the Forest Act 1993, that provided full authority to the users for utilizing the forest resources (GoN 2011), but they are still State owned and the forest users have to comply with the national legislation. The Forest Act 1993 defined then community forests as national forests handed over to user groups "for the development, protection and utilization of common interest in the interest of the community" (GoN 1993).

Along the time, from a semi-subsistence lifestyle, rural people changed to more organized communities, many of them aiming to develop not only the forest

management but other priorities settled in the communities' agenda (Thwaites, Fisher and Poudel 2018). Nowadays, the communities' members are businesspeople, students, farmers, etc., but most of them are still dependent on forests products, especially timber for construction and nontimber forest products (NTFPs) such as fodder for animals, food and fuelwood.

In order to follow the national regulations, a binding agreement is signed by the government and by every CFUG, called operational plan (OP), which has to be approved by the District Forest Office (DFO) and to be renewed every five to ten years in order to sustain the rights over the forests (Pokharel 2012). The officially stated intention is to safeguard nationally important forest resources, by regulating the product extraction, so that the harvesting does not exceed annual increment (Ojha 2002; Rutt et al. 2013).

A CFUG has an assembly, that is the highest authority in the decision-making processes, and is responsible for electing Forest User Committee (Executive Committee (EC)), for the execution of CFUG decisions and to conduct day-to-day work (K. P. Acharya 2002). The EC has the autonomy to manage the community's financial resources, to implement national policies and to manage forest resources. Many CFUGs members are associated with the Federation of Community Forest Users Nepal (FECOFUN), which focus on giving more power to the communities to be more articulated and to advocate their interests.

Even nowadays, the caste system exists in its concept among Nepali population and it affects people's lifestyle. In the CFUGs, Dalits (lower caste, previously called "the untouchables") and indigenous peoples suffer discrimination in many aspects (Saito-Jensen, Rutt, and Chhetri 2014). Marginalized groups, such as poor Dalits, women and indigenous, also have problems in this aspect, and they are considered to be the most vulnerable ones and the most impacted from REDD+ (Khatri et al. 2016). Members from the higher caste, called Brahmins, are the most common caste in Nepal and hold the greatest percentage in positions of power, such as public officers.

To date, CF is spread all around Nepal, and about 35 percent of the population is involved in community forest management program, representing 19,361 CFUGs (DoF 2018). The Nepali CF is well known for being one of the earliest programs in the world,

and has long been considered a model replicated in other countries as well as a subject of several researches (Thwaites, Fisher and Poudel 2018).

1.4.   REDD+ Pilot Project in Nepal

Besides the government's efforts in setting up REDD+ readiness, a number of pilot projects has been developed by nongovernmental organizations (NGOs), and they may contribute with knowledge for designing governmental strategies for REDD+.

This study addresses one of them, which took place in Community Forest User Groups (CFUGs) of Nepal, from 2009 to 2013. For convention, I call it "REDD+ Pilot Project" – the way I realized people normally refer to this project in Nepal – or "REDD+ pilot" as utilized by Poudel et al. (2015), but its full name is "Design and establishment of a Governance and Payment System for Community Forest Management under REDD+". Right in the same year of COP 15, under the financial support of Norwegian Agency for Development (Norad), REDD+ pilot was implemented by three agencies: International Centre for Integrated Mountain Development (ICIMOD), Asia Network for Sustainable Agriculture and Bioresources (ANSAB) and Federation of Community Forestry Users Nepal (FECOFUN). Its main goal was to pilot a payment mechanism in three watersheds, so that it could be used to support a demonstration for carbon credits payment mechanism at national level (ICIMOD 2011).

The project area consisted of the watershed of Charnawati River in Dolakha District, Ludikhola River in Gorkha District and Kayarkhola River in Chitwan District. In 2011, they represented around 10,266 hectares of forest area, and the project involved more than 18,000 households from 105 CFUGs (GoN 2011). It covered three different geographical regions: mountain (high altitude), hill (medium altitude) and Tarai (the plains, low altitude) (Shrestha, Karky, and Karki 2014), as seen in Figure 1:
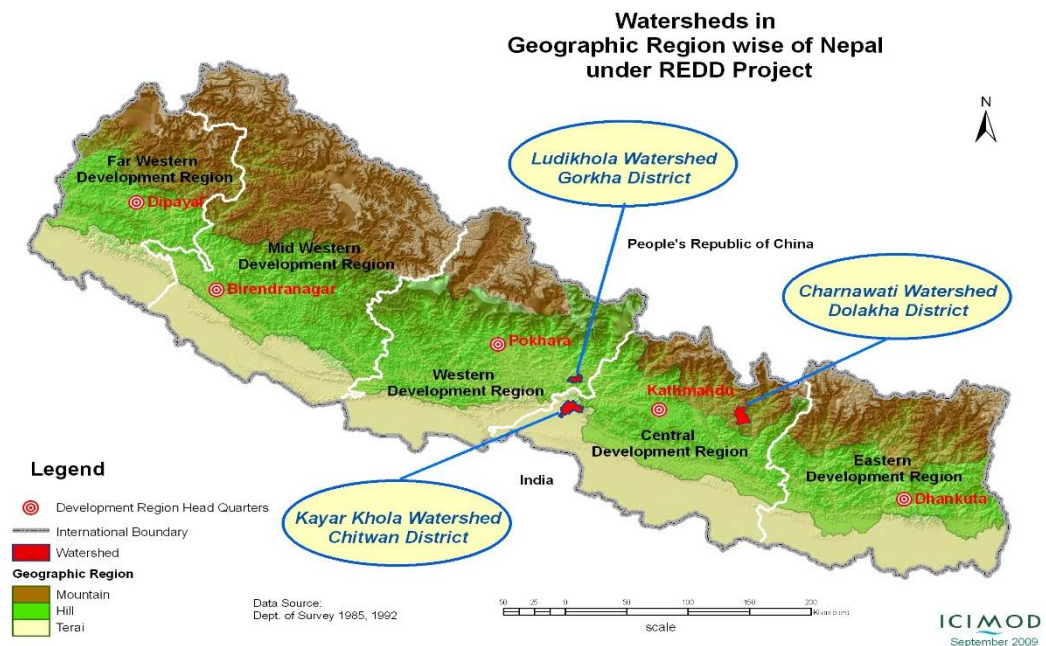
Figure 1: Location of the three watersheds and corresponding geographic regions. Source: Shrestha, Karky and Karki (2014).

The project also established the pilot Forest Carbon Trust Fund (FCTF) in Nepal in 2009, which was responsible for managing performance-based payment mechanisms from the money granted by Norad. Besides the performance-based payment criteria, the pilot fund was based on socioeconomic aspects. Therefore, the money had to be allocated to CFUGs based on four elements (ICIMOD 2011):

- the quantity of forest carbon saved above the baseline;
- the number of households of indigenous peoples and Dalits;
- the ratio of men and women; and
- the number of poor households within the project area.

The project benefit sharing mechanism included 40 % for carbon conservation and increment, 10 % for indigenous peoples, 15 % for Dalits, 15 % for women and 20 % for poor households (GoN 2011).

1.5. Justification and aims of this study

Performance assessment at the group level is useful to observe if there are peer effects promoted by PES (Salk and Travers 2018); at individual level, it is useful to assess any information respondents want to express without influences, and to assess which are their own motivations in contributing with conservation behavior. Several studies about REDD+ pilot in Nepal were carried out at individual and group levels, showing different points of view about its impacts on CFUGs' livelihoods. However, few PES studies have analyzed post-intervention behavior (Andersson et al. 2018).

The main objective of this study was to analyze the synergies and trade-offs between REDD+ Pilot Project and community forests livelihood in Nepal. The approach was to interview households from the project area, regarding their knowledge and perceptions about the project and the use of NTFPs before, during and after the project period.

The key research questions were:

1. How are the benefits from the project distributed among members?
2. Are there restrictions for access to NTFPs? How is the need for NTFPs from community-managed forests addressed?
3. Is there evidence of synergies between REDD+ pilot and community livelihood?
4. Are there mechanisms in place to address trade-offs between the REDD+ pilot and community livelihood?

2. METHODS

2.1. The study sites

The study was mainly conducted in three watersheds from the districts of Gorkha, Dolakha and Chitwan (Figure 2). Other district visited was Kathmandu, since some authorities' headquarters were there, and they were representatives of REDD+ or with certain level of participation of REDD+ pilot. Table 1 presents the geographic regions of the watersheds, the number of CFUGs, forest area and number of households that belonged to REDD+ pilot project area.

Figure 2: Images of communities visited in Chitwan (1), Gorkha (2) and Dolakha (3) districts.

Table 1: Number of CFUGs involved, forest area and households residing in the watershed areas of REDD+ pilot project.

Watershed	District	Geographical region	No. of CFUGs	Forest area	No. of households
Ludikhola	Gorkha	Hill	31	1,888	4,110
Chamawati	Dolakha	Mountain	58	5,996	7,870
Kayarkhola	Chitwan	Tarai	16	2,382	4,163
Total			105	10,266	16,143

(Source: adapted from Saito-Jensen, Rutt, and Chhetri (2014))

According to Acharyle et al. (2014), lifestyle in Tarai is mostly based on agriculture farming, using grasses from public and private lands; high mountain communities rely on silvopastoral transhumance lifestyles; and hilly and mountain communities use tree fodder.

2.2. Study approach

From 20 April to 19 June 2018, the data were collected in the predefined study sites of REDD+ Pilot Project: Chitwan, Dolakha and Gorkha. A total of 73 qualitative semi-structured interviews with REDD+ involved authorities, NGOs and CFUGs in Kathmandu, Chitwan, Dolakha and Gorkha were conducted. The interviews and focus group discussions were made in Nepali with the help of a local interpreter, that was a master's degree student in law with work experience with CFUGs research. In total, 17 out of the 105 CFUGs were visited; 7 from Chtiwan, 5 from Gorkha and 5 from Dolakha (see appendix I).

The first step of the field work was visiting each one of the three DFOs that belonged to the target watersheds of REDD+ pilot, since the officers had a deep knowledge about the region and could provide more information about potential communities to be visited, such as phone numbers of key people, maps, sketches and list of CFUGs. In Chitwan, people from DFO were designated to accompany us in the field, which helped me a lot in the process to find the communities location and the right people to be interviewed. The second step was contacting the chairperson or other former or current EC members, as well as prominent persons with a somewhat advisory relation to the executive committees and with a good knowledge about the topic. Third, with the provided information, my interpreter and I went to the target communities to start with the interviews and focus group discussions. The approach for data collection is described below:

- **Semi-structured interview:** questionnaires were prepared to gather general information about the respondents, their opinion about REDD+ Pilot Project performance and their limitations in use of forest products before, during and after the project period (see appendix I). The respondents could choose more than one option when there were more than two alternatives. The data collection was made

Figure 3A: Interview of a CFUG member in community's headquarter with the support of an interpreter.

by purposive sampling and the selection criteria for the CFUGs were accessibility to the villages and level of engagement of the CFUG with REDD+ pilot project. Interviewees were purposively selected, being prioritized EC members, benefited people and their availability for the interview. During the focus group discussion, it was also possible to select some of the respondents. There, I sought to interview an equal number of women and men, encompassing all wealth status and all castes. I interviewed about 20 people in each of the three watersheds, which were considered a satisfactory number to reach the theoretical saturation. In other words, 20 was considered more than enough for this study since not much additional information was given by new respondents, and the costs to interview more people started to be higher than the opportunity to get new information. Among the authorities, 10 people were interviewed, considered active in REDD+ pilot and/or with expertise about the topic. Most of them were English speakers and they belonged to MoFSC (district forest officers (DFO) and REDD+ Implementation Center), FECOFUN,

RECOFTC and ICIMOD (see appendix I). Figure 3 illustrates the interviews made with CFUGs and with the authorities.

Figure 3B: Interview of an authority in his office.

