



Responsible Land Governance: Towards an Evidence Based Approach

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HAS DEVOLUTION OF FOREST RIGHTS IN NEPAL ENABLED INVESTMENT IN LOCALLY CONTROLLED FOREST ENTERPRISES?

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Abstract

In the 1970s, Nepal embarked on an ambitious national initiative to devolve forest rights to local communities. Historically, forest rights were largely vested in the state, and most uses of forested land and products were subject to strict direct regulation by district-level forest agencies. Recent reforms grant a significant range of forest use and management rights to Community Forest User Groups (CFUGs). Anecdotal evidence suggests that CFUGs are using their new proprietary rights to spawn or attract a variety of forest-based enterprises, including timber harvesting and milling companies, tourism activities, and small firms that process and market non-timber forest products. This paper reports on the first systematic study to evaluate the investment effects attributable to Nepal's forest rights reform program. In addition to assessing the effects of tenure reforms on investment activity, it considers the performance of CFUGs in fostering and managing investment, how the regulatory roles of forest authorities have changed in light of the greater rights exercised by community institutions, and the patterns of local participation and benefit-sharing in new forest-based enterprises.

Key Words: community forests; investment; rights devolution; Nepal



1. Introduction

In the 1970s, Nepal embarked on an ambitious national initiative to devolve forest rights to forest-dependent communities. Historically, forest rights were largely vested in the state, and most uses of forested land and products were subject to strict direct regulation by district-level forest agencies. Reforms were further consolidated during the 1990s granting a significant range of forest use and management rights to Community Forest User Groups (CFUGs). These reforms developed from a growing consensus among policy makers and environmental advocates that forest users needed to be enlisted in a national collective effort to reverse extensive deforestation, as well as hillside and watershed degradation. Many argued that forest users would have a greater incentive to manage and sustainably use forests if they stood to benefit from conservation investments. By 2016, nearly 20,000 CFUGs had been registered, covering about 30 per cent of Nepal's forested land. Forest cover has improved markedly in many areas under CFUG control, but the degree to which conservation gains are attributable to improved local governance provided by CFUGs, or to other factors such as reduced pressures on forests due to out-migration and lower population densities, is unclear.

Anecdotal evidence suggests that CFUGs are using their forest rights to spawn or attract a variety of new forest-based enterprises, including timber harvesting and milling companies, tourism activities, and small firms that process and market non-timber forest products (NTFPs). This paper reports on the first systematic study to evaluate the investment effects attributable to Nepal's forest tenure reform program. In addition to assessing the effects of tenure reforms on investment activity, it considers the performance of CFUGs in fostering and managing investment, how the regulatory roles of forest authorities have changed in light of the greater range of rights exercised by community institutions, and patterns of local participation and benefit-sharing in new forest-based enterprises. This study evaluates the five factors identified by Baynes et al. (2015) as relevant to the success of community forestry in developing countries as possible factors explaining the performance of CFUGs in Nepal, including their success in fostering investment in forest-based enterprises.

2. The Nepalese Context

Devolution of rights to the community level has been acknowledged as an effective policy for natural resource conservation when appropriate mechanisms are in place (Agrawal and Gibson, 1999; Porter-Bolland et al., 2012). Nepal suffered heavy deforestation following the implementation of the Private



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Forest Nationalization Act in 1957, which ended the traditional rights of communities over nearby forests. The National Forestry Plan of 1976 and the Forest Rules of 1978 were implemented as corrective actions to address the problems created by government control over forests. The Forest Act of 1993 and the Forest Regulations of 1995 furthered this approach through a massive conversion of government-managed forests to community-managed forests through CFUGs (Acharya, 2002). With this tenure rights devolution, communities have put considerable effort into forest management activities, such as regular thinning and pruning, guarding against illegal felling, prevention of open grazing, and controlling forest fires, among others. To date, around 20,000 CFUGs, comprised of almost 40 per cent of the population of the entire country, are managing around 30 per cent of Nepal's forest area (CBS, 2011; MOF, 2016). Due to prolonged and intensive inputs by these communities, there is considerable evidence of improved forest quality and availability of timber, firewood, fodder and several NTFPs that are useful for commercial purposes. The Forest Resource Assessment of 2015 recorded an increase in forest cover of around 13 per cent between 1990 and 2014 (albeit with slight variation in the definitions of forests) (DFRS, 2015). A wide range of informal and formal economic activities have spawned and intensified with these improvements in forest quality.

The forestry sector is considered to be one of the most important economic sectors in Nepal, with a direct contribution to the GDP from timber and NTFPs of around 9.5 per cent (NFA, 2008). A study conducted in 2014 showed that about 40,000 forest-based enterprises, among which 67 per cent were primary producers including CFUGs, existed in Nepal in 2014. The remaining 33 per cent were involved in value addition through processing, manufacturing, and trade (Subedi et al., 2014). Among the enterprises involved in value addition, 72 per cent were related to timber, 16 per cent in NTFPs, and 12 per cent provided ecosystem services. A total of NRs 32 billion (USD 331 million; USD 1 = NRs 96.5 in 2014) was invested in this sector by the private sector in 2013 (excluding foreign direct investment). The sector generated full-time employment for around 130,000 people: 99,000 in the private sector and 31,000 in the community-based forestry institutions. The forest-based industries were estimated to be producing goods and services worth NRs 88 billion (USD 912 million) under a conservative scenario and could reach NRs 370 billion (USD 3.8 billion) under an optimistic scenario (Subedi et al., 2014).

With observed improvements in forest conditions in community forests as well as the availability of timber and NTFPs, a number of communities have established community-managed forest enterprises utilizing locally available forest products. The primary goals of these enterprises are to provide



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employment, reduce poverty, and meet other social development goals in the areas of education, drinking water, and transport set by the community forestry programme (MFSC, 2009).

In spite of the considerable employment and income potential of forests estimated by various studies in Nepal, more than 400,000 people, which constitute the bulk of population that enter the labour force annually, leave the country for foreign employment each year with potential negative impacts on agriculture and other sectors. As a result, the economy has become highly dependent on remittance income (32 per cent of GDP; MOF, 2016). These contradicting facts show that there are serious gaps in the policy, institutional structure, incentive mechanisms, and several other dimensions of the forest governance system that prevent communities from utilizing and extracting value from the proximate resources at their disposal for generating employment and income locally.

Addressing the problem of low income, poverty, and unemployment through effective utilization of the forestry sector, particularly through the establishment of forest-based enterprises, has remained a policy goal of the government since the start of the community forestry programme (MFSC, 2000, 2015; NPC, 1992, 2002). As a result of tenure reforms in the forestry sector, a number of community forest enterprises (CFE) emerged across the country. Various agencies, both from within Nepal and abroad, provided the basic technical skills and equipment for identifying and processing commercial forest products that were either not being utilized at all or were being utilized at a very low level. These enterprises were also successful in attracting investments from group funds, individual members, and donor agencies. Reviews of the growth and the sustainability of these enterprises have shown less than satisfactory performance (Koirala et al., 2013; Kunwar et al., 2009; Rai et al., 2016). In this context, there is a need to re-examine CFEs in light of the forest tenure rights devolved to them, their institutional formation, as well as their capacity and constraints in utilizing those rights, in order to identify potential areas for improvement.

3. Literature Review

Communities have proved to be very responsive to public policies and programmes that promise sustained improvements in livelihoods and economic wellbeing. Nilsson et al. (2016) identified three important mechanisms for inducing behavioural change on the part of forest-dependent communities for forest conservation: generation of livelihood benefits, conservation benefits outweighing losses from curtailing previous behaviour, and the empowerment of local communities with real authority over natural



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resources. Tenure rights devolution is considered a basic prerequisite and starting point for community mobilization for improved natural resource management and consequent livelihood improvement (Antinori and Bray, 2005; Bray et al., 2006; Neumann and Hirsch, 2000). In the context of community management of forests, there is less debate about the contributions of community forestry to subsistence needs through provisioning of firewood, fodder, and other subsistence forest products. However, the provision of benefits of significant economic value to the most forest-dependent populations is less evident (Adhikari et al., 2004; Ribot et al., 2010). The most important pathways for providing economic value at the household level are either through sales of unprocessed forest products directly in the market or through processing for value addition. The scope of forest enterprises to add value to forest products generated in community forests has been emphasized for various reasons, such as low requirements for investments, technology, and skills. The potential of forest-based enterprises to contribute to employment, income generation, poverty alleviation, and social development have also been analyzed, and outcomes are mixed (Antinori and Bray, 2005; Macqueen, 2008). The employment and income potential of CFEs based on timber is obvious from various studies (Antinori and Bray, 2005; Bray et al., 2006), but the potential for NTFPs for either poverty reduction or economic development has been much contested (Neumann and Hirsch, 2000).