- **Focus group discussion**: it involved groups of CFUGs members who were somehow engaged with REDD+ pilot project. My intention was to assemble different viewpoints from different socioeconomic status, from CFUGs' members that were engaged in REDD+ Pilot Project. For this purpose, I relied on the help of local key informants that could gather people from the CFUGs which, in my case, were EC and DFO members. During the meeting, there was a facilitator, who was responsible for gathering the group, and the mediators, who were leading the meeting and making questions. A list of presence was made with information about people's gender and main occupation, and the questions were elaborated from general to

specific, regarding their knowledge and perceptions about REDD+ (see appendix II). People were free to contribute with any other information that was not addressed. Figure 4 illustrates a focus group discussion held in Gorkha.

Figure 4: Focus group discussion in a community in Gorkha district.

All 3 focus group discussions and 30 of the 73 interviews considered most relevant were translated, summing up 13h20min of translated audio records. The selection criteria was the presence of new information given by the respondents, since according to my interpreter, many of them had very similar answers and points of view. Additionally, all authorities' interviews were fully transcribed. The answers were processed into tables and graphs to analyze the respondents' profile. Further, in order to analyze synergies and trade-offs between REDD+ Pilot Project and the communities' livelihoods, statistical analyses were made to identify differences in the use of NTFPs between periods and binomial logistic regression was applied to find out possible likelihoods of their profile when giving certain answers from the questionnaire.

The objective of binomial logistic regression was to verify if there were different perceptions among CFUGs' members due to different ways REDD+ Pilot Project affected their livelihoods. To make it possible, answers were processed, and it was analyzed if one of the two possible answers (dependent variables) was more likely to be given by the respondents from certain groups (of different wealth status, level of education, gender, caste and district). Since respondents could choose more than one answer per question in most cases, this analysis was possible to be made only on questions with two alternatives. The only two questions in this case were "Are you satisfied with REDD+ Pilot Project?" and "Do you know what REDD+ Pilot Project is?", with "yes" or "no" as possible answers. The first question was almost unanimous for "yes", which means that practically all groups were satisfied with the project, so no analysis was made in this case.

2.3. Respondents profile

2.3.1. CFUGs' profile

General information about the CFUGs that participated in the project is presented in Table 2, based on the 63-interviewed people. Most respondents consisted of women, illiterate, poor and old people. A greater part of them were farmers (82.5%) and not linked to any association (85.7%). The higher caste was majority (44.4%), but 41% of them were considered poor; same number as poor Dalits and indigenous people. The number of uneducated people was even among castes: 12 for Dalits and for indigenous people, 13 for higher caste and 3 marginalized people. However, between genders, women had the greater part, with 74% illiterate. Women were also the majority among respondents considered poor (73%), while among wealthy people, they were the minority (36%). Regarding differences between districts, Chitwan had the higher proportion of respondents from the higher caste (55%). In Dolakha and Gorkha, poor people were the majority, with 65% and 81%, respectively.

Table 2: Proportion of respondents from CFUGs, corresponding to 63 members.

Category	Levels	%	Category	Levels	%
District	Gorkha	35	Household size	> 4	52
	Dolakha	33		1-4	48
	Chitwan	32	Wealth status	Very poor	11
Gender	Female	60		Poor	54
	Male	40		Well-to-do	35
Caste/ group	Higher caste	44	Main occupation	Farmer	82
	Indigenous	27		Off-farm acitivity	14
	Dalit	25		No work	3
	Marginilized	3	Associations	unassociated	86
Education	No education	62		FECOFUN	9
	Primary school	24		Other	8
	Higher education	14		HIMAWANTI	2
Age class	Old (≥50)	48			
	Adult (≥35 and <50)	44			
	Young (<35)	8			

Note.: HIMAWANTI: Himalayan Grassroots Women's Natural Resource Management Association ICIMOD

2.3.2. Authorities' profile

The public authorities interviewed were from the Ministry of Forest and Soil Conservation (MoFSC), more precisely District Forest Officers (DFOs) and REDD+ IC members (Table 3). The NGOs authorities were from ICIMOD, FECOFUN and Regional Community Forestry Training Centre (RECOFTC) (see appendix I). From a total of 10 respondents, five were from Kathmandu, where the main institutional offices are located. All of them were from the higher caste (Brahmin), most of them had forestry as background and were men.

Table 3: Proportion of authorities, corresponding to 10 respondents.

Category	Levels	%
District	Gorkha	20
	Dolakha	10
	Chitwan	20
	Kathmandu	50
Gender	Female	10
	Male	90
Age class	Old (≥50)	20
	Adult (≥35 and <50)	80
	Young (<35)	0
Background	Forestry	80
	Agroforestry	10
	Sociology	10
	Other - Economy	10
Sector	Public employee	60
	NGO	40

3. RESULTS

3.1. Distribution of REDD+ Pilot Project benefits among members

After analysis of interviews and focus group discussions, the benefits CFUGs got from REDD+ Pilot Project were divided into four categories: *financial benefits, capacity building, governance* and *infrastructure improvement*. The main findings about each category are described in this chapter, by presenting positive and negative aspects of them, based on CFUGs and authorities' perceptions. Figure 5 shows the different ways CFUGs were benefited per caste, which gave origin to this categorization.
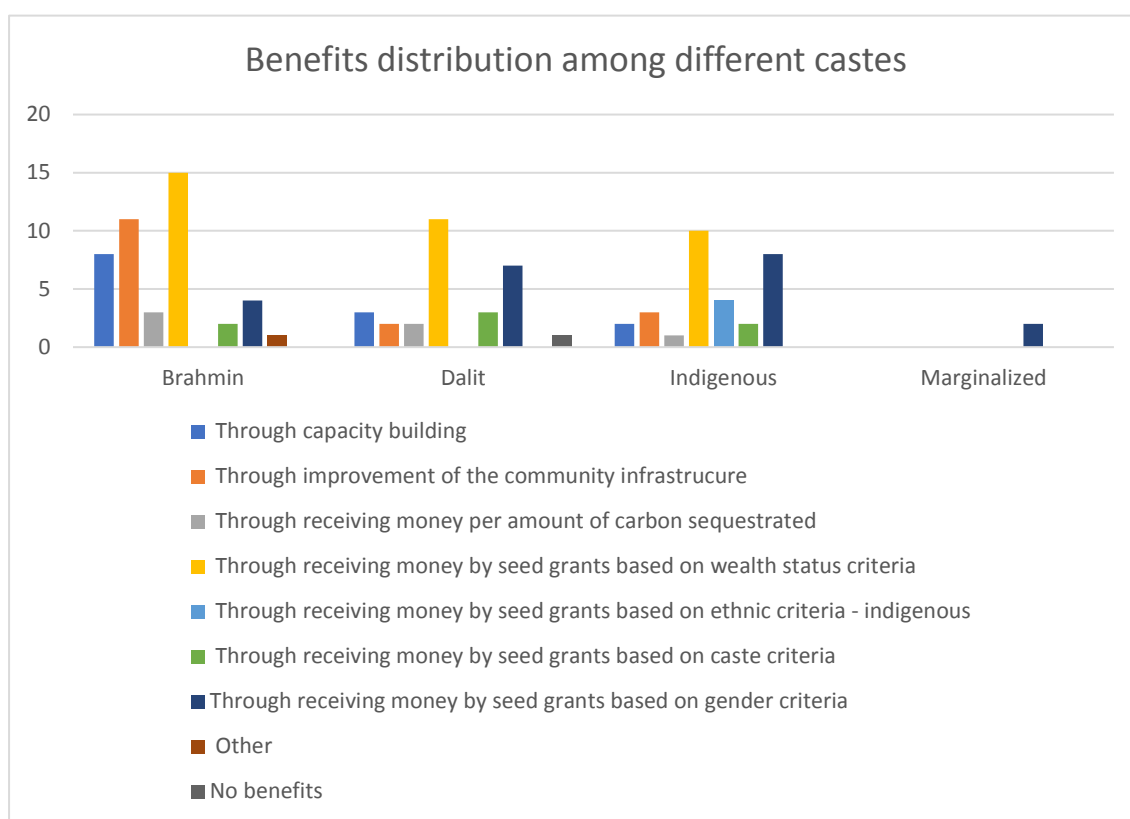

Figure 5: REDD+ Pilot Project benefits distribution per caste.

In general, most people received financial support through wealth status criteria. However, as it can be seen, people from different castes were impacted differently from the project. For instance, the Brahmins – the higher caste group, that had the higher proportion of richer people, thus could not receive money –, were mostly benefited by

infrastructure improvement and capacity building. In turn, many Dalits, indigenous and marginalized people were benefited through gender criteria.

In order to better illustrate how the benefits were distributed among CFUGs' members, a summary of CFUG's main comments in the focus group discussions was made, organized into key questions (Table 4). The meetings counted on one or two communities per district (see appendix II).

Table 4: Summary of focus group discussions, divided into main questions asked to the public; where C, G and D stand for Chitwan; Gorkha; Dolakha, respectively.

Questions	Answers
1. How much do CFUGs members that were engaged in REDD+ pilot project know about REDD+?	*C: Everyone in the village was engaged in the project but only about 60% of members know about REDD+.* *G: Although the project was held some years ago, everybody knows what it is or have some idea.* *D: Everybody knows about REDD+ and they understand that it is about receiving money from other countries through stocking carbon in their forests.*
2. What do you think about it? Which are the positive and negative aspects for them?	*C: REDD+ gave us a good experience and knowledge about each positive aspect of the forest resource. (...) The problem is that REDD+ is driven by elite in our community because the poorest ones present a lack of interest, there's a lack of initiative.* *G: Our community received a good money and every person participating could improve his/her livelihood, investing in their business and farms. The negative effect of this project was that it didn't continue. (...) This project only created hope among people.* *D: During the project, we became more aware about forest protection, and now we are much stricter regarding the use of forests. (...) We think REDD+ was positive, because we receive a little money. It's not much, but as we are poor, it already helped us.*

3. How is the money from the project distributed among members?	*C: They (EC) separated people into three categories: well-to-do, poor and very poor. So, the poorest ones would have the priority. They didn't give direct money, but they asked where they wanted to invest, like cattle raising, then they would get it. They also built toilets in poorer people houses and built biogas plant.* *G: There are many criteria of giving money – indigenous, Dalits, poorer ones, marginalized people –; we have the same formula of other communities. (…) The community members received money twice, around 2013 – 2015.* *We used to choose the poorest people and we gave them knowledge about the project, and some farming knowledge. We then asked them what activities they wanted to do, like animal farming. For animal farming, we didn't give the money we gave the animals.* *D: They distributed the money prioritizing the following order:* *1. Lower caste – Dalit* *2. Indigenous* *3. Woman*
4. What are the expectations of the future REDD+ pilot project held by the government?	*C: The money received should be equally distributed in the community. They should really analyze how much percent of carbon was stocked from each community forest and they should receive the right amount of money.* *G: If they are giving money from national to district to province levels, it may be not effective. The money may not come right away to us and whole money may not arrive to us. If they respect the same rules as FECOFUN and ANSAB scheme, it would be OK.* *D: We have the idea about it, but we are a little bit insecure about the government because of some experience we had. We think that the work that FECOFUN did was good and we received money. In earthquake time, the government promised a lot, but they didn't do. In REDD+ project, we received the money.*
5. How were the restrictions in the use of NTFPs addressed? And nowadays, are there restrictions for their use?	*C: We didn't face problems with the use of NTFP's.* *G: REDD+ project didn't affect us by using the product from our forests. We got some knowledge about using less firewood in stoves and about the use of biogas.* *D: Yes, they (EC) decided to reduce its use by changing wood fuel by biogas and cylinder gas for cooking. Nowadays, they keep the same or higher restrictions, as the community was educated about protecting forests. The previous EC didn't have many rules over the use of forests, that's why we don't have many forests. After REDD+ pilot project, people from our community used to cut trees and sell wood. This new EC is making new rules and restrictions.*

In addition to the information presented in Table 4, the categories of benefits distribution described below are supported by quotations, graphs and images that illustrate the findings of this study.