There is a large literature that sheds light on factors influencing the success or failure of forest-based enterprises. A number of studies have been undertaken in the context of Mexico as a success story of forest-based enterprises and “a template for community-managed forests elsewhere” through agrarian reforms and consequent policy improvements (Bray et al., 2006). Giovannini (2015) emphasizes the role of indigenous community enterprises in addressing a plurality of goals by self-organizing to meet local people’s unsatisfied needs, which are not only social and economic but political, cultural, and environmental as well. Macqueen (2008), on the other hand, identified that the central problem of forest-based enterprises is the lack of connectedness: forest-based enterprises are isolated from the market, financial services, and business development services, and are marginalized by prevailing patterns of the business environment. They face four challenges not generally faced by non-forest enterprises: complex tenure and resource access, technical knowledge requirements for resource sustainability, complex markets that determine commercial profitability, and consumption markets for such products demanding more refinement and diversity. Shackleton et al. (2007) emphasize the importance of local and in-country markets, rather than international markets, for forest products. There are several advantages to creating and expanding domestic markets, such as stability, low barriers to entry, low technological requirements,



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and fewer regulations. There are disadvantages as well, such as limited growth potential, market saturation, and limited scope for diversification and innovation. There are a number of studies on various dimensions of CFEs from Mexico, particularly with regard to timber enterprises, that emphasize agrarian reform and tenure rights devolution along with a multitude of supporting factors such as intermittent legislative and programmatic support and civil society backup contributing to the massive emergence of community timber enterprises and their sustainability (Antinori and Bray, 2005; Bray et al., 2006).

Studies have shown a high degree of variation in the modalities and institutional structures of forest-based enterprises (Antinori and Bray, 2005; Koirala et al., 2013; Subedi et al., 2002). Studies elsewhere have suggested that there is no one right way of managing CFEs, and each variant may emerge as a creative response to local problems (Bray et al., 2006). Some other studies conducted in Nepal have focused on other more specific issues. Kunwar et al. (2009) examined regulatory issues, such as enterprise registration and operation, marketing and trade, taxation, and private sector investment that have adversely affected new enterprise registration and the sustainability of existing ones. A study by Dhungana and Bhattarai (2008) has shed light on the nature of community forestry objectives and modalities. Timber constitutes the greatest value addition from the forestry sector, complemented by NTFPs. The study suggests that subsistence-oriented passive forest management does not create the potential for forest-based enterprise development, and policies should be oriented around more economically motivated intensive forest management. Other important issues identified by the study were enabling policies, tenure security, and marketing opportunities.

Overall, there are various studies examining different CFE management models, product types, and regulatory issues. Most studies have underscored the importance of a positive enabling environment for CFE emergence and long-term success (Antinori and Bray, 2005; Molnar et al., 2007). However, the exact components of this enabling environment remain undefined. Absent from the existing studies of CFEs is an analysis of their place in the broader tenure rights devolution framework. Moreover, the range of factors, both the bonding factors from within the community and the bridging factors from outside the community that combine to improve cooperation and performance of CFEs remain unexplored. Baynes et al. (2015) provides such a framework, and we expect that the success factors it has identified for community forestry programmes will provide useful insights in the context of CFEs.



4. Methods

CFEs can act as vehicles for helping forest-dependent communities to simultaneously meet their socio-economic and conservation goals. In this context, our study examines whether the factors that influence the success of community forestry in developing countries identified by Baynes et al. (2015) would be applicable in the case of CFEs. These authors identified 10 papers that discussed community forestry in general terms and 45 case studies based on empirical data. The case study countries were Nepal, Mexico, and the Philippines. Using methods of qualitative comparative analysis, the authors built a framework to explain how various factors may act synergistically or antagonistically in influencing the chances of community forestry (CF) success. They also designated each factor as either a necessary condition, a sufficient condition, or of lesser importance. These factors were (1) socio-economic status and gender-based inequality, (2) secure property (tree and land) rights, (3) intra-community forest group governance, (4) government support, and (5) material benefits to community members.

We briefly elaborate on the five success factors. The reduction of socio-economic and gender-based inequality should increase community cohesion and reduce conflicts. Secure property (tree and land) rights have been emphasized as a necessary condition for CF success. This right implies that enhancements in the bundle of rights that allows communities to access land, exclude outsiders, withdraw resources, manage land, and lease or sell it to others increases the motivation for communities to conserve forests. Intra-community forest group governance, which is not a necessary or sufficient condition, implies that democratic and/or equitable processes in leadership, voting, and benefit-sharing motivate communities to engage in CF activities. Government support strengthens bonding and bridging capacity; this is an important, but not a necessary or a sufficient condition. At the same time, patronage or corruption reduces motivations to engage in CF activities. Material benefits to community members have been regarded as a necessary condition for CF success. This implies that community members vested with the rights to timber, NTFPs, employment, and payment for forest products are encouraged to participate in CF activities.

Reflecting on Baynes et al. (2015), we assume that communities that have strong CF success factors also possess the capacity to establish and run CFEs successfully. In light of this assumption, we examine the success factors for the CFUGs that are running the CFEs. The study was mainly designed as a qualitative study based on primary data collected from CFEs. However, qualitative data were complemented by



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quantitative data whenever possible. The CFE was the unit of analysis. Regarding qualitative data, a comprehensive checklist was prepared and applied for interviews with a group of key informants. The checklist consisted of two components. The first component collected general information related to CFE establishment, legal status, operational and management modalities, relationships between CFUGs and CFEs, contributions of CFEs to the local community, problems faced by CFEs, the role of the government forest agency, and prospects of partnership with private sector, among other things. The second component was composed of quantitative indicators for the five success factors. These factors were contextualized for CFEs in Nepal based on various literature sources on community institutions (such as Springate-Baginski et al., 2003; Maraseni et al., 2014). Some of these indicators were collected from the CFUG and CFE documents while several indicators were based on perceptions of their collective experiences. These were in the form of indices such as the number of women, poor, and other disadvantaged groups, as well as yes/no responses about practices such as the regularity of financial auditing. A number of responses were collected using Likert scales ranging from 1 to 5 (very poor, poor, medium, good, and very good). The groups of key informants were asked to discuss the quantitative indicators and arrive at consensus figures. The list of the components of each of the quantitative indicators and the scale under the five factors is given in Table 1. We provide a brief description of the contextual indicators under each success factor.

<Table 1 near here>

Following Baynes et al. (2015), under socio-economic status and gender-based inequality, we categorize variables into those that lead to increased social cohesion and that lead to social conflicts. The variables that enhanced social cohesion were the regularity of participation of poor and disadvantaged groups in executive committee (EC) meetings, the ability of the EC to ensure participation of the majority of households in CFUG activities, the presence of other inclusive community institutions such as mothers' groups or saving groups and their effectiveness in the community, the ability of the EC to resolve conflicts when they arise, the presence of capacity-building activities, and the capacity of the EC and local leaders to reduce caste-based discrimination. The variables that increased conflict in the community were the extent of public discrimination against disadvantaged groups (DAG) in public spaces, wage discrimination by gender, the existence or past history of social conflicts in the community due to factors such as ethnicity, party politics, or resource concentration, the occurrence of caste-based conflicts, and the extent to which such conflicts had inhibited the forest and enterprise development goals of the



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community. The Dalits (traditionally described as untouchables) and indigenous ethnic groups are usually considered disadvantaged groups (DAGs) in the Nepalese social context.

The indicators for secure property (tree and land) rights were the perceptions of tenure security at different phases of CFUG and CFE development. Information was collected on the perceptions of the possibility of establishing a CFE in the absence of tenure rights, the perception of the quality of forest resources at present, the practice of authority to devise forest management rules, the extent of compliance with those rules by the community, the district forest office's (DFO) influence in devising rules, and the nature of the relationship between the CFUG and the CFE.

The indicators for intra-community forest group governance consisted of measures of regularity of general meetings and public audits, the involvement of women, poor, and DAGs in CFUG meetings, the effectiveness of participation and the involvement in management committees of the CFE, and perceptions of private sector involvement in the CFE, among other things.