Financial benefits distribution

Regarding the financial benefits, the money allocation started from Norad to FCTF, which would follow the criteria given by ICIMOD (2011). After that, the money was distributed to the CFUGs located in the three watersheds participating in the project. Lastly, every CFUG's EC managed the money distribution among the target households, making adaptations from the original criteria. Therefore, poorer households, indigenous, women and lower caste people were prioritized to receive financial benefits, while richer people were not able to receive it. The more a person fulfilled each one of these criteria, the more he/she was prioritized to receive the benefits.

The financial benefits were granted mostly based on wealth status criteria (61%) and on gender criteria (35.6%). Ethnic and caste criteria represented lower percentages (13 and 8%, respectively). Some EC included other criteria, such as priority to people in need of health treatments, to marginalized groups, to indigenous people and to the lower caste, independently of their wealth status. There was even a case of supporting in re-appropriation of residents, who had sold their land to pay bank loans. The following statement is an example of a beneficiary for health treatment in Birenchowk Community, Gorkha:

"When they (EC) announced about the money, I applied for it because I wanted to do medical treatment, and I got it. I have stones in my kidney. (…) I am very poor, I don't have my own land and I have a small house."

In most cases the benefited ones did not receive money but were asked by the EC which activity they preferred to perform. People mainly chose their traditional farming activities (70%), so one or two animals were granted to them (especially buffalo, goat and pig). Some chose to improve their own business such as in purchasing sewing machines for tailoring (Figure 6), others to make some improvements in their house by building stoves and biogas plants.

Figure 6: Investment in tailoring in Gorkha (upper left), buffalo farming in Gorkha (upper right), pig farming in Chitwan (lower left) and goat farming in Gorkha (lower right), with REDD+ Pilot Project payment.

With exception of Ludidamgade Community, all CFUGs affirmed that the financial benefits were very limited. The amount received per household varied between 3,000.00 to 10,000.00 Nepalese Rupee, which corresponds to approximately to 240.00 to 798.00 Swedish crowns. In most cases it allowed them to buy one or two animals per household. In Ludidamgade Community, people received a higher amount compared to other communities visited, with an average of 20,000.00 Nepalese Rupee

or 1596.00 Swedish crowns per household. Therefore, people were able to invest in more expensive goods, such as machines and infrastructure for their microbusinesses.

The strategy to deal with the limited amount of money adopted by most communities was a payment rotation system, as described by an EC member in the focus group discussion in Gorkha:

"This fund isn't to give back, but we want all community to utilize this money to build up our economic status. We know that this money isn't enough for all members, that's why we make this rotation system. While dividing the money, we gave more priority to Dalits, then to poor, then to women and to indigenous people."

Other common problems reported were the delay in receiving the money and the lack of equitable benefit sharing distribution, as stated below:

"In the future, the money sent by the government should be directly sent to our accounts because we received it very late. I want them to conduct awareness programs and educate people about the importance of forests." A farmer from Jan Pargati Community, Chitwan

"I am satisfied with my community and I think if other similar project took place, they should select people according to economic status rather than caste and ethnicity." A farmer and president of Viteri Pakha Community, Dolakha

In some cases, people found it unfair that lower castes were prioritized rather than their economic status, and they affirmed that families that really needed the money were not benefited. For instance, the Brahmins, people from the higher caste, were not benefited in some cases even if they were poor.

Capacity building

This category consists of the knowledge and awareness CFUGs gained thanks to their participation in the project. It was mostly through trainings, meetings, courses, forest monitoring and involvement in any other project's activities. From the questionnaires results, about 22% of the respondents recognize that they benefited from capacity building. For instance, it was possible to identify learnings with governance since people

had to deal with law enforcement and with payment distribution; increase in forest conservation awareness; increase in knowledge about sustainable use of forest resources; and increase in knowledge about international environmental policies such as climate change and carbon emissions trading.

The following testimonial got from Kalikanagar Community, in Chitwan, illustrates this:

"*We were taught the positiveness of forest and we knew about the alternatives of forest products like biogas and we also started only using the dry woods and dead trees for our livelihood. We were educated about the importance of forests and about how we can use it in a better way.*"

The EC member of Ludidamgade Community, Gorkha, also gave positive comments about the project:

"*We organized many courses such as basket making training and bio-brigade training. We had also participated in conservation and in climate change international programs. I know many things about climate change thanks to it. 'REDD+' belongs to very poor people and it gave us a lot of knowledge about forest conservation and how to utilize the forests.*"

More than half affirmed to have participated in reduction of deforestation and in afforestation programs. The authorities had also unanimous opinion about it: there was an improvement in forest conservation awareness and in communities' livelihoods. The following statement from MoSCF, Kathmandu, illustrates this:

"*They improved their governance, they improved in combating forest degradation, they carried out forest management and they learned how to measure carbon, because they were actively involved in those activities. This way, their capacity building was enhanced. They also could take into consideration the social criteria in the payment, so that are other benefits that they could have with the projects. They could also have income generation, not much but they had.*"

On the other hand, capacity building was not privilege of everyone, and the information people obtained about REDD+ Pilot Project was uneven (Figure 7). Among the respondents, 57% of interviewed people did not know about it, especially the ones with lower educational level, which showed the poor information distribution mechanism in CFUGs. In those cases, it was necessary to explain more in-depth about the topic during the interviews, so that they were able to give their opinion about the grants they had been received.
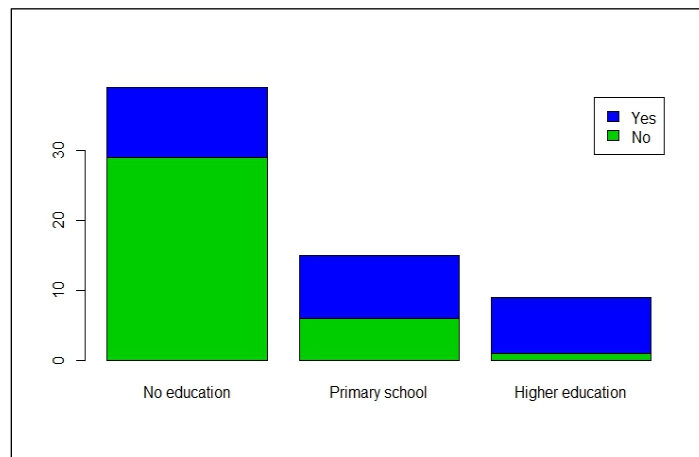
Figure 7: Proportion of CFUGs' members who knew about the Project, divided into educational level.

To analyze the influences on people's knowledge about the project, a binomial logistic regression was applied for the question "do you know what REDD+ Pilot Project is?". The possible answers were "yes" or "no". The analysis revealed that educational level was the most important variable that influenced respondent's knowledge about REDD+ Pilot Project. Gender, caste, wealth status and district showed no influence on the answers. It was found that having some level of education (primary school or higher education) was significantly ($p < 0.01$) associated to the group of people who knew about the project (Table 5). On the other hand, people with no education were significantly associated to the group that did not know anything about it.

Table 5: Binomial logistic regression with educational level as independent variable and answer to the question "do you know what REDD+ Pilot Project is?" as dependent variable.

	Coefficient	St. Error	Z-value	P-value
Education	0.8873	0.4491	1.976	0.048179*
No education	-1.9520	0.5798	-3.367	0.000761***

Significance codes: 0.001 '***'; 0.05 '*'

The lack of information was reflected in several aspects of CFUGs. In Gorkha, an indigenous people from Taksurtadi Community seemed not to be understanding what REDD+ Pilot Project was, nor its payment system as the following testimony demonstrates:

"I got one goat from my community and they said I had to give the money back, but I still didn't do it. The community didn't force us to do it either. I don't know what REDD+ project is. We are confused; if the project has given the money to us, why should we return it? The community didn't tell us properly about how it works, they only ask us."

It was common to have this kind of grievance, including from some people who showed discontentment when realized that not everyone gave the money back. The EC did not seem to press people to return the money but incentivized the ones who were able to do so, in order to carry on the payment rotation system.

The same way as CFUGs, most authorities interviewed made it clear that there were problems with benefit-sharing mechanism, especially information distribution and with the project's governance at some level. A common opinion among them was that REDD+ pilot might have given expectations to the public, even with the uncertain future. The following statement illustrates these problems:

"REDD+ hasn't developed in international level yet. Internationally, we are not in the same level of commitment as local level. Are we selling an empty dream? I don't know. I call it 'REDDfuty'. We don't know about the continuation, we don't know if we are creating hollow expectations." Representative of ICIMOD, Kathmandu

It was common to find people complaining that they could learn with REDD+ pilot, but since there was not a continuation, they thought that they somehow lost their time. On the other hand, I could also find people still hopeful to have the opportunity to participate in a similar project.

Governance

Communities' members could improve their governance in many ways. For example, by dealing with project's benefits distribution among members and by organizing themselves in monitoring their forest resources. Despite governance was a positive aspect of the project, it did not affect the CFUGs in an equitable way due to the unequal information distribution, affecting many areas of CFUGs' livelihoods. As an example, decisions about the project processes came mostly from the EC rather than the entire community. Consequently, most interviewees pointed lack of transparency, lack of organization and participatory decision-making as the main problems of REDD+ Pilot Project (Figure 8).
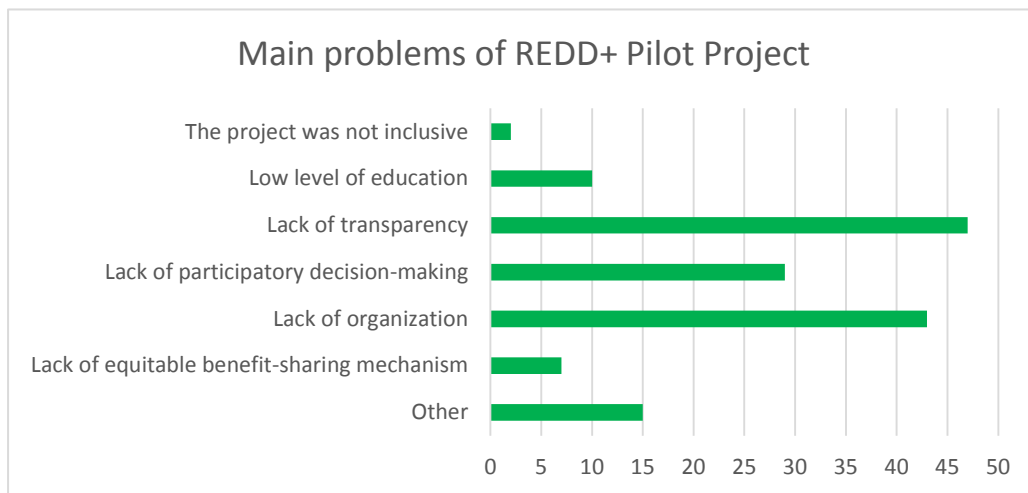

Figure 8: Main problems of REDD+ Pilot Project according to CFUGs.

The EC, normally composed by better-off people and with higher educational level, had the power of ruling about REDD+ pilot activities, while poorer people did not participate equally in decision-making. This can explain distinct points of view from different wealth status groups (Figure 9). The poor people were the group that most indicated the lack of transparency (82% of them), while 71% of respondents from the poorest group pointed lack of participatory decision-making as main problems. Lack of organization was also one of the main problems for all groups, but especially for poor and well-to-do ones (71 and 68%, respectively).
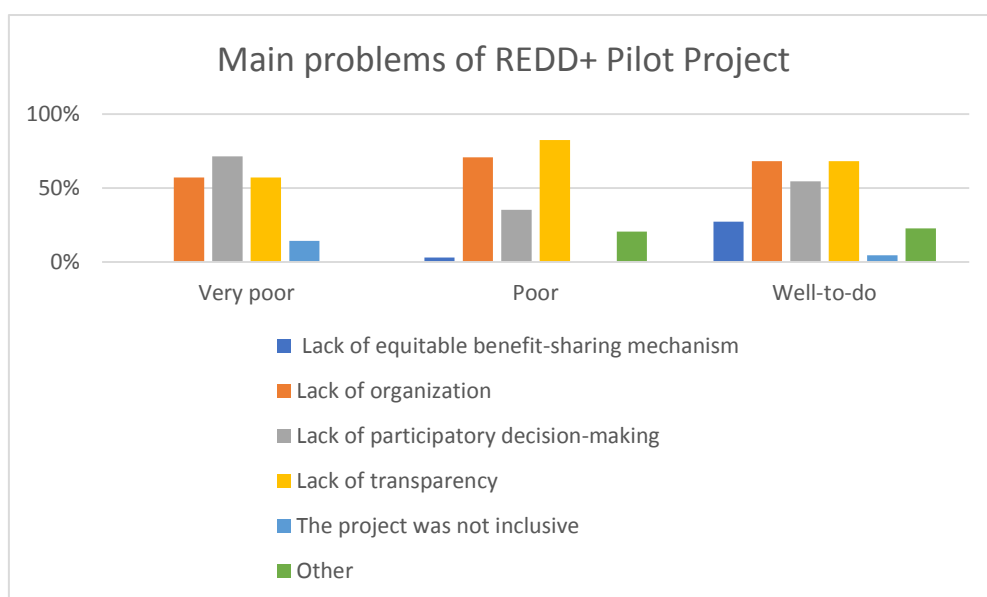
Figure 9: The proportion of respondents with respect to main problems of REDD+ pilot projects by wealth group.

The following testimonial from a Dalit farmer from Jan Pargati Community, Chitwan, illustrates how the lack of information reflects in the project's governance:

"*Who speaks has the rights and who doesn't speak has no rights. I am a farmer and I belong to the very poor group and to the lower cast. (…) I want to participate in the project, but I didn't receive any information about meetings. My community isn't working in a proper way, they only have meetings in a small group and they make all decisions, that's why I am unsatisfied with my community. I wanted to gain some knowledge about forest and conservation, but they didn't give us that opportunity. When the community (EC) calls us and says, 'we are going to do some afforestation program!', then I go. But I cannot read what is written in the banner, so I don't know what it is about. I just participate in the activities.*"

An indigenous farmer from Tuksartadi Community had similar testimonial:

"*I once asked to the community (EC) why are we receiving this money? And they said they were giving us that because it was their program.*"

These people interviewed made it clear that they were not able to contribute in decision-making, even if they wanted to. Additionally, when asked during interviews about what could have been done to improve the project, the main answers were to include more members, especially the poor people; involve all members in decision-

making, including benefit-sharing; and set-up appropriate communication facilities, e.g. monthly meetings.

In contrast, most respondents that belonged to the EC had different opinion about the lack of participation of poorer people: illiteracy and lack of interest. The following quotation is from an interview with the president of Kwadi Community, Gorkha:

"Q: We interviewed people from your community and they don't know about REDD+ Pilot Project. Why does that happen?

A: Because of negligence. When we invite people for meetings, they always give excuses for not coming, saying that they must work, that they are busy. They also always leave, one by one, in the middle of the meeting."

The EC member of Kankali Community stated the following:

"Q: Most people we interviewed didn't know about REDD+ Pilot Project. Why do you think that happens?

A: Because of illiteracy and because we don't have such time to be always explaining again to every family what it is about. Also, because there was another project, they are a little bit confused about where the money came from. There is also a lack of interest from people, as the money is very little."

The above comments showed the different viewpoints regarding the lack of participation of poorer people in the project, which could also be seen from the focus group discussion summary (Table 4).

Some authorities commented that the lack of participatory decision-making was in part due to elite capture, an existing problem in the CFUGs. As the EC had the power to manage how to distribute the benefits among members, all the project might be influenced. Regarding this topic, an ICIMOD representative affirmed the following:

"There is elite capture. This happens all the time. For example, they elect women leaders (in the EC), but they are only proxy leaders just to show that there are women. It is hard to just see this project in isolation and say that it has problems with elite capture. We got the Dalit organization to find out where it's wrong and we asked them to write us a report. We hired DANAR Nepal (Dalit Alliance for Natural Resources Greenhouse) independently, so they again went to the field to fix those things up that were not going well with the Dalits. So instead of seeing this in isolation, we should rather compare it with other programs. I think this

program was much more inclusive and had a lot of safety, which other programs don't have. The aspect of inclusiveness can also be relative. And there are also rules within the community forests, where some money doesn't reach."

Infrastructure improvement

In some communities we visited, REDD+ pilot provided money for infrastructure, such as community headquarter (Viteri Pakha Community, Dolakha; and Ludidamgade Community, Gorkha), fish pond (Kankali Community, Chitwan) and biogas plant (Figure 10). Among respondents, 27.1% of interviewees affirmed to have been benefited with infrastructure improvement in their communities.

Infrastructure demanded a high portion of the financial benefit given to the communities, so many of them did not have the possibility to invest in this, especially due to the limited amount of forest resources accounted as carbon stocks. When asked about the main positive aspects of the project, 93.7% replied that there was an improvement in community's livelihood. Most authorities also affirmed that. It can be verified from the following comment during the focus group discussion in Chitwan:

"We were provided cattle which made our livelihood easier. Also, we wanted to help the poorest people from the money we got by carbon trading and we conducted a meeting and elected five poorest people according to our own villagers and we gave them house for shelter, we built them toilets, we gave them biogas plants."

3.2. Restrictions for access to NTFPs

This section was designed to collect data to analyze possible influences of REDD+ pilot project activities on NTFPs uses, affecting communities' livelihoods. The approach was making questions concerning the use before, during and after the project, and what were the alternatives to supply their needs.

Figure 10: Fish pond of Kankali Community, Chitwan (top); headquarter of Ludidamgade Community, Gorkha (lower left); and biogas plant installed in a household of Simpani Community, Gorkha (lower right), build with REDD+ Pilot Project payment.

The findings were that the main uses of NTFPs after the project were fodder for animals (77.8%), fuelwood (71.4%), mushrooms (52.4%) and spices (42.9%), which was not much different between periods (Figure 11).
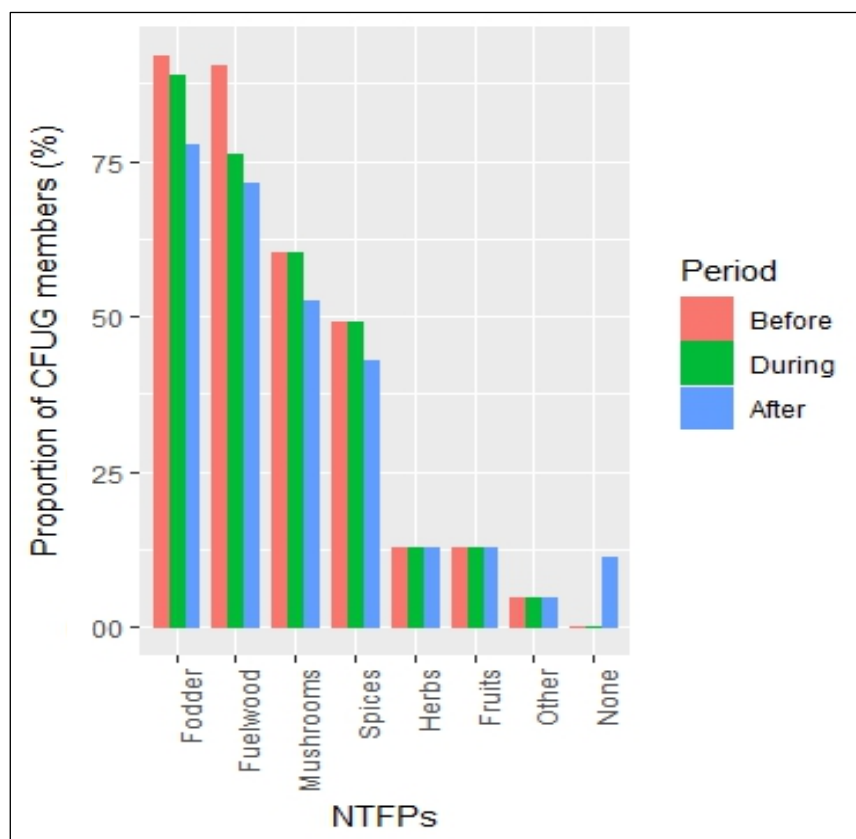

Figure 11: Proportion of NTFPs users from CFUGs in different periods during REDD+ Pilot Project implementation.

After making a test of proportions with a confidence interval of 95%, it was possible to conclude that there was no significant difference in the three different periods, since there was no superposition between intervals (Figure 12). There was a slight increase in the number of people who did not use any NTFPs and a very small decrease in the use of some of them after the project ended, but in general people kept on using forest products.
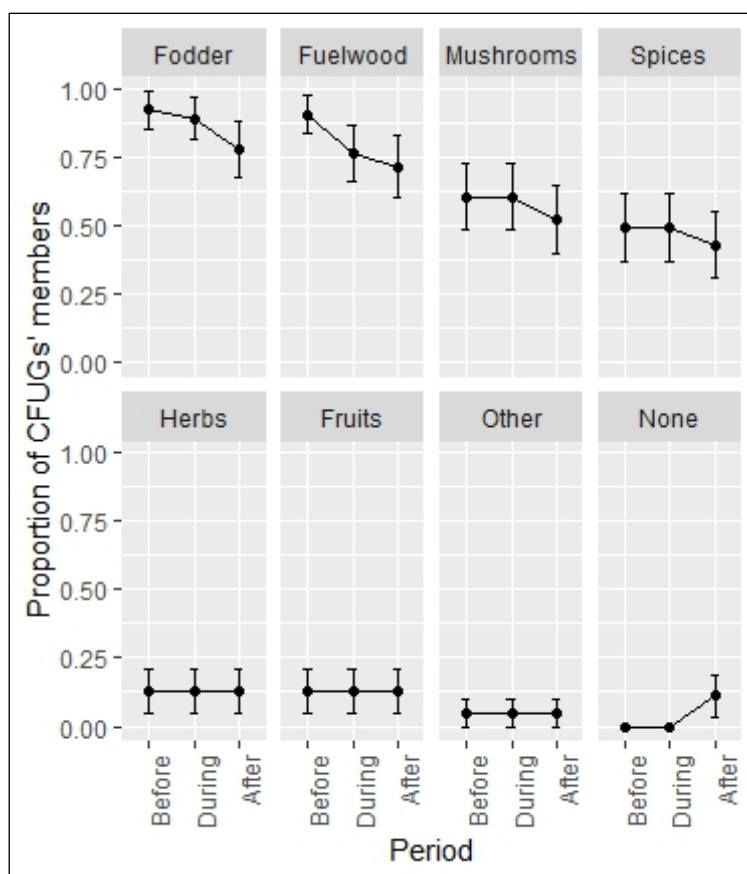
Figure 12: Test of proportions of NTFPs users (α=95%) from CFUGs in different periods, during REDD+ Pilot project implementation.

Most respondents who identified a change in their use of NTFPs started to replace fuelwood for biogas, which corresponded to 11% of interviewed. Despite the small number, all communities pointed biogas as an increasingly adopted alternative for cooking during the focus group discussions, as the testimonial of a farmer from Kalikanagar community, Chitwan illustrates:

"We were taught about the positiveness of forest and we knew about the alternatives of NTFPs like biogas and we also started only using the dry woods and dead trees for our livelihoods. We were educated about the importance of the forest products and about how can we use it in a better way."

The majority affirmed that the use of NTFPs should be allowed in any REDD+ project (93.7%). According to them, NTFP's should be incorporated within the project especially through collection of dead and diseased trees for fuelwood and construction,

40

through regulated access to fodder and through cultivation of spices/mushrooms under the trees.