The indicators for government support were the extent of government facilitation to the CFEs in complex administrative procedures, provision of training for management and capacity building, and the participation of underprivileged groups in such activities. The opposite dimension of government support was government restrictions in the form of patronage, corruption, and interference by DFO, and the degree of restriction on the CFE by the DFO.

The indicators for material benefits to community members were the provision for daily needs by the CFUG, specific pro-poor provisions, the share of employment from the CFE for women, poor, and DAG members, and the share of investment among poor and DAG members.

This study was designed as a rapid appraisal study. The sampling design was based on selection criterion that aimed to capture both timber and NTFP enterprises, areas with long histories of intensive forest management interventions, major ecological regions, and ecotourism services. Three clusters capturing these criteria were identified. They were the Kavre–Dolkha–Sindhupalchowk–Ramechhap cluster, the Chitwan cluster, and the Nawalparasi–Dang–Banke cluster (see Figure 1).



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The Kavre–Dolkha–Sindhupalchowk–Ramechhap cluster represents the mountain and hill cluster with intense forest-related activities supported for a long period in the past by international forestry institutions. It also represents enterprises with both timber and NTFPs. The Chitwan cluster represents ecotourism enterprises and represents the Terai region. The Nawalparasi–Dang–Banke cluster represents the Terai region with timber and NTFPs. Twelve forest-based enterprises were examined altogether. The enterprises represented in the sample included three essential oil extraction enterprises, two timber-sawing mills, two ecotourism enterprises, one handmade paper enterprise, a pine resin extraction enterprise, a wood apple juice enterprise, and an organic manure and a bio-briquette enterprise.

The sources of data were the forest user group communities and the CFE managers. For this purpose, the EC members of the CFUG, key position holders and the enterprise manager of the CFEs, local key informants, and members of the disadvantaged groups (DAG) were consulted. The other sources of information were the official documents of the enterprise, CFUG operation plan documents, and meeting minutes.

The tools of data collection consisted mainly of interviews with key informants from the CFUG community and CFEs. A comprehensive checklist was used for this purpose. A structured questionnaire was also used to collect quantitative information on variables such as the extent of participation of females, the poor and DAG in the CF decision-making process. Members of the study team took notes during interviews with the groups and tape-recorded interactions with verbal consent from the participants. These records were examined and important issues were coded and presented as verbatim data.

Documents relating to the CFUG, such as the operation plan document and the meeting minutes as well as any document relating to the CFEs, were reviewed and recorded to validate the qualitative information. This was supplemented by field observation and validation.



5. Results

We discuss the five success factors identified by Baynes et al. (2015) in the context of the CFUGs that operate CFEs. We first provide some background information on the communities and the sampled CFEs and then discuss the results based on the five indicators with data from the field.

5.1 Socio-economic Status and Gender-based Equality

Baynes et al. (2015) considered socio-economic status and gender-based equality a preferred but not a necessary or sufficient condition for CF success. Socio-economic inequalities within communities persist mainly due to differences in caste and income status. The CF guidelines of Nepal account for differences between ethnicities such as Dalits (traditionally considered as untouchables), indigenous groups, and high caste groups (Brahmin/Chhetris). The guidelines aim to ensure inclusiveness in CFUG management and benefit-sharing in favour of the very poor and disadvantaged groups. The guidelines mandate communities to undertake wealth rankings of households to identify the poor and better-off households. The guidelines stipulate that 50 per cent of the EC members be women who are also members of poor, Dalit and indigenous groups while the other 50 per cent be proportionately represented by poor, Dalit, and indigenous group members (MFSC, 2009).

Our score for participation by the poor and disadvantaged group members in the EC meetings was high, and the level of discrimination against DAG in public spaces and gender-based inequality in wages were low. The participation of the majority of households in CF-initiated activities was also very high. A resin enterprise management committee member in Ramechhap district stated, “We have a system to fine members failing to participate in activities such as the forest thinning and pruning. For that reason, all member households attend such activities.” This indicates some form of coercion to participate in CF activities, which might disadvantage poor and DAG groups. On the other hand, snacks were also provided to participant members as incentives for attending such activities.

There were wage rate differentials among male and female workers in agriculture activities in most of the sampled communities. Such differences partly emerged due to traditional division of labour between less laborious jobs, such as weeding and planting, and hard jobs, such as ploughing. “But we pay equal wage



to men and women in our CFEs”, said the manager of Bishashaya apple juice enterprise. Such practices were common in other CFEs as well.

Inclusive institutions such as mothers’ groups were found to be functional in all communities. These groups were making regular savings and lending to those in need. They also undertook other activities to improve social harmony and welfare. A participant in Banke commented, “Mothers’ groups fine NRs 2500 for alcoholism in a public space. They have banned production of liquor in the village. They also mobilize members to improve the effectiveness of vaccination programmes and environmental stewardship activities.”

The ongoing or past history of social conflicts and caste-based conflicts in the community was low. The extent of inhibition in achieving forest management and enterprise development goals due to community conflict was also very low. The capacity of the CF EC and the local leaders to resolve conflicts when they arise was high. The provision of training by the CFUG to enhance capacity building in order to foster community cooperation and participation was also high.

Though the factors for improving social cohesion were high overall in the public sphere, there was still discrimination in some instances. For instance, a member of the essential oil enterprise management team in Banke said, “There is no discrimination against the Dalits in public spaces, however, at the informal level, it is still there. It is still difficult to take a Dalit inside your house when you have an older generation living with you.” This indicates that there are still cultural barriers for social cohesion in undertaking community enterprises collectively.

To examine socio-economic status and gender inequality, we collected information on 14 indicators. Among them, 11 were on a 1–5 scale and 3 were on a 0–1 scale. We used the 0–1 indicators as background information and the 1–5 scale mainly as performance indicators. Our analysis is mainly based on performance indicators. We categorized the 11 performance indicators related to socio-economic status and gender-based inequality as those contributing to social cohesion and those contributing to social conflicts. We assigned equal weight to the performance indicators, and indicators with scores below 3 were considered low, whereas 3 and above were considered high. Aggregating the perception indices, we obtained a mean value of social cohesion and social conflict. The analysis showed high social



cohesion (3.8) and low social conflict (1.6) in the sampled CFE communities (see Figure 2). The variation in both the scores among CFEs was not very high.

<Figure 2 near here>

5.2 Secure Property (Tree and Land) Rights

Baynes et al. (2015) identified secure property rights as a necessary condition for CF success. Tenure rights for CFUGs in Nepal are defined as the rights to manage CFs and harvest forest products, such as firewood, timber, and NTFPs, from them in a sustainable way in accordance with the operational plan approved by a government agency, generally the DFO (HMG/N, 1995). Property rights over forests transferred to CFUGs constituted the basic foundation for establishing a CFE. CFUGs provided the raw materials and made provisions for its sustainable supply, provided capital for initial establishment and operating expenditures, provided management support by themselves or by constituting a separate committee, and provided legal status on the basis of the operational plan approved by the DFO for the enterprises that were not formally registered. CFUGs also provided a letter or brand name when the enterprises were not formally registered and had no valid invoices or bills. CFUGs also served as a channel for CFEs to receive donor support for investment, technology, infrastructure, or market support.

In order to examine community perceptions of tenure security over land and trees, we first inquired about perceptions of tenure rights at three points: (1) before they were handed tenure rights in the form of CF on the previously government-owned land, (2) after they were handed the CF land, and (3) at present, after they had started running the CFEs. The mean perception scales are presented in Figure 3, showing that they had a very low perception of tenure rights over the forest before formation of the CFUG. The perceived tenure rights were very high once they were handed the CFUG. A member of the Kankali ecotourism enterprise explained, “Before we started informal conservation as a CF in 1990, the hills were completely denuded. People would cut down whatever grew here for firewood and fodder and cattle and goats were grazed openly. Water was so scarce that people would not give their daughters in marriage to men here. All this lush green forest with valuable Sal (*Shorea robusta*) trees is the progress achieved since then. The DFO handed over this forest as a CF to us in 1996.”