According to the authorities, NTFPs are not considered commercially relevant in the CFUGs, but they are important in their livelihoods. This affirmation is supported by the testimonials in the questionnaires to CFUGs, as all of them affirmed that the use of any forest product collected in their communities was to supply their needs and not for commercial purposes. Some common uses they indicated were fuelwood for cooking, some species of mushrooms for food and fodder for their animals. Other products such as spices, herbs, fruits, honey and grass for making broom were also used but considered less common.

Among the authorities, the minority affirmed that there were changes in the use of NTFPs with REDD+ pilot project (40%), affecting mainly the collection of fodder for animals and food (e.g.: mushrooms, herbs, spices and fruits).

Among government officers, it was unanimous opinion that the use of NTFPs should be allowed and regulated by the community forestry (CF) rules itself, and not by REDD+ initiatives. The following statement given by a MoSCF member illustrates that:

> *"Game was restricted before REDD+ Pilot Project due to Community Forestry Program because they must follow the Forest Management Plan (FMP). There was no significant restriction of use of NTFPs with REDD+ Pilot Project. What I mean is that there were restrictions due to Community Forestry Program rather than due to the intervention of REDD+ Pilot Project. The use of NTFP's should be allowed, except the fuelwood collection. It emits carbon dioxide and is not good for health. Burning fuelwood is not good. The FMP should be the only one which guides the use of forest products, not REDD+."*

Similarly, a representative from ICIMOD affirmed the following, when asked about ICIMOD's roles as project organizer:

> *"Q: Were there NTFPs restrictions during REDD+ pilot project?*
>
> *A: Yes, there were some restrictions where we would say 'you have to practice sustainable harvesting according to the OP'. It's not about restriction, but about using it in a sustainable way. This is because of the Forest Management Plan*

(FMP). You see, REDD+ is a financial benefit rather than saying what you can do and what you cannot do."

The main means to regulate the access to NTFPs in REDD+ initiatives pointed out by the authorities were through regular access to fodder, through collection of dead and diseased trees for fuelwood and construction and through allowing hanging beehives on trees.

3.2 Synergies between REDD+ pilot and communities' livelihoods

The project fulfilled REDD+ principles by including co-benefits besides the seed grants given to more vulnerable groups. The main synergies identified between the project and communities' livelihoods are presented below, which are *the nature of community forestry, small restrictions in use of NTFPs, increase in governance, income generation* and *infrastructure improvement*.

The nature of community forestry

In general, communities' members were very much engaged with forest conservation, since they participated in afforestation programs, forest monitoring, and were able to speak how important forests were to them. Most people interviewed had the feeling of ownership on forests, so it was expected that they would also be concerned with protecting them. It was not hard to find comments like this from a member of Dhade Singh Devi Commmunity, Dolakha:

"I understand that forests are very important to us and I see it as my property that I have to take care of. I do my part participating in afforestation programs and in gaining knowledge about forest conservation."

Therefore, it was found that REDD+ pilot activities were in synergies with communities' lifestyle, which made them improve their previous actions and awareness regarding sustainable forestry guidelines given by the project.

Little restrictions in use of NTFPs

This study has found that there were no significative changes in the use of NTFPs after the project implementation, and when people had to make changes, they could adapt

themselves to alternative uses of NTFPs such as biogas instead of fuelwood. The communities' adaptation to the project seemed not to be harmful; on the contrary, it supported them to better practice their current forest management activities.

Increase in governance

It is also clear that REDD+ Pilot Project contributed with capacity building, not only for CFUGs but for authorities. The learnings CFUGs got made them more aware about the use and conservation of forest resources and increased their experience with governance. CFUGs' members learned how to maximize the money received through promoting forest conservation, and learned to administrate the benefits distribution among community members, as well as inside their own families. There were also learnings with inclusiveness due to concerns about benefiting more vulnerable groups and about transparency in the project processes.

Income generation

It was possible to easily identify improvements after the implementation of REDD+ pilot. For instance, people could get animals that could provide them with goods as milk, meat and have income by selling animals generated from reproduction.

People frequently said that they could generate more money from what they got initially by investing in their own businesses, and they could give the same amount back to the EC after some months. The payment rotation system worked like a bank loan, but with the advantage of no interest added and through flexible negotiations between community members and the ECs. Some other people from the most vulnerable groups (women, Dalits, marginalized and poor) affirmed that the only source of money to buy their needs was from animal raising obtained from the project. These were evidences of synergy between REDD+ pilot and improvement of communities' livelihoods, even six years after the end of the project.

Furthermore, in the communities visited, the money was distributed respecting REDD+ criteria. It was found that the main criteria attended to distribute the money were, as expected, wealth status and gender criteria, independently of the caste and ethnicity.

Infrastructure improvement

Some of the CFUGs could use the money received through REDD+ pilot payment to invest in infrastructure improvement. Some evidences were the construction of toilets for poorer people who did not have regular ones; biogas plants to replace the wood burning stoves; a fish pond where the community could get food and generate some income by selling fish in the market; and the building of communities' headquarters.

3.3 Trade-offs between REDD+ pilot and communities' livelihoods

The main trade-offs found were related to the improvements in several aspects of the communities' livelihoods but increase in social differences. All improvements found in this study regarding benefits distribution among members were followed by caveats related to problems in the benefits-sharing mechanisms. For instance, the financial benefits were exclusive of poorer people, even if richer people did participate in all phases of REDD+ pilot. On the other hand, richer ones normally had the advantage to be part of the EC and to have a higher level of education, being the most important group in decision-making and capacity-building activities. This resulted in grievance from both sides; from the richer ones that could not receive the money, and from the poorer ones that complained about lack of transparency and in participation in the project.

4. DISCUSSION

This section aimed to discuss about the key issues found from the results, addressing all research questions in a different order than the one presented in the introduction. The key issues were divided into four principal groups, respectively addressing *positive and negative impacts identified in REDD+ Pilot Project, potentials for other initiatives and research limitations*. In order to better organize the main findings, some of these groups were divided into sub-groups with the corresponding descriptions.

4.1. Positive impacts of REDD+ Pilot Project on communities' livelihoods

Despite the main goal of the project was the application of a payment mechanism based on REDD+ principles, several secondary impacts were detected. It was expected, since REDD+ has the so-called co-benefits stated in its scope, which means that the payment itself would not work without applying other principles. Synergies and trade-offs between REDD+ Pilot Project and communities livelihoods were the main positive impacts detected in this study, and they are described below in this section.

Increase in forest conservation awareness and in its sustainable use

This study has found that there were some but not harmful changes in the use of NTFPs. When community members had to reduce their use of these products, they could adapt themselves to alternative uses, by collective and personal changes in behavior due to the increasing forest conservation awareness. It was possible to find people collecting dry branches instead of timber for fuelwood, other who changed their wood burning stoves to gas stoves, and a slight increase in people who did not visit their forests to collect NTFPs anymore. Most authorities interviewed had similar perception, affirming that NTFPs were not much used by CFUGs, since they focused mostly on farming activities to support their livelihoods. Moreover, people seemed not to question them but to be aware and concerned about forest conservation and use the resources in a sustainable way.

In this aspect, there was a synergy between REDD+ pilot and communities livelihoods, where CFUGs could see the forests as an opportunity to receive financial

benefits and to guarantee the forest conservation. Differently, RECOFTC (2016) affirmed that rural forest dependent poor and vulnerable groups have suffered from the imposed restrictions by REDD+ Pilot Project, and the freedom that people normally had before was not properly replaced by alternative uses. Poudel et al. (2015) also affirmed that REDD+ pilot appeared to be costly for the poorer ones than the better-off, since they were more forest resources-dependent, especially of fuelwood and fodders. A possible reason for the divergent findings from this study is that the communities visited were not strongly affected by restrictions in the use of NTFPs. Also, restrictions imposed seemed to be quite more related to the application of Community Forest Management Program – with binding rules to promote the sustainable use of forests by communities – rather than to REDD+ Pilot Project.

It is important to highlight that afforestation activities are common practices performed by CFUGs to regulate their lands and to promote the increase in forest area, regardless of the project. Paudel, N. S; Ojha (2013) affirm that forest-dependent communities in Nepal are aware about conservation and have the potential to promote innovative management since they intend to get as many benefits as possible from the forests. In fact, interviewed people who participated in this kind of activity of afforestation affirmed that it was a common practice even before the project took place. In this aspect, REDD+ pilot has not created something new concerning forest conservation but has given support to the government in its efforts to make rural properties in compliance with legislation, especially concerning sustainable use of forests.

Improvement in governance

CFUGs are known to be self-governed, acting independently in their collective efforts for creating better conditions of life for all members. Moreover, most communities visited valued their natural resources, showing concerns about managing them in a way that all members could make good use of them, as the forests were their own patrimony. Even so, it was found that the project contributed with the existing governance, since participants could put in practice learnings from REDD+ principles of transparency, benefits distribution and participation in decision-making. In fact, that was one of the objectives of REDD+ pilot, contained in its full name *"Design and Setting up of a*

Governance and Payment System for Nepal's CFM under REDD+". Joshi et al. (2013) affirm that REDD+ reinforces co-benefits such as improvement of governance, institutions and policies, such as the inclusion of women, indigenous and marginalized groups in decision making. By giving more opportunities to people, the project makes them more responsible for their communities' development and with the feeling of being part of them. In an experiment with PES based on equal benefits distribution for forest-dependent communities in tropical countries, Andersson et al. (2018) found that conservation behavior increased during and after the intervention, especially when they were able to communicate with each other. The authors suggest that trust is an important factor to succeed in good outcomes, and that PES programs can increase the existing cooperative conservation behavior in the communities.

Better living conditions for CFUGs

It was unquestionable that REDD+ Pilot Project contributed with communities' living conditions. Infrastructure improvement and income generation were the main finding in this study regarding the positive impacts of the project. From this study, it is possible to conclude that the most benefited people were poor, women, Dalits and indigenous people. By having pro-poor initiatives, some groups could be benefited by the building of improvised cooking stoves, biogas-based stoves (Poudel et al. 2013), toilets, apart from other buildings for the communities. People were also able to invest in their activities that consisted mostly in farming and microbusinesses. Even if the amount of money was small, many families visited in this study were extremely poor, and they felt very much helped by the project's support.

4.2. Negative impacts of REDD+ Pilot Project on communities' livelihoods
Increase in social differences

The project might have increased social differences, consequently conflicts among project participants in the communities. It also increased the conflicts between CFUGs inside and outside project area, as described by a MoFSC member:

"The project had some weak criteria of choosing its work area. People who were out of the project were asking us 'why were we excluded'?"

It also increased the conflicts between project organizers, especially between the government and NGOs, because of the apparent exclusion of government members from the steering committee in different phases of the project. The project should better consider the inclusion of the government in its decision-making processes even if there were some criteria project organizers would have had to comply with. For example, no financial support was supposed to be given to the government in REDD+ program, but DFO members should be properly invited to the meetings as part of the project's steering committee. Many aspects of sustainable forest management implementation in CFUGs were addressed during REDD+ pilot, which is government's authority. In this aspect, state's liability towards REDD+ was affected, which can also affect its credibility with project participants according to the project's results.

Even if tenure issue was not detected in this study, many authors affirm that REDD+ initiatives increase the carbon ownership conflicts (Ojha 2013; Torpey-Saboe et al. 2015; Agrawal, Nepstad, and Chhatre 2011; RECOFTC 2016). Since the land belongs to the government of Nepal and the rights to exploit the forest resources belong to the CFUGs, REDD+ may increase the existing tenure conflicts in the country. Moreover, they do not have rights over the sale of the total stock of forests (Acharya et al. 2014). It is known that the country has a deficiency in addressing multilevel governance by formulating clear tenure policies and by fostering meaningful stakeholder engagement (Ojha et al. 2013). In this regard, Torpey-Saboe et al. (2015) found that having some form of property rights over forest products and having a lower ethnic diversity are variables associated with higher equitable benefit sharing in REDD+. In their study, they affirmed the likelihood for equitable outcomes can be overwhelmed by the high ethnic diversity in Nepal, even if forest users have the rights over forest products.

To safeguard indigenous and local peoples' rights, REDD+ decision-makers have to respect the existing international instruments – the Rio Declaration on Environment and Development, the United Nations Framework Convention on Climate Change, the Convention on the Conservation of Biological Diversity, the United Nations Declaration on the Rights of Indigenous Peoples, and the Convention Concerning Indigenous and

Tribal Peoples in Independent Countries –, since tenure rights are often the first step when implementing effectively REDD+ (Agrawal, Nepstad, and Chhatre 2011). Ojha et al. (2013) also affirms that Nepal needs to confront basic governance issues in order to implement REDD+, by clarifying carbon tenure, defining the structure and mechanisms for benefit sharing, and crafting efficient MRV mechanisms.

According to GIZ and RECOFTC (2011), there is a need to implement a free, prior and informed consent in REDD+ (FPIC) when dealing with communities affected by its processes, since their rights are provided internationally. It can be done by a significant investment in people, time, communication materials and strategies, technical and legal advices, capacity building activities and independent verification.

There was clearly a problem of information concentration in elite groups in most communities. It was found that the project failed in attaining equity in information distribution, even if there were efforts to control elite capture by project organizers through trainings, meetings and project monitoring. Alongside with RECOFTC (2016), this study has found that community members in various CFUGs expressed discontentment and mistrust by virtue of unclear information on the project provided by community leaders. According to Saito-Jensen, Rutt, and Chhetri (2014), the money distribution system made upper castes and other groups out of project's target feel excluded, which made them somehow damage the collective efforts to develop the project. These groups are commonly the decision-makers in CFUGs, so one could certainly influence the beneficiary selection process. Moreover, it was possible to detect a sort of official narrative discourse, especially in the focus group discussions. That was the case of former and current EC members officially affirming that everyone knew about the project, but in fact, that was not true. On the contrary, there were several cases of grievance concerning ECs.

Due to these evidences, the project may had created opposite effect than planned on CFUGs: increased the social differences between communities' members instead of making it more equitable. This reflects in the communities in the bottom level of governance, as the following statement from MoSCF, Gorkha, describes:

"There is no equal distribution among community members, the poorest ones receive money and the leaders don't. The lower, middle and higher classes may have more conflicts because all of them participated but only poorer ones received the money. There are not really much differences between people, most of them are in middle or lower class, not rich people. That's why the inequalities may increase."

A number of studies affirmed that elite capture is an existing constraint within CFUGs, which results in benefiting dominant groups' interest rather than the real needs of the collective (Poudel et al. 2015; Paper et al. 2014; Saito-Jensen, Rutt, and Chhetri 2014; RECOFTC 2016; Harrer 2016; Iversen et al. 2006). Even if some groups were officially represented – such as women with positions in the EC to represent others – it did not affect the decision-making process because they were not capable of influencing decisions (Devkota and Mustalahti 2018). A solution for the project would had been the implementation of a better monitoring system to control it, an implementation of more trainings to all community members and a constant consultation to clarify questions about the project processes. Devkota and Mustalahti (2018) supports the idea that developing leadership skills of the poorer and disadvantaged forest users can also improve their benefits accessibility, since they can represent better their interests. Investing in information would be the best way to combat most inequality problems of the project, so that more vulnerable groups could have the opportunity to learn about conservation awareness and make decisions that better meet their interests. The following testimonial from MoSCF, Kathmandu, follows this idea:

"Elite capture is everywhere. It prevails even in the society, in the nation, in the college, in the school, hospital and at home as well. It's not easy to tackle as it is. The reason is that marginalized people, women, Dalits are not well informed about the project. Information is power. So, the only way to tackle it is the information. Give more and more information to them, they will raise their voice, so elite capture will be diluted."

Information would also be a solution for the lack of communication among members and lack of transparency, pointed as problems by many people. As stated before, many of them did not know what REDD+ Pilot Project was and could not understand the mechanisms adopted by their EC in the payment system well enough. It

resulted in the acceptance of the project without the possibility of choosing what was more adequate for their interests.

Over expectations about the project continuity

Community members presented high expectation towards an uncertain future, as REDD+ program is still in readiness phase and is constantly subjected to changes in national and international levels. It is not known precisely the continuity of such initiatives like REDD+ Pilot Project even if several members of CFUGs expect them to arrive soon. The project's continuity is also considered a weak point. As it had a limited period, it was not possible to detect great changes in the communities' livelihoods.

Moreover, it created frustrations among many people, such as the statement of EC members below:

"The negative effect of this project was that it didn't continue. We got inspired by the project, we could get a little knowledge about how to protect forests, we could even share our knowledge with others, but it finished. When we were starting to understand about it, the project finished. We are a little bit upset about it. This project only created hope among people. We asked the government 'we are protecting more forests, are we getting more money or not?', and they didn't know what to answer." Ludidamgade Community, Gorkha

"REDD+ Pilot Project is a kind of dream, where people participate in the project get hopes and then it's gone. It had to have more time, more continuity. Maybe with a longer time, it would bring more fruitful results. Five years is not enough; maybe 10 or 15 years would bring more impact including the sustainable forest management." Viteri Pakha Community, Dolakha

4.3. Potentials for other initiatives

REDD+ Pilot Project brought experience and knowledge to people that were involved directly and indirectly in its processes, and it contributes with other initiatives in many ways. The communities seemed well prepared to receive any other similar project and were willing to participate. Additionally, the authorities seemed to have internalized many learnings with the payment system applied in the CFUGs. This experience is useful

for the next phases of REDD+ program, when applied its payment system through carbon emissions trading and the application of its principles.

The inclusion of Nepal in the international policy of climate change mitigation also opens many opportunities for further donations since the country presented initiative and engagement in many REDD+ piloting projects. In this aspect, there is a win-win situation between international and national-level initiatives, because international organizations are willing to invest in successful projects, and major effects of forest governance are more likely to happen on the well-being of forest-dependent populations (Brown, Seymour, and Peskett 2008).

The project, one of the pioneers in Asia, was also a source of several researches and example to other countries. For instance, ICIMOD Nepal constantly receives other countries for trainings in applying a Sub-national REDD+ Action Plan under a methodology proposed by ICIMOD (2017). For the government, there were also many contributions such as the development of a guideline for forest carbon, which can be used as a national guideline (GoN 2011). Another example is the establishment of the FCTF, which provided learning of fund transaction, benefit sharing and governance (GoN 2011). REDD+ pilot also contributes with information for further researches using wider dataset such as from the International Forestry Resources and Institutions (IFRI) database, which was the case of Torpey-Saboe et al. (2015) when studying REDD+ benefits sharing distribution.

It is known that the project scope was very questioned, because of the little amount of money distributed among households, the project coverage, the payment system that benefited only certain groups, among other issues. These questions are important to be raised in order to readjust the project's methodology to the national level in REDD+ program. Several hypotheses were made, and the following statement from a MoFSC member is an example:

> "There are about 20,000 CFUG's, we can't pay properly all of these user groups. What we can provide is investment in their forest management activities, in their enterprises, so that should be a proper way in paying the user groups. Paying in cash is like, a wrong message. The government can improve the livelihood of marginalized and poorer groups and in capacity building of marginalized and

poorer groups. So, the money should be invested in capital. You know, if you pay them, then they spend the money elsewhere and then it's gone. So, the money should generate money after the investment, that's the idea."

This affirmation is based on giving equal opportunity to every citizen at national level rather than benefiting certain groups. Having this in mind, REDD+ has the potential to be in consonance with government's Forest Sector, Gender and Social Inclusion Strategy to promote "equitable access to, benefits from and decision making power over forest resources of all stakeholders" (MoFSC 2007). Indeed, REDD+ would be effective if respected the nested forest and climate governance through development of decision-making in multiple scales (Sikor et al. 2010).

Regarding REDD+ processes in CF, it is known that many countries have already chosen community forest management as central part of their plans (Larrazábal et al. 2012). That is probably because the nature of CF matches with REDD+ principles, making the application of its processes in synergy with the communities' development. This also makes not only REDD+ processes potentially more efficient but any other program when applied in the CFUGs. In the same line, Larrazábal et al. (2012) affirmed that community's participation in REDD+ program is more probable when people are already actively involved in management of environmental services. In this study, it was found that communities are active in forest conservation, as well as in forest monitoring against fires and not consented loggings in their lands. A member from MoFSC had a convergent opinion about it, stating the following:

"We have taken some very important lessons with REDD+ Pilot Project. The first lesson is that, if we trust CFUGs, they carry out the project independently, even without the support of the government. That's the most important lesson. (…)"

4.4. Research limitations

The limitations in this research can be grouped into sampling limitation, access limitation and temporal limitation. The selection of respondents was purposive, based on authorities' and CFUGs members' background with the topic. Even if I sought to interview a maximum of 5 members per CFUG to have a minimum of variation, I may have not been able to cover other opinions. In this research, there are also estimation

limitations, as it was not possible to apply random sampling, one of the most important prerequisites to apply statistical analysis. Moreover, the sample size was not big enough when applying some variations of logistic regression. Despite of this, statistical analyses were applied to derive statistical measures to justify my main perceptions about REDD+ Pilot Project affecting the communities' livelihoods.

The access limitations in this research were mostly because of problems in reaching the communities since many of them were located in remote areas. As a solution, I decided to interview more people per community. The availability of people to be interviewed was also included in this limitation group. I did not have problems with people I met, as they were cooperative and easily agreed to answer to the questionnaire. However, many of potential respondents could not be found because they were working, were away or were not living there anymore.

The temporal limitation is related to the long period since the project took place (from 2009 to 2013, which is about 5 years since the end of the project) which made the research more difficult in many aspects. First, to gather information in DFOs and in CFUGs of potential interviewees was challenging, because in some cases the documents could not be found or there was a lack of information, especially due to the changes in institution's management. Second, many of CFUG members were confused about the topic discussed; they affirmed they had already participated in other projects and/or it was too long time ago for them to remember about details. Moreover, another important event had affected them: the Nepal earthquake in 2015. It made many people leave to another region to restart their life, which made it not possible to interview them and they were oftentimes confused about which financial support we were talking about, if it was from the government, or from REDD+ pilot. A solution to overcome this limitation was the clarification to the interviewees and search for target people who affirmed that participated in some project. This way, I could investigate if it was about my topic or not.

5. CONCLUSIONS

Based on the findings, the following conclusions can be drawn:

1. The benefits were distributed in an unequal way among CFUGs. First, financial benefits were focused on certain groups, the most vulnerable ones. Second, in most cases information was a privilege for elite groups consisting of EC members and people with higher level of education. The same situation is applied on the power of decision-making. Infrastructure improvement was not observed in all communities; some received a high amount of money to build expensive infrastructures, but others did not receive that.

2. The project did not seem to restrict much the use of NTFPs and other forest products. Again, a more sustainable management was promoted rather than new restrictions.

3. There were synergies between REDD+ pilot and the CFUGs livelihoods through enhancing the existing sustainable forest management within the project implementation in the communities. The synergies include improvement in governance, in infrastructure and alternative income generation. In some cases, REDD+ pilot provided the main source of income generation for the households.

4. The trade-off detected was related the increase in restrictions to the use of forest products, which in turn was related to the increase in forest conservation awareness after the project implementation. It is important to highlight that such restrictions were not significant, and they were mostly due to enforcement of Community Forestry Program rather than to REDD+ Pilot Project.