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<Figure 3 near here>

When respondents had encountered regulatory problems in the course of establishing the CFEs, they felt that the real tenure right they had been granted was quite low. A member of Gobardiha saw mill's management team in Dang district observed, "We had felt that we were the owners of our forest and were almost at 5 on this scale. But after being rejected after several visits to the DFO trying to get our enterprise registered, we now feel we have been granted nothing and that we are no more than a 2." In yet another case, when the DFO refused to approve the establishment of a resin and turpentine processing enterprise in Ramechhap, the managers of the enterprise said, "We are at a score of 1." The management teams of the CFEs often expressed their frustration regarding the distance provision. But the distance provision applied only to processing forest products through CFEs. For local community consumption, based on the operational plan, no legal and administrative barriers were reported.

Respondents believed that by utilizing their tenure rights, they were able to maintain a high level of forest quality. The compliance with the rules set by the CFUG management by its members was quite high. The extent of influence of the DFO, as a part of the government guidelines in the formation of CFUG rules, was also very high. The communities exercised their tenure rights through a variety of resource sustainability strategies to ensure that forest quality did not degrade due to raw material extraction for the CFEs. Some were found to be proactive, such as the Chisapani CFE in Nawalparasi, which had started to adopt scientific forest management to ensure an adequate supply of raw materials for essential oil extraction while allowing regeneration of valuable Sal trees. The Bishashaya CFUG in Nawalparasi had planted more than 500 wood apple saplings in its CF to ensure raw material sustainability. The Gobardiha saw mill in Dang aimed to reduce sawing wastage to reduce felling pressure on its CF. The Baghmara and Kankali CF in Chitwan reinvested the revenue it had collected for forest conservation in improving ecotourism attractions. Some CFEs had initiated production of new kinds of products, such as bio-briquettes in Piyoukharka in Sindhupalchowk or organic manure in Binayi in Nawalparasi, using byproducts and nuisance species. The pine resin and turpentine CFE in Ramechhap claimed they had made technical provisions to ensure resource sustainability, though their true impacts will not be known for some years. In some cases, such as in the Deodhuga CFE in Dolkha, resource availability had degraded significantly.



5.3 Intra-community Forest Group Governance and CFE Governance

We found that forestry sector international non-government organizations (INGOs), CFUG executive boards, community members, government projects, DFO, CFUG member entrepreneurs, and private forest sector companies all took the initiative to establish CFEs. In most of the cases, the forestry sector NGO/INGO offered starting capital, which was ultimately converted into shares for poor households, identified through community wealth-ranking. Other shareholders included the CFUG, individual CFUG members as private investors, and some forestry sector companies. The Federation of Community Forest Users Nepal (FECOFUN), the national umbrella organization of CFUGs in Nepal, also played an instrumental role in establishing and promoting CFEs.

According to legal provisions, all production and value addition activities in Nepal need to be registered under the Department of Industry. They should either register themselves as a small or cottage industry (SCI) or medium or large industry. Registration as a SCI was the domain of the Department of Small and Cottage Industries (DCSI). These can be owned either as a sole proprietorship or a partnership firm. Enterprises with a larger number of owners have to be registered under the company act in the Company Registrar's Office. Registering as a company allowed enterprises to undertake business activities. Unless they are registered under the Department of Industry, they could not undertake production activities and consequently not issue any formal documents for marketing of their products.

There was no legal provision for registering an enterprise under community ownership, such as a CFUG. So, to meet the legal provision criteria, a number of CFEs were found to be registered as SCIs. They registered the firm as a private entity with a reliable person, generally the chairman of the CFUG, as the proprietor. This legally implied that the CFE was a private business, though functionally it was CFUG owned. A few of the sampled CFEs were also registered under the company act, but some were neither registered as a SCI nor as a company. The only legal documentation they had was the mention of the production activity in the operation plan that had been approved by the DFO. These CFEs were issuing information about the production of forest products on the CFUG letterhead and were supplying their products to the market. So far, they had not faced any serious problems, but these were not legally valid documents. Some CFEs that were registered under the SCI had not renewed their enterprises regularly and had lost their valid legal status, but were still continuing with their production activities. In addition to registration, CFEs also had to be registered with a Permanent Account Number (PAN) for tax purposes. The communities expect that the CFEs will be granted a fee waiver for both the renewal of their



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SCI status and PAN. Only a few CFEs had the complete authorization and renewal documents for their operation.

From an operational perspective, the CFEs in the study were managed either by a single CFUG, through a consortium of CFUGs, or in collaboration with the private sector, but all the CFEs were in some way regulated by the CFUG in terms of investment, management, or control.

For almost all CFEs, the CFUG created an operational modality to run the CFE. Generally, the CFUG created a management body and nominated a manager to run it. The operational structure showed that the CFEs were completely under community control, though legally they appeared as a private business. These prevailing rules that assume forest communities will not undertake a collectively owned and managed CFE enterprise appear somewhat contradictory to the community forestry programme in general and the CFUG guidelines from the government in particular.

The composition of the management committee and inclusion by gender, poverty status, and ethnicity were determined by the CFUGs. The allocation of shares for investment, inclusion of the poor in the share allocation, the provision of profit sharing, and the structure of the monitoring mechanism were determined by the CFUG concerned or the consortium of CFUGs. In case of CFEs with more than one CFUG, mechanisms had been introduced to ensure representation of all participating CFUGs in the management body of the CFEs. The CFE management was responsible for making rules for the collection of inputs from the CFUGs, managing production activities, coordinating with the market, conducting the annual general assembly meeting, and regularly auditing financial transactions.

A number of indicators were used to examine intra-community forest group governance. Some basic criteria indicators were the regularity of annual general meetings for public auditing of financial transactions, approval of the activities of the governing body during the past year and their plans for the next year. The results showed high turnout as all the communities had met this criterion. The formulation of rules for forest governance and their clarity was also high. The meetings of the EC, as per rules, were met by all 12 communities. All communities had representation for women, poor, and DAGs. However there was variation in the effectiveness of decision making in the EC meetings. This was reported by several communities. "It is ideal to have representation and engagement of all the socio-economic groups in the CFEs, but when we come to implementation, it is only a few in the lead. This makes collective



decision making rather complicated and unsuitable for running a market-oriented enterprise,” said a managing team member of Tamakoshi Resin and Turpentine enterprise in Ramechhap. The results showed that effectiveness was low for the poor but high for women and DAGs (see Figure 4).

<Figure 4 near here>

5.4 Government Support: Legislation and Capacity Building

Government support contributes to CF success and sustainability by enabling their external governance capacity, removing barriers through legislative reforms, and providing skills and training for capacity development. On the other hand, conflict between the government and CF leads to failures, inefficiencies, and poor outcomes (Baynes et al., 2015). CFEs that are a diversification of CF activities are directly affected by the nature of government support.

The present study also explored issues of conflict between the CFEs and the government. The conflict between the CFEs and the government were mostly in the form of legislative and regulatory inconsistencies. The Forest Act of 1993 and the Forest Regulations of 1995 are the fundamental policies governing present-day forest institutions and activities, and there have been several amendments and additions since their adoption. These regulations designated the DFO as the major authority and implementation agency of the government at the local level. To ensure that things are under government control, all forest-related activities have to be approved by the respective DFOs. This gives officials at the DFO enormous responsibility and authority. The lack of adequate manpower and resources within the DFO has been a problem for several years (Acharya et al., 2009). Perhaps due to resource scarcity and a centralized mindset, the overall forest management policy of Nepal is conservation oriented, restrictive, and passive, rather than active and production oriented, such as through scientific forest management. Since timber is a highly tradable commodity that is directly related to deforestation and degradation, government policies have been very restrictive on activities related to timber. The existing forest policies thus primarily aim to restrict timber harvests to maintain forest cover in the country. Accordingly, at each and every stage, timber-harvesting activities such as tree marking, issuing cutting orders, storage location approval, and sawing orders have to be approved by the DFO. To prevent timber movement out of the community, the government has made a provision for CFEs to be located at a certain distance from the forest boundary. Due to a highly restrictive policy on timber, NTFPs have to undergo a somewhat similarly stringent process. NTFP-based CFEs also need to be located 0.25–1.0 km away from the forest



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(GON, 2014). No permanent structure can be constructed for the processing of forest products within the CF territory (HMG/N, 1995). This restricts the development of CFEs on CF land. This might be to prevent unscrupulous private enterprises from illegally processing forest products by ensuring that during delivery, forest communities notice illegal transfers and prevent them, or it could be to prevent noise from plants and equipment, such as sawmills, and other forms of pollution from affecting wildlife. The provision of minimum distance from the CF has been a major legislative barrier for CFEs. There were already more than 20,000 community-managed forests including leasehold forests, buffer zone CFs, and collaborative forests. These forests near human settlements had all been handed over, which made finding locations to establish CFEs at this given distance almost impossible, as in most cases the area was situated in the hills in Nepal. Establishing CFEs on private land could be an alternative. However, investing community funds for CFEs on an individual's private land could be complex and risky. It would also require large investments for initial land purchase. As a result, CFEs were established on CF lands, violating the existing legal provision that ultimately prevented them from registering.