REDD+ Pilot Project was a worthwhile initiative in Nepal and can be considered one of the most important projects held during REDD+ readiness phase. At district level, it brought valuable lessons and caveats to be considered, when implementing the program at a national level. Synergies and trade-offs between the project and communities' livelihoods were identified, as well as negative impacts that have to be addressed in future initiatives. For example, the payment system has to be reshaped to

be able to apply on national level and to equally distribute the benefits among citizens. Additionally, more transparent processes have to be done in all levels to avoid wrong messages, frustrations and information concentration in certain groups of people.

REDD+ is supposed to be much more complementary to national policies than a new topic even if the original goal was the commercialization of carbon credits for GHG emissions reduction. In such developing countries like Nepal, where many other issues are still challenging, it does not make sense to work separately with climate change mitigation. It is necessary to take into consideration forest-dependent communities' necessities, so that REDD+ is considered an opportunity rather than an impairment. In this aspect, a special attention must be given to vulnerable groups – in particular to marginalized, women, Dalits, indigenous and poorer people – by applying capacity building and proper consultation when applying REDD+ in their communities.

REFERENCES

Acharya, Dhruba, Dilli Raj Khanal, Hari Prasad Bhattarai, Basanta Gautam, Gyanendra Karki, Eveline Trines Contributing Authors, Wouter van Goor, Ram Prasad Acharya, and Oy Arbonaut. 2014. "REDD+ Strategy for Nepal," no. January.

Acharya, K.P. 2002. "Twenty-Four Years of Community Forestry in Nepal." *International Forestry Review* 4 (2): 149–56. doi:10.1505/IFOR.4.2.149.17447.

Agrawal, Arun, Daniel Nepstad, and Ashwini Chhatre. 2011. "Reducing Emissions from Deforestation and Forest Degradation." *Annual Review of Environment and Resources* 36 (1): 373–96. doi:10.1146/annurev-environ-042009-094508.

Andersson, Krister P., Nathan J. Cook, Tara Grillos, Maria Claudia Lopez, Carl F. Salk, Glenn D. Wright, and Esther Mwangi. 2018. "Experimental Evidence on Payments for Forest Commons Conservation." *Nature Sustainability* 1 (3). Springer US: 128–35. doi:10.1038/s41893-018-0034-z.

Bernard, H.R. 2011. "Sampling III: Nonprobability Samples and Choosing Informants." *Research Methods in Anthropology: Qualitative and Quantitative Approaches*, 143–55. doi:10.1525/aa.2000.102.1.183.

Bhandari, Nirmala Singh. 1993. "Transformational Change through REDD Readiness in Nepal : Realities amidst Expectations Nirmala Singh Bhandari." In .

Bottazzi, Patrick, David Crespo, Harry Soria, Hy Dao, Marcelo Serrudo, Jean Paul Benavides, Stefan Schwarzer, and Stephan Rist. 2014. "Carbon Sequestration in Community Forests: Trade-Offs, Multiple Outcomes and Institutional Diversity in the Bolivian Amazon." *Development and Change* 45 (1): 105–31. doi:10.1111/dech.12076.

Brown, David, Frances Seymour, and Leo Peskett. 2008. "How Do We Achieve REDD Co-Benefits and Avoid Doing Harm?" *Ahead with REDD* 2007 (December 2007): 109–56. doi:10.1098/rstb.2007.0034.

CBS. 2011. "Nepal Living Standards Survey 2010/11." *Central Bureau of Statistics, Statistical Report* 2 (November): 37–49. doi:november, 2011.

Damgaard, Anne, and Constantin Harrer. 2015. "Equity and REDD + : Global Ideals and Local Realities . The Case of a REDD + Pilot Project in Nepal," no. March.

Devkota, B P, and I Mustalahti. 2018. "Complexities in Accessing REDD + Benefits in Community Forestry : Evidence from Nepal ' s Terai Region," no. September. doi:10.1505/146554818824063041.

DoF. 2018. *Ministry of Forests and Environment, Department of Forests.* Acesso em 19 de July de 2018. http://dof.gov.np/dof_community_forest_division/community_forestry_dof.

GIZ, and RECOFTC. 2011. "Informed Consent in REDD." *Development*, no. February: 90.

GoN. 1993. Forest Act, 2049 (1993).

———. 2011. "Study on REDD Plus Piloting in Nepal."

———. 2015. State of Nepal's Forests.

GoN, and GoF. 1999. "Forest Resources of Nepal (1987-1998)."

Harrer, Constantin. 2016. "By Whose Rules , for Whose Needs ?," no. 274.

ICIMOD. 2011. "Pilot Forest Carbon Trust Fund Rewarding Local Communities for Forest Conservation." *Development*.

———. 2017. "Developing Sub-National REDD + Action Plans : A Manual for Facilitators."

Ignaciuk, Ada, and Carla Boonstra. 2017. "Synergies and Trade-Offs between Agricultural Productivity and Climate Change Mitigation and Adaptation: Netherlands Case Study."

IPCC. 2007. "Climate Change 2007 Mitigation of Climate Change."

Iversen, Vegard, Birka Chhetry, Paul Francis, Madhu Gurung, Ghanendra Kafle, Adam Pain, and Janet Seeley. 2006. "High Value Forests, Hidden Economies and Elite Capture: Evidence from Forest User Groups in Nepal's Terai." *Ecological Economics* 58 (1): 93–107. doi:10.1016/j.ecolecon.2005.05.021.

Joshi, Laxman, Bhaskar Singh Karky, Krishna Chandra Poudel, Keshav Bhattarai, Resham Dangi, Krishna Acharya, Batu Uprety, Vijay Singh, Narendra Chand, and Ugan Manandhar. 2013. "Co-Benefits of REDD+ in Community Managed Forests in Nepal." *Journal of Forest and Livelihood* 11 (2): 65–68. doi:10.3126/jfl.v11i2.8623.

Khatri, Dil B., Thuy Thu Pham, Monica Di Gregorio, Rahul Karki, Naya S. Paudel, Maria Brockhaus, and Ramesh Bhushal. 2016. "REDD+ Politics in the Media: A Case from Nepal." *Climatic Change* 138 (1–2). Climatic Change: 309–23. doi:10.1007/s10584-016-1731-0.

Larrazábal, Alejandra, Michael K. McCall, Tuyeni H. Mwampamba, and Margaret Skutsch. 2012. "The Role of Community Carbon Monitoring for REDD+: A Review of Experiences." *Current Opinion in Environmental Sustainability* 4 (6): 707–16. doi:10.1016/j.cosust.2012.10.008.

MoFSC. 2007. "Forest Sector Gender and Social Inclusion Strategy."

MoFSC. 2018. *Ministry of Forests and Environment.* Acesso em 18 de July de 2018. http://www.mfsc.gov.np/content.php?id=289.

O.Nyumba, Tobias, Kerrie Wilson, Christina J. Derrick, and Nibedita Mukherjee. 2018. "The Use of Focus Group Discussion Methodology: Insights from Two Decades of Application in Conservation." *Methods in Ecology and Evolution* 9 (1): 20–32. doi:10.1111/2041-210X.12860.

Ojha, Hemant R., Dil Khatri, Krishna K. Shrestha, Bryan Bushley, and Naya Sharma. 2013. "Carbon, Community and Governance: Is Nepal Getting Ready for REDD+." *Forests Trees and Livelihoods*. Taylor & Francis. doi:10.1080/14728028.2013.856166.

Paper, Conference, Rahul Karki, Govinda Paudel, Hemant Ojha, Unsw Sydney, Krishna Shrestha, Unsw Sydney, Climate Adaptive, Water Management, and South Asia View. 2014. "Re-Framing the Forest-Farm Interface : How Can Community Forestry Better Address Food Security and Livelihood in Nepal," no. August 2017.

Paudel, N. S; Ojha, H. 2013. "Community Forestry, Ecosystem Services and Poverty Alleviation: Evidence from Nepal," 1–15. https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/8948/PAUDEL_0945.pdf? (Viewed on 04 May 2016).

Pokharel, Ridish K. 2012. "Factors Influencing the Management Regime of Nepal's Community Forestry." *Forest Policy and Economics* 17. Elsevier B.V.: 13–17. doi:10.1016/j.forpol.2011.08.002.

Poudel, Mohan, Rik Thwaites, Digby Race, and Ganga Ram Dahal. 2013. "Analysing REDD+ in Community Forestry: Has It Been Experienced Differentially at Different Households?," 1–20.

———. 2015. "Social Equity and Livelihood Implications of REDD+ in Rural Communities - A Case Study from Nepal." *International Journal of the Commons* 9 (1): 177–208. doi:10.18352/ijc.444.

RECOFTC. 2016. Conflict in REDD+: An Analysis of Sources of Conflict Based on Case Studies from South and Southeast Asia.

Saito-Jensen, Moeko, Rebecca L. Rutt, and Bir Bahadur Khanal Chhetri. 2014. "Social and Environmental Tensions: Affirmative Measures under REDD + Carbon Payment Initiatives in Nepal." *Human Ecology* 42 (5): 683–94. doi:10.1007/s10745-014-9674-4.

Salk, Carl, and Henry Travers. 2018. "Not All Group Incentives Are Created Equally." *Conservation Letters* 11 (1): 2017–18. doi:10.1111/conl.12432.

Shrestha, Shanti, Bhaskar Singh Karky, and Seema Karki. 2014. "Case Study Report: REDD+ Pilot Project in Community Forests in Three Watersheds of Nepal." *Forests* 5 (10): 2425–39. doi:10.3390/f5102425.

Sikor, Thomas, Johannes Stahl, Thomas Enters, Jesse C. Ribot, Neera Singh, William D. Sunderlin, and Lini Wollenberg. 2010. "REDD-plus, Forest People's Rights and Nested Climate Governance." *Global Environmental Change* 20 (3): 423–25. doi:10.1016/j.gloenvcha.2010.04.007.

Torpey-Saboe, Nichole, Krister Andersson, Esther Mwangi, Lauren Persha, Carl Salk, and Glenn Wright. 2015. "Benefit Sharing Among Local Resource Users: The Role of Property Rights." *World Development* 72. Elsevier Ltd: 408–18. doi:10.1016/j.worlddev.2015.03.005.

Thwaites, Richard, Robert Fisher, e Mohan Poudel. 2018. "*Community Forestry in Nepal".* New York: Routledge.

Uddin, Kabir, Him Lal Shrestha, M. S.R. Murthy, Birendra Bajracharya, Basanta Shrestha, Hammad Gilani, Sudip Pradhan, and Bikash Dangol. 2015. "Development of 2010 National Land Cover Database for the Nepal." *Journal of Environmental Management* 148. Elsevier Ltd: 82–90. doi:10.1016/j.jenvman.2014.07.047.

UN-REDD. 2015. "Fact Sheet: About REDD+." *Fao Undp Unep*, 4. http://www.un-redd.org/AboutREDD/tabid/102614/Default.aspx.

Visseren-Hamakers, Ingrid J., Constance McDermott, Marjanneke J. Vijge, and Benjamin Cashore. 2012. "Trade-Offs, Co-Benefits and Safeguards: Current Debates on the Breadth of REDD+." *Current Opinion in Environmental Sustainability* 4 (6). Elsevier B.V.: 646–53. doi:10.1016/j.cosust.2012.10.005.

ACKNOWLEDGEMENTS

APPENDIX I: QUESTIONS FOR SEMI-STRUCTURED INTERVIEW

I. To selected forest users

A) General information

(Research questions: How do local institutes and project organizers and participants look like? What are the criteria for membership?)

1. Name
2. Address/location
3. Gender:
   a. Male
   b. Female
4. Education:
   a. Higher education
   b. Primary school
   c. No education
5. Age class:
   a. Young < 35
   b. Adult 35 < age > 50
   c. Old age > 50
6. Wealth status:
   a. well-to-do
   b. Poor
7. What is your current main occupation? Since when?
   a. Farmer
   b. Seller of NTFPs
   c. Off-farm activity (describe)
   d. Forestry
   e. No work
8. Do you or your family belong to any association? Since when?
   a. Federation of Community Forestry Users Nepal (FECOFUN)
   b. Himalayan Grassroots Women's Natural Resource Management Association (HIMAWANTI)
   c. Other
   d. No
9. How many people live in your household?
   a. 1-4
   b. more than 4

B) Institutions and governance of community-managed forests for REDD+ pilot project

(Research questions: How were members benefited from the project? Is there evidence of synergies between REDD+ pilot project and community livelihood? What are trade-offs between REDD+ pilot project and community livelihood?)

This questionnaire is based on your personal opinion and your main impressions from before, during and after REDD+ pilot project in your community.

10. Do you know what REDD+ pilot project is?
    a. Yes
    b. No
11. What were your main activities related to REDD+ pilot project?
    a. Participation in meetings
    b. Participation in courses of capacitation
    c. Promoting reduction of deforestation
    d. In decision-making by communicating with the authorities
    e. Other (specify)
12. Are you satisfied with the REDD+ pilot project results?
    a. Yes
    b. No
13. What were the main problems?
    a. The project was not inclusive
    b. Lack of transparency
    c. Lack of equitable benefit-sharing mechanism
    d. Lack of participatory decision-making
    e. Lack of organization
    f. Others (specify)
14. What were the main positive aspects of the pilot REDD+ project?
    a. No positive aspects
    b. Improvement of community's livelihood
    c. Extra money for the families
    d. Increasing forest conservation awareness
    e. Reduction of social differences
    f. Others (specify)
15. About five years after the pilot project, what has changed thanks to REDD+ pilot project?
    a. Nothing
    b. Improvement of community's livelihood
    c. Increasing forest conservation awareness
    d. Reduction of social differences
    e. Increasing conflicts between community members
    f. Others (specify)
16. What could have been done to improve the REDD+ pilot project?
    a. Include more members, especially the poor people
    b. Set-up appropriate communication facilities; e.g. monthly meetings
    c. Involve all members in decision-making, including benefit-sharing
    d. Democratic election of executives
    e. Others (specify)

C) Synergy and trade-off between carbon trading and livelihood

(How is the need for NTFPs from community-managed forests addressed? Are there restrictions for access of NTFPs? If so, how is this conflict of interest being addressed? Is there evidence of synergies between REDD+ pilot project and community livelihood? What are trade-offs between REDD+ pilot project and community livelihood? Are there mechanisms in place to address trade-offs between the project and community livelihood?)

17. Before REDD+ pilot project, to which one of the following NTFPs do you have access to?
    a. Fuelwood
    b. Fodder for animals
    c. Herbs
    d. Mushrooms
    e. Fruits
    f. Spices
    g. Others (specify)

18. During REDD+ pilot project, did you still have access to the following NTFPs:
    a. Fuelwood
    b. Fodder for animals
    c. Herbs
    d. Mushrooms
    e. Fruits
    f. Spices
    g. Others (specify)

19. After REDD+ pilot project, did/do you still have access to the following NTFPs:
    a. Fuelwood
    b. Fodder for animals
    c. Herbs
    d. Mushrooms
    e. Fruits
    f. Spices
    g. Others (specify)

20. If you didn't have access to NTFPs under REDD+ pilot project, how did you support your livelihood?
    a. Through payments from carbon trading
    b. Through farming activities
    c. Through other activities (e.g. wages, microbusiness)
    d. Others (specify

21. If you didn't have any access to TFPs under REDD+ pilot project, how did you obtain these products?
    a. I normally don't depend on these products
    b. Buying from another person out of the pilot project area
    c. Changing to alternative products
    d. Others (specify)

22. Do you think that access to NTFPs should be allowed in the REDD+ projects?
    a. Yes
    b. No

23. If yes, how should access to NTFPs be incorporated within the REDD+ projects?
   f. Through collection of dead and diseased trees for fuelwood and construction
   g. Through cultivation of spices/mushrooms under the trees
   h. Through regulated access to fodder
   i. Through allowing hanging beehives on trees
   j. Others (specify)
24. If no, how did you support your livelihood?
   a. Through payments from carbon trading
   b. Through investment on my farming practice
   c. Changing to alternative products (specify)
   d. Others (specify)
25. How did you get the benefits from REDD+ pilot project?
   a. Through receiving money by seed grants based on gender criteria
   b. Through receiving money by seed grants based on wealth status criteria
   c. Through receiving money per amount of carbon sequestrated
   d. Throw improvement of the community infrastructure
   e. Throw capacity building
   f. Others (specify)
26. Additional comments. Please feel free to make any additional observation or comment about this topic and the survey.

II. To officials

A) General information

(Research questions: How do local institutes and project organizers and participants look like? What are the criteria for membership?)

1. Name
2. What is your current occupation and to which institution do you belong to? Since when?
3. Gender:
   a. Male
   b. Female
4. Background:
   a. Forestry
   b. Agronomy
   c. Sociology
   d. Other (specify)
5. Age class:
   a. Young < 35
   b. Adult 35 < age > 50
   c. Old age > 50

B) Institutions and governance of community-managed forests for carbon trading

(Research questions: How were members benefited from the project? Is there evidence of synergies between REDD+ pilot project and community livelihood? What are trade-offs between REDD+ pilot project and community livelihood?)

This questionnaire is based on your personal opinion and your main impressions from before, during and after REDD+ pilot project in community forests.

6. What were your main activities related to REDD+ pilot project?
   a. I was not involved, but worked in REDD+ program implementation
   b. Participation in meetings
   c. In communication and consulting with REDD+ pilot project organizers
   d. Other (specify)
7. Are you satisfied with the REDD+ pilot project results?
   a. Yes
   b. No
8. What were the main problems for the CFUGs? (Rank them with 1 is the least important and 5 (or 6) is the most important problem)
   a. The project was not inclusive for CFUG members
   b. Lack of transparency for CFUG members
   c. Lack of equitable benefit-sharing mechanism for CFUG members
   d. Lack of participatory decision-making for CFUG members
   e. Lack of organization
   f. Others (specify)

9. And what were the main problems for the government? (Rank them with 1 is the least important and 5 (or 6) is the most important problem)
   a. The project was not inclusive
   b. Lack of transparency
   c. Lack of participatory decision-making
   d. Lack of organization
   e. Others (specify)
10. What were the main positive aspects of the pilot REDD+ project for the CFUGs? (Rank them with 1 is the least important and 4 (or 5) is the most important benefit)
   a. No positive aspects
   b. Improvement of community's livelihood
   c. Extra money for the families
   d. Increasing forest conservation awareness
   e. Improvement of social differences
   f. Others (specify)
11. About five years after the pilot project, what has changed thanks to REDD+ pilot project for CFUGs?
   a. Nothing
   b. Improvement of community's livelihood
   c. Increasing forest conservation awareness
   d. Reduction of social differences
   e. Increasing conflicts between community members
   f. Increasing conflicts between stakeholders
   g. Others (specify)
12. What could have been done to improve the REDD+ pilot project? (Rank from 1 the least important measure to 4 (or 5) the most important measure to be taken)
   a. Include more members, especially the poor people
   b. Set-up appropriate communication facilities; e.g. monthly meetings
   c. Involve all members in decision-making, including benefit-sharing_
   d. Democratic election of executives
   e. Others (specify)

C) Synergy and trade-off between carbon trading and livelihood

(How is the need for NTFPs from community-managed forests addressed? Are there restrictions for access of NTFPs? If so, how is this conflict of interest being addressed? Is there evidence of synergies between REDD+ pilot project and community livelihood? What are trade-offs between REDD+ pilot project and community livelihood? Are there mechanisms in place to address trade-offs between the project and community livelihood?)

13. Do you think REDD+ pilot project restricted the use of NTFP such as:
   a. Fuelwood (Yes/No)
   b. Fodder for animals (Yes/No)
   c. Herbs (Yes/No)
   d. Mushrooms (Yes/No)
   e. Fruits (Yes/No)
   f. Spices (Yes/No)
   g. Others (specify) (Yes/No)   67

14. After REDD+ pilot project, do you think that the use of NTFP is still restricted, such as:
   a. Fuelwood (Yes/No)
   b. Fodder for animals (Yes/No)
   c. Herbs (Yes/No)
   d. Mushrooms (Yes/No)
   e. Fruits (Yes/No)
   f. Spices (Yes/No)
   g. Others (specify) (Yes/No)
15. Do you think that access to NTFPs should be allowed in the REDD+ projects?
   a. Yes
   b. No
16. If yes, how should access to NTFPs be incorporated within the REDD+ projects?
   a. Through collection of dead and diseased trees for fuelwood and construction
   b. Through cultivation of spices/mushrooms under the trees
   c. Through regulated access to fodder
   d. Through allowing hanging beehives on trees
   e. Others (specify)
17. If no, how can CFUGs support their livelihood?
   a. Through payments from carbon trading
   b. Through investment on farming practice
   c. Changing to alternative products (specify)
   d. Others (specify)
18. Additional comments. Please feel free to make any additional observation or comment about this topic and the survey.

Respondents list

CFUGs

Respondents list divided into caste, community name and district.

Community name	Brahmin	Dalit	Indigenous	Marginalized
Chitwan	11	5	5	1
Doghara	1			
Dragati		1		
Jan Pargati	3	1	1	
Kalikanagar	3	1	1	
Kankali	3	1	1	
Sampargali	1			
Samphrarank		1	2	1
Dolakha	11	4	4	1
Chyase Bhagwati	2	2		
Dhade Singh Devi		2	3	
Ekle Pakha	1			
Simpani	4			1
Viteri Pakha	4		1	
Gorkha	5	7	9	
Birenchowk		2	3	
Kuwadi		2	2	
Ludidamgade	4	1		
Mahalaxmi	1	2		
Taksartadi			4	
Total	27	16	18	2

Authorities

Respondents list divided into institution and district.

Institution	No. of respondents
Chitwan	2
FECOFUN	1
MoSCF	1
Dolakha	1
MoSCF	1
Gorkha	2
FECOFUN	1
MoSCF	1
Kathmandu	5
ICIMOD	1
MoSCF	3
RECOFTC	1
Total	10

APPENDIX II: FOCUS GROUP DISCUSSION

I. Main questions

1. How much do CFUGs members that were engaged in REDD+ pilot project know about REDD+?

2. What were your main activities during the project?

3. What do you think about it? Which are the positive and negative aspects for them?

4. Do you consider the project's members participation satisfactory?

5. Do you think the project was inclusive? If not, who is absent?

6. Do you think there were problems with conflicts among project's members?

7. How is the payment scheme set up? How is the money from the project distributed among members?

8. Do you agree with the payment system?

9. What are the expectations of the future REDD+ pilot project held by the government?

10. How the restrictions in the use of NTFPs were addressed? And nowadays, are there restrictions for their use?

11. Do you want to give other comments?

II. Presence list

A) Chitwan – 04.05.18

Kalikanagar and Jan Pargati Communities

Mediator: Ishan Sharma and Priscilla Cubo

Facilitator: DFO member

	Gender	Occupation
1	F	Farmer
2	F	Farmer
3	F	Farmer
4	M	Farmer
5	M	Farmer
6	M	Farmer
7	M	Farmer

B) Gorkha – 13.05.18

Ludidamgade Community

Mediator: Sabita Dhungana and Priscilla Cubo

Facilitator: Community president

	Gender	Occupation
1	F	Tailor
2	F	Farmer
3	M	Farmer
4	M	Wage
5	M	Farmer
6	F	Businesswoman
7	F	Farmer
8	M	Farmer
9	F	Farmer
10	M	Farmer
11	M	Farmer

C) Dolakha – 22.05.18

Dhade Singh Devi Community

Mediator: Sabita Dhungana and Priscilla Cubo

Facilitator: Community president

	Gender	Occupation
1	M	Farmer
2	F	Farmer
3	F	Farmer
4	F	Farmer
5	F	Farmer
6	F	Farmer
7	M	Farmer
8	M	Farmer