In most cases, the CFE managers considered this issue a barrier created by the DFO, but it was mainly a legislation issue that could be addressed through legislative reforms. A CFE management team member of the Gobardiha Sawmill in Dang said, "Even though the DFOs are personally supportive of our endeavours, they do not provide us the required document for registration. They say that they are bound by regulations. The private enterprises under similar circumstances are allowed to operate by the DFO while we are facing problems because as community institutions, we cannot pay bribes and manipulate facts."

Responses from the field indicated that government support for various issues related to CFEs was mostly quite low, though in some respects they were better. The government role in meeting planning procedures and requirements was high, while the government provision of training and skill development was low. The CFUGs often identified and nominated beneficiaries from among marginalized groups and thus the equity in benefit-sharing from government-sponsored capacity-building programmes were better. Government support to the poor for accessing NTFPs was high due to government provision. Government support for enhancing the capacity of the enterprise was low, however, and government support for encouraging the private sector to work with the community was also low. Patronage, corruption, and interference scored very high, along with highly inhibitive DFO activities in the case of CFEs. Overall, the environment created for CFEs was more restrictive than supportive (see Figure 5).



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<Figure 5 near here>

Legislative complications and barriers were reported as a reason for poor private sector involvement in CFEs. In the case of CFEs registered as companies, there were shares for poor households contributed by donor agencies, CFUG institutional shares, as well as private share holdings by individual member households. Provisions such as these operated at the timber mill in Gobardiha, the saw mill in Dang and Everest Gateway handmade paper enterprise in Dolkha. Some individual households had also become shareholders with a dividend-sharing arrangement. There was private sector involvement in some CFEs. For instance, in Chisapani CFUG, a private company involved in the production of essential oils has collaborated with the CFUGs in terms of investment, employment, and land leasing. The company invested NRs 500 thousand in the construction of the processing plant. The CFUG has leased its land to the company for the cultivation of essential oil plants. The company paid daily wages to women from the community to work on these allotted lands. In the case of the Chaubas sawmill in Kavre, negotiations were moving forward for management and marketing of the products by a private sector firm with a 51 per cent share investment and dividend; the community will receive the remaining 49 per cent share.

Regarding further investments, particularly for the purchase of new plants or physical infrastructure, the community members were not very interested in investing in them. One reason might be that there are other investment opportunities in areas such as agriculture (commercial vegetable farming or livestock keeping) or businesses that are much more secure for private investment than community-owned resources. There was a general tendency to add new investments through donor funding rather than mobilizing community capacity. This could be due to one of two factors. First, some may not feel very investing in CFEs is very secure because of the weak legal grounds upon which CFEs operate (without approval by DFO due to the distance issue and thus no registration with the Department of Industry). The managers of the Bhagwati essential oil enterprise said, “New investments from community members are unlikely... We would rather ask our management team to allocate more time to seek donor funding for capacity expansion.” Second, based on previous experience, it is easier to obtain funds from donor agencies. The bio-briquette factory in Sindhupalchowk had recently received significant donor funding to replace an old building that had been damaged by the 2015 earthquake.



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We asked whether the private sector had been interested in investing in the CFEs. In some instances, the private sector was prepared to lease plants for a fixed amount. Communities supported the idea of community members themselves being involved as private sector collaborators, but did not support external private sector participation. They claimed that it would allow the private sector to reap the benefits of several decades of community management of the forest without adequate reward. In fact, they feared that the private sector would harm the governance ideal built through years of community collaboration. This was the case with Kankali CFUG in Chitwan. “When our EC made a proposal of allowing a private sector company to operate amusement items such as rotating swings within the existing picnic spot run by the CFUG during the general assembly meeting, there was a strong opposition to the private sector participation proposal. The management committee had to withdraw the proposal without any further discussion”, stated one member. Somewhat similar was the case with Bhagwati Essential Oil Processing enterprise in Banke. The community refused this proposal on the assumption that once an external private sector company undertakes it, it would not process the products at a concessional rate the CFE is currently charging (about 20 per cent of the extracted oil), and this would be at the cost of community welfare. Similar arguments against private sector involvement were made by managers of the Gobardiha saw mill, “We know that if we hand this over to a private company, it can overcome all these regulatory barriers and start operating without hurdles by any means... But the community will start suffering due to higher prices of services and the forest quality will be compromised.” However, if the private company originates from within the community and the CFE is already finding it difficult to operate, it may emerge as an option. For instance, in case of Bishasaya wood apple enterprise in Nawalparasi, the community had recently assigned one of the CFUG members to run the enterprise with a 50 per cent profit-sharing arrangement. This was a new strategy to overcome previous problems. Except for a few cases, the minimum distance policy barrier was the primary reason for lack of private sector being interest in taking responsibility for running the forest-based enterprise through partnership. Also, the private sector has perhaps not been enthusiastic due to the high transaction costs of negotiating with a large group of people for little benefit.

5.5 Material Benefits to Community Members

As explained by Baynes et al. (2015), material benefits to the community refer to the timber and NTFP benefits to community. In addition to these, the CFEs examined in the study contributed to the local community in several ways.



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First, they created cash income through local employment generation by utilizing idle resources in their forests. “We didn’t establish this enterprise to make profit. Our main goal was to create employment for very poor women... This has helped to conserve forests as they no longer need to harvest from the CFUG illegally,” said the managers of Chisapani CFUG, an essential oil extraction enterprise. They provided employment to 65 women organized in different groups to produce essential oils. They had also allocated some land within the CFUG to a private institution that plants essential oil plants. Women from the CFUG member households had the option of either working on their own plots or working for wages in the private firm’s plots. It is worth noting that this CFUG served over 12,000 households. Likewise, the pine resin enterprise in Ramechhap employed dozens of local people to carry tapped resins to collection centres. Employment was provided to the CFUG households by enterprises such as paper production in Jiri, wood apple juice in Nawalparasi, ecotourism enterprises in Chitwan, or the bio-briquette enterprise in Sindhupalchowk. “We don’t mind bearing some losses from the enterprise because it is providing employment benefit to the poor members in the community. We can compensate the losses from other sources,” said a participant from the wood apple juice enterprise in Nawalparasi.

Second, CBFEs contribute to CFUG funds. The resin enterprise paid a royalty of NRs 900 per quintal for 160 quintal resin collected in 2016. The Chisapani CFUG charged NRs. 1,000 per lot for processing in its plant. This charge was collected from community members, from the private company cultivating essential oil plants in the CF plot, and from customers. Businesses from far away also sought to obtain essential oils from this enterprise. The Baghmara CFUG received licence fees of more than NRs 500 per entry for elephants carrying tourists into its territory. The Kankali CFUG received the entrance fee to its picnic spot and swimming pool.

In other CFEs, the CFUG received funds as dividends from the CFEs, or residual incomes after deducting all the expenses from the receipts of their marketed products. For instance, the wood apple enterprise in Nawalparasi, bio-briquette enterprise in Sindhupalchowk, ecotourism enterprises in Chitwan, and essential oil enterprise in Banke received such dividends or residual profits from their enterprises

These funds were utilized by the CFUG for various activities in accordance with the community forestry guidelines of the Government of Nepal. These activities consisted of forest conservation and development activities, income-generating activities for the poor, local capacity development activities such as skill



training, and social development activities related to health, education, or drinking water in the community.

Third, CFEs contributed to improving community welfare, particularly by providing services that were useful to the community. As discussed earlier, essential oil extraction in Banke had been vital to local livelihoods. People had to give up traditional crop farming and shift to cultivation of essential oil plants after the conversion of the CFUG into a buffer zone adjoining the national park. The area of cultivation of essential oil plants is increasing every year and there was a growing pressure for plant capacity expansion.

The Gobardiha sawmill was established to provide a timber sawing facility at a relatively low cost to the CFUG community, while at the same time minimizing the timber consumption rate. Households demanding volumes of timber are granted tree trunks which are generally larger due to estimated sawing wastage. If the CFUG sawmill provides the exact size of timber, the extra quantity of timber can be supplied to another household. This reduces logging requirements and also the burden of transportation costs and high charges of private saw mills. It also allows timber to be supplied to poor households who need small quantities of wood for a bed or a casement; this otherwise would be unmanageable for poor households.

Regarding traditional forest products, all communities were assured material contributions to member households' daily needs in accordance with the regenerative capacity of the forest. Pro-poor provisions existed in all CFUGs with concessional provisions for basic forest products. Employment and income benefits were mainly targeted at local community members. Employment was found to be reserved or made available to the poor, followed by DAGs and women (see Figure 6). There were cases of overlap of these three categories reported by community members. The average of the figures for the three groups were converted into a Likert scale of 1–5 to obtain a measure of material benefits. This gave a result of around 3.0.



<Figure 6 near here>

6. Discussions and Conclusions

We examined whether the strength of the five factors suggested by Baynes et al. (2015) and the contextualized subsidiary factors are equally valid in the case of CFEs in Nepal. The findings based on existing community characteristics and CFUG operational modalities have shown that social cohesion is stronger than social conflict, but the difference in strength is not very large. The discrimination against the Dalits, though not visible in public spaces, is still psychologically persistent and could adversely affect collective action. This has an impact on CFEs as they are performing poorly, with low public participation in terms of required investment, capacity utilization, and generation of income and employment. This calls for more inclusive, pro-poor, and gender-equality enhancing restructuring of the local political economy in rural areas and in forest management.

CF is lauded as a success story of tenure rights devolution over forests. This rights devolution has improved forest cover and livelihoods of local people in terms of traditional forest-based resource availability. Forestry policy in Nepal has been conservation-oriented rather than production and utilization oriented. It has not been accepted at the policy level that forests are a renewable resource and their utilization might be possible even without compromising their quality and coverage. The communities' tenure rights perceptions after the CFUG handover and after CFEs establishment shows that there is a significant gap. The gap has emerged due to regulatory and legislative inconsistencies. Failure to rightly address these inconsistencies might lead communities to doubt the tenure rights devolved to them. Previous studies have also pointed out that Nepal's forest bureaucracy is highly inhibitive with respect to local utilization and commercialization (Dongol et al., 2002; Sunam et al., 2013). In this regard, it is worth recalling that success in the commercialization of forest resources in the case of Mexico has its roots in very favourable tenure rights provisions (Antinori and Bray, 2005; Bray et al., 2006). The government should revisit its tenure rights devolution commitment to address these inconsistencies. This would benefit communities through local employment and income generation, as well as the creation of forward and backward linkages in the local economy. It would also contribute to government revenue from the production and sale of forest products.



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Government policies and directives for CFUG formation and operation have instituted strong provisions for inclusiveness by gender, ethnicity, and economic status. All the sampled communities had adopted the minimum criteria. However, the effective participation of these socio-economically unequal groups in decision making and implementation is rather challenging. Although the poor are included in the management of the CFUG and CFEs, the ineffectiveness of their participation reflects high opportunity costs of their involvement.

CFEs have emerged from the tenure rights devolution as an outcome and vehicle of social cohesion: binding and bridging factors. In spite of various socio-economic and policy barriers, communities regard CFEs as a means of enhancing inclusiveness, equity, and dynamism to achieve CFUG goals. All CFEs have instituted mechanisms to ensure employment and income to the poor and marginalized groups. CFEs have made forest communities more dynamic by linking the community with external agencies and government institutions for technology, capital, and markets. This indicates that communities are putting tremendous efforts into best utilizing the tenure rights devolved to them for improving livelihood prospects through forest resources.

The fact, that communities can own and manage forest resources, but cannot add value to them through CFEs established under their legal ownership to generate employment and income, is contradictory. All communities visited during the study highlighted this inconsistency and said that they have been struggling against it. This has also restricted government agencies such as the DFO and the Department of Industries from providing support to CFEs, in spite of the government's declared policies of promoting forest-based enterprises. Since the CFEs are, in most cases, operating without legal grounds, the DFOs face legislative problems in providing whole-hearted support. On legal grounds, the DFOs have to overlook CFE activities. This has created mistrust between the CFUG and the DFOs. As a result, the government support component in legislation and capacity building was found to be lacking. The restrictions imposed by the government in CFE operation issues far exceeded government support. This calls for a review of two issues: (1) the threat to resource sustainability that is implicit in the provision of distance and boundary criteria, and (2) the prospects for commercialization of potential timber and NTFPs as emphasized by communities and forest rights advocates such as the Federation of Community Forest Users Nepal (FECOFUN). A forest resource inventory in terms of commercially viable timber and NTFPs at a regional and national level is still absent, although communities prepare a rough estimate of the resource inventory for a CFUG during the renewal of the operation plan. It is still not very clear, within



the existing conservation-oriented forest rights devolution framework, what the realistic potential of CFUGs in providing raw materials, employment, and income in a sustainable manner would be. It is also not clear whether options for production- and utilization-oriented forest management are technically viable in different ecological and topographical zones.

Material benefits to community members, particularly in the form of local subsistence needs such as provision of firewood, fodder grass, and timber for construction, were validated by our findings. But, economic benefits such as employment, income, and other prospects of forward linkages appear to be lacking. For instance, in spite of the communities trying their best to create employment opportunities through CFEs, the nature of employment was seasonal, available only for a few persons and unable to cater for the needs of the majority of members. As this discussion shows, performance of CFEs is heavily compromised by existing CF regulatory and institutional provisions. This has limited the contribution of CF to livelihood improvement through enterprise development.

Combining all five factors identified by Baynes et al. (2015), we see that the CFEs are well below the ideal baseline (see Figure 7). Among the five indicators, socio-economic equity was weak while government support turned out to be negative in relative terms (restrictions exceeding support). Obviously, CFEs basically originated from the tenure rights devolved to communities in the form of CFUGs. All the communities visited strongly believed that the CFEs would not exist had the tenure rights to CFUGs not been granted. They accept that there has been a tremendous improvement in forest quality and livelihood support after receiving tenure rights. But when it comes to the issue of CFEs, the perceived tenure rights appear very weak. Thus there is a gap in the community's expectations of CFUGs and the CFEs. Alleviating the legislative and regulatory inconsistencies would likely allow the community to reconcile their perception about CFUGs and CFEs.

<Figure 7 near here>

Investments in CFEs have been initiated through national and international forestry projects, CF communities, government projects and private sector. Communities have not been very enthusiastic about capital investment for expansion and upgrading for several reasons. A lack of legal status due to the provision of minimum distance and infrastructure within the CF territory was one of the major obstacles. This was the main issue faced by most CFEs in their continuity and development. Further, providing



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support for modern inputs and market support are potential options for improving CFE effectiveness and livelihoods of forest-dependent populations. Such regulatory reform would also allow communities and policy makers to evaluate realistically the potential of CFEs to contribute to livelihoods on the basis of market factors. A few years of a closely monitored trial would contribute to a better understanding of the potential of forests for the economic betterment of local communities.

To conclude, this paper reports on the first systematic study to evaluate the investment effects attributable to Nepal's forest rights reform programme. In addition to assessing the effects of tenure reforms on investment activity, it considers the performance of CFUGs in fostering and managing investment, how regulatory roles of forest authorities have changed in light of the greater rights exercised by community institutions, and the patterns of local participation and benefit-sharing in new forest-based enterprises. The paper used the framework suggested by Baynes et al. (2015) to assess whether their five factors for community forest success are valid for CFEs. Our findings indicate that communities have a strong social cohesion factor, but at the same time there are factors that inhibit reduction in conflicts, such as caste and gender-based discrimination in the community. CF communities have undertaken CFEs activities not only as a means of employment and income, but also as an additional measure to enhance social cohesion and reduce conflict not achievable through regular CFUG activities. They have been prioritizing the poor, disadvantaged and marginalized groups in investment and employment, and have instituted wage rate equality in CFE activities. A community's perceived tenure right security in general CFUG is high, but has been significantly reduced in the context of CFEs. Findings indicated that communities have practised a high quality of intra-CFUG governance and that can be further strengthened through effective CFE functioning. From a government support perspective, DFOs that are willing to strengthen local forest institutions are also restrained by legislative and regulatory inconsistencies related to CFEs. This has restricted communities from achieving material benefits from the resources available to the expected extent. Communities have networked with donor agencies, forest-related I/NGO, and government-initiated project and private sector market promoters to further investment, technology and marketing services for CFEs. Resolving the legislative and regulatory barrier thus seems to be the main issue to overcome. This will allow CFEs to operate at their full potential, and further strengthen the social bonding and bridging capacity towards fully empowering CF communities in Nepal.



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Table 1. Analysis of five success factors suggested by Baynes et al. (2015) in sampled CBE

Success factors	Scale	Scores	Inference
<i>1. Socio-economic status and gender based inequality</i>			
Regularity of participation of poor members in EC meeting	1–5	3.5	High
Regularity of participation of DAG members in EC meetings	1–5	3.8	High
Ability of EC to ensure participation of all households in CF activities	1–5	4.4	High
Extent of discrimination against DAG in public spaces	1–5	1.8	High
Status of inequality on wages and other benefits for women	1–5	1.8	High
Presence of other inclusive community institutions such as mothers' group, saving groups in existence.	No=0, Yes=1	1.0	High
Degree of influence of community institutions in fostering community cohesion	1–5	3.6	High
Existence of current or past history of social conflict in the community due to factors such as ethnicity, party politics, resource concentration, etc.	No=0, Yes=1	0.0	Low
The extent to which community conflicts inhibit achievement of forest management and enterprise development goals	1–5	1.1	Low
Ability of the EC to resolve conflicts when they arise	1–5	3.7	High
Occurrence of capacity building programs conducted by CFUG in the last three year to increase community cooperation and participation	No=0, Yes=1	0.7	High
Existence of caste-based conflicts	1–5	1.6	Low
Capacity of EC to reduce caste-based discrimination	1–5	4.3	High
Capacity of community leaders to reduce caste based discriminations	1–5	3.7	High
<i>2. Tree and tenure right security</i>			
Perceptions of tenure security before the establishment of CFUGs	1–5	1.4	Low
Perception of tenure security after the establishment of CFUGs	1–5	4.4	High
Perceptions of tenure security before the establishment of CBFES	1–5	4.4	High
Perceptions of tenure security after the establishment of CBFES	1–5	2.5	Low
Possibility of CBFES establishment in the absence of CF	No=0, Yes=1	0.0	Low
Quality status of forest tree cover as a result of tenure rights	1–5	3.9	High
The CFUG sets rules for forest use	No=0, Yes=1	1.0	High
Rules set by CFUG being observed by forest users	1–5	3.9	High
The extent of DFO influence in the formation of the CFUG rules	1–5	3.9	High
The relationship between CFUG and CBFES in obtaining CFUG resources	1–5	4.8	High
<i>3. Intra-CFUG governance</i>			



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Success factors	Scale	Scores	Inference
Annual general meetings and audits/public audits conducted regularly for the last three years	No=0, Yes=1	1.0	High
Clarity of rules regulating resource extraction, monitoring of resource levels, and land and tree maintenance	No=0, Yes=1	1.0	High
Regularity of EC meetings	No=0, Yes=1	1.0	High
Presence of women, the poor and DAGs on the CFUG executive committee	No=0, Yes=1	1.0	High
Effectiveness of participation of women in CFUG meetings	1–5	3.5	High
Effectiveness of participation of the poor in CFUG meetings	1–5	2.6	High
Effectiveness of participation of DAG in CFUG meetings	1–5	3.3	High
Presence of female members in CBF E management team	No=0, Yes=1	0.8	High
Presence of poor members in CBF E management team	No=0, Yes=1	0.5	High
Presence of DAG in CBF E management team	No=0, Yes=1	0.8	High
Private sector investment welcome in CBF E s	No=0, Yes=1	0.6	High
4. Government support: Legislation and capacity building			
Extent of govt. facilitation in meeting complex administrative and planning procedures and requirements	1–5	3.1	High
Government provision of training for recordkeeping, infrastructure, and funding and other management skills	1–5	2.4	Low
Participation of women, the poor and DAGs participated in these trainings	1–5	3.8	High
Does government support the forest usage of the poor, e.g. NTFPs	1–5	0.9	High
Government support for enhancing the capacity of the enterprise	No=0, Yes=1	2.3	Low
DFO support in bringing private sector investment in CBF E s	No=0, Yes=1	1.8	Low
Patronage, corruption, and interference by DFOs and government agencies	Yes/No	4.6	High
Extent of inhibition by DFO activities	1–5	3.8	High
5. Material benefits to community members			
Whether provisions exists for material benefits of daily needs from CFUGs to local communities	No=0, Yes=1	1.0	High
Pro-poor provisions exist or not for sharing of benefits in CFUG	No=0, Yes=1	1.0	High
Employment and income benefits are generated by CBF E s for local communities	No=0, Yes=1	1.0	High
Share of women in the employment generated by CBF E s	Per cent	42.3	Low
Share of the poor in the employment generated by CBF E s	Per cent	65.3	High



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Success factors	Scale	Scores	Inference
Share of DAG in the employment generated by CBFEs	Per cent	47.5	Low
How is the investment share and potential dividends distributed by CBFEs distributed among various poor and DAG	Per cent	11.3	Low

Source: Field survey (2016)

Figure 1. Study Area

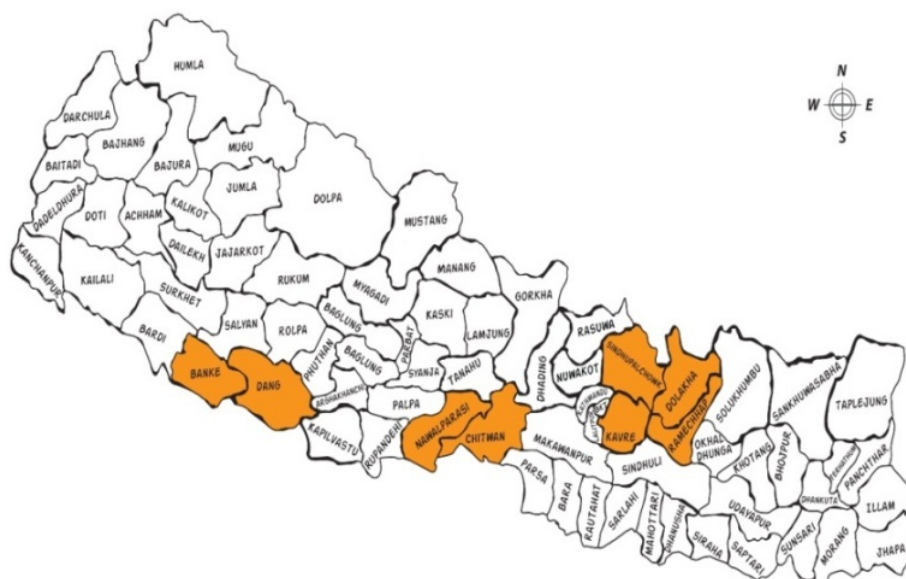
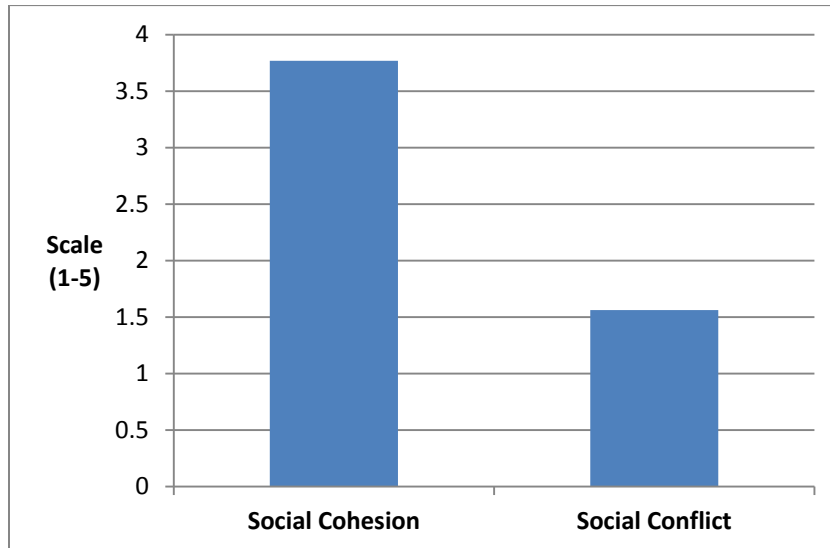


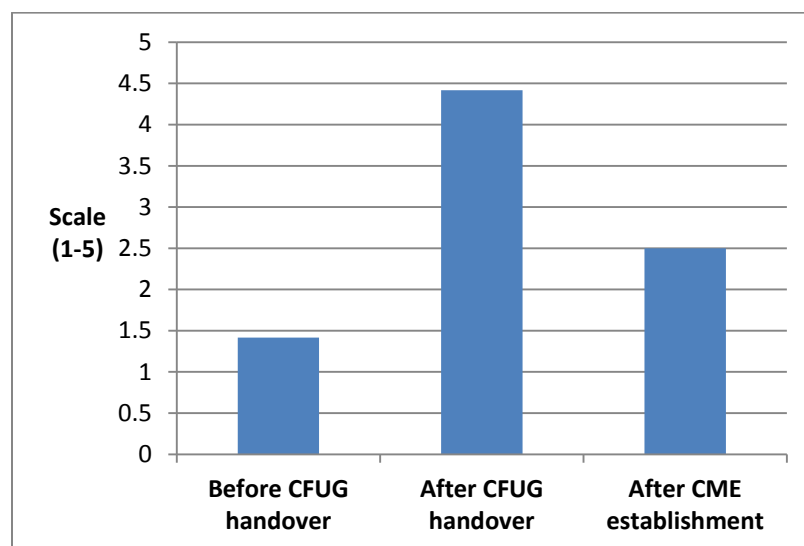


Figure 2. Community perception of social cohesion and conflict



Source: Field survey (2016)

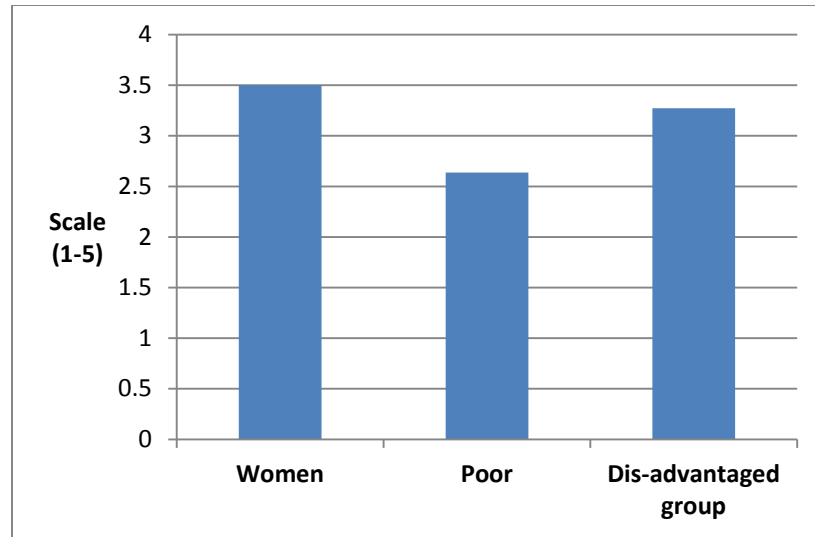
Figure 3. Community perceptions of tenure rights



Source: Field survey (2016)

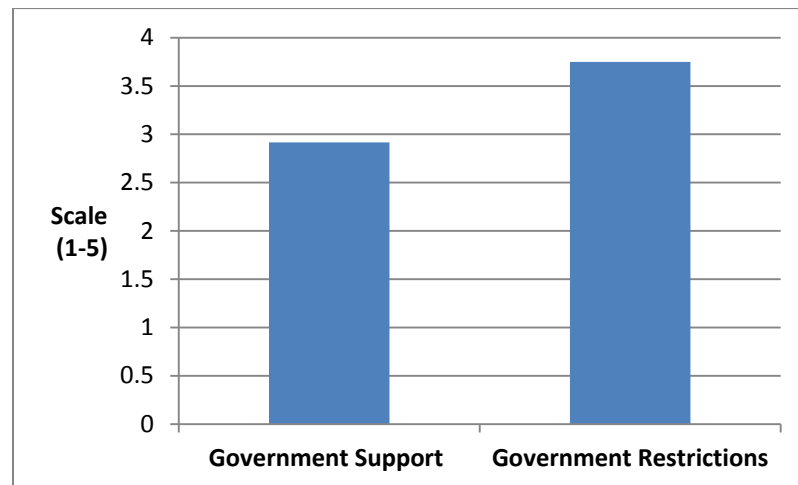


Figure 4. Community perceptions of effectiveness of participation



Source: Field survey (2016)

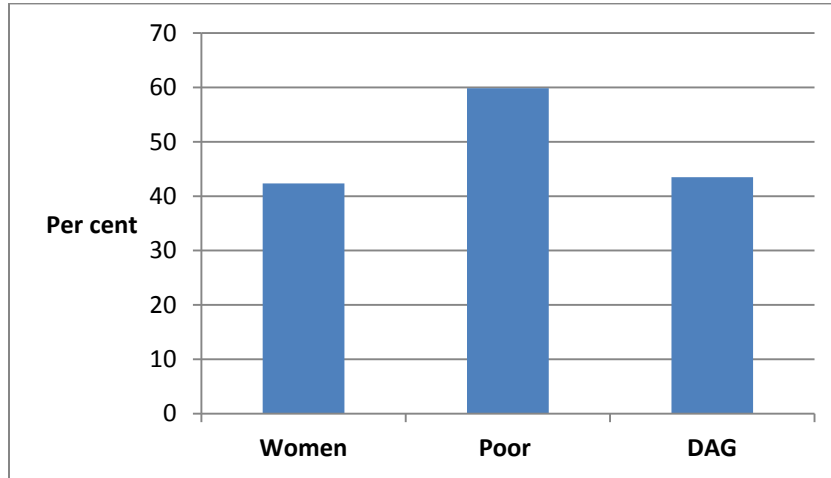
Figure 5. Community perceptions of government support and restrictions



Source: Field survey (2016)

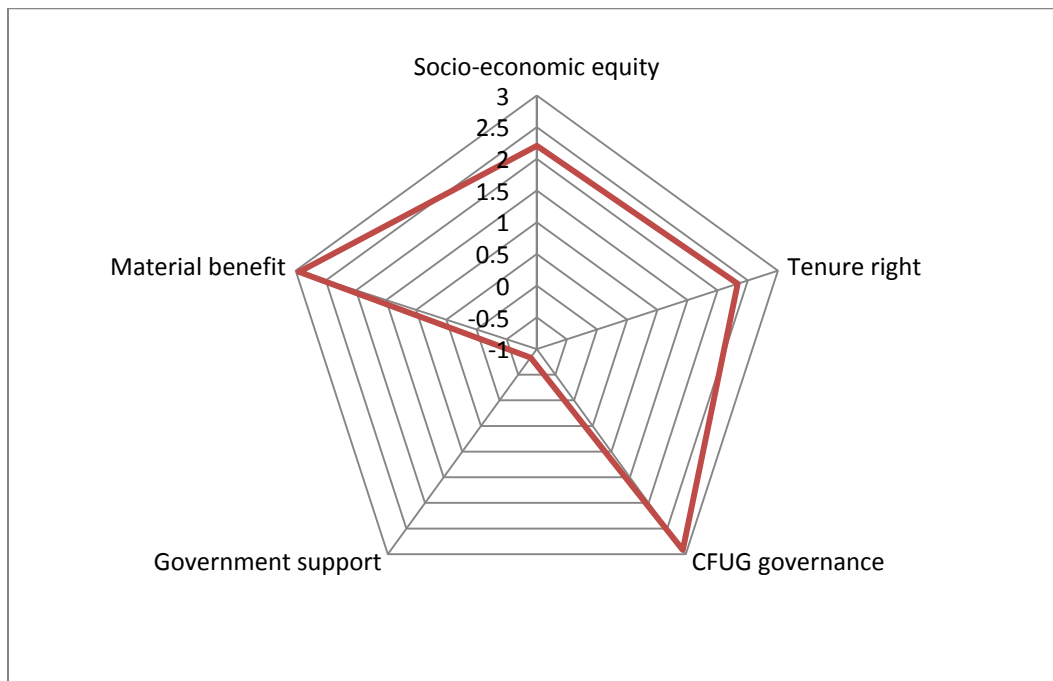


Figure 6. Employment benefits to women, poor, and DAG (per cent)



Source: Field survey (2016)

Figure 7. Community perceptions of five success factors (scale 1–5)



Source: Field survey (2016)