



Is community tenure facilitating investment in the commons for inclusive and sustainable development? [☆]



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A B S T R A C T

With communities in many parts of the world achieving stronger, legally recognized, collective rights over their forests and other natural resources, important questions arise regarding how communities can overcome perceived barriers to investment and deliver sustainable development. Normative economic theory posits conceptual and practical barriers to investment in commons-based enterprises. This paper considers evidence and draws on lessons from four countries—Guatemala, Mexico, Nepal, where communities have been granted rights to forests, and Namibia, where communities have significant new rights to wildlife—to better understand the pathways emerging to deliver investment in the commons. We find that investment in community-owned resources is taking place and describe a process of “investment readiness.” During a first stage, rights devolution triggers inward investment and development of community user groups and sustainable resource management plans subject to government review and approval. In a second stage, social enterprises, commonly referred to as Community Forest Enterprises (CFEs), are spawned or licensed by the community user groups. Stronger local social capital and the effective performance of local enterprises attract new forms of private investment in a third phase. Improved community capacity enables diversification and investment into new sectors, linking to value chains that adhere to global market and environmental standards. Progress from one stage to the next is in part conditional on increases in the level of assurance stakeholders have that the obligations of each party will be met. We also find that community rights have fostered investment that recognizes the social character of commons ownership, to deliver environmental and social returns, as well as profits. CFEs help drive social innovation in rural regions by solving social, economic and resource governance problems that neither the state nor the market has proved capable of addressing. CFE-based solutions remain experimental and fragile, however, and longer-term success of community-based forest enterprise depends on states and markets adopting innovations of their own that are supportive and not corrosive of community-based resource governance and development.

1. Introduction

To meet the internationally recognized Sustainable Development Goals (SDG) as much as USD 4.5 trillion per annum is needed in investments (UNCTAD, 2014). Investing in land to increase its productivity and restore important environmental services has been identified as one solution to meet the demands of a growing population for food, fiber and fuel (World Bank Group, 2018). Investments would aim to meet the demands of the global population while also respecting the rights of local people and protecting the environment. To achieve the SDGs, significant restructuring of current production practices, technological innovation, regulatory reforms, and new standards of supply chain management will be required, as well as changes in the standards and operating practices of investors and financial service providers. Although some investors are now realizing that ignoring the

environmental and social impacts of their activities carries considerable financial and reputational risk, only a relatively small number of banks, pension funds, insurers and multinational corporations are offering investment products in ways that explicitly advance sustainable development (Climate Focus, 2017; OECD, 2017). Despite promising initiatives (Clarmondial, 2017; EDF, 2017; Hamrick, 2016), there remain a number of perceived barriers to sustainable investment in forests, particularly where they are held and used by communities.

Local communities or collectivities own or control a significant portion of the world's forests, pastures, and fisheries as common property resources (Wily, 2018). These resources are often administered in accordance with customary or traditional rules; only some of which are statutorily recognized. Under customary tenure arrangements, people gain access to the commons as a social right derived from their membership in the local community or collective. The devolution

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of rights from nation-states to local collectivities in recent decades has been particularly noticeable in the forestry sector. In 2017, Indigenous people and local communities were legally recognized as owners of at least 447 million hectares (mha) of the world's forests and had designated rights to an additional 80 mha (RRI, 2018).

Hardin (1968) argued that the absence of clear property rights in situations where resources are held in common leads to over-exploitation as users engage in an unproductive race to capture resources before others. Productivity is predicted to be lower, because individuals have limited incentive to invest in improvements that they are uncertain to benefit from (North, 1990). Subsequent research (Agrawal, 1998; Baland and Platteau, 1996; Ciriacy-Wantrup and Bishop, 1975; Ostrom, 1990), however, has shown that Hardin failed to distinguish between contexts in which property rights for common pool resources were absent and those in which they were governed as common property, where collective institutions define who has rights to the commons, regulate resource use, and decide the distribution of benefits. There is now considerable evidence that devolving ownership, use, and exclusionary rights over forest resources to communities can, in some circumstances, provide incentives for them to manage resources in ways that facilitate sustainable management outcomes as well as greater equity in benefits distribution (Baynes et al., 2015; Gilmour, 2016).

The expansion in community forests (CF) has led to the emergence of community forest institutions, (CFIs). Some of these institutions focus on forest governance, which, we refer to here as community user groups (CUGs), although we recognize that they may take a variety of forms (Boscolo et al., 2010). Others are community forest enterprises (CFEs) which focus on capturing and redistributing the monetary value of community forest goods and services (Bray and Merino, 2002). Understanding of which social actors are investing in CFIs (whether CUGs, CFEs, or both) following rights devolution and how those investment patterns evolve remains fragmentary. We seek to address these knowledge gaps by clarifying the sources and types of investment that occur following rights devolution. We frame our analysis around three propositions derived from previous research and our team's collective experience with forest rights devolution in Latin America, Asia, and Africa.

Proposition 1. Barriers to investments in CFIs are not insurmountable and such investments do take place subsequent to rights devolution.

Proposition 2. Investment readiness of CFIs requires that prospective investors and investees have assurance that the obligations of each party will be honored. Each sector (i.e., public, civil society, private) takes on specific roles and responsibilities for mitigating risk.

Proposition 3. Community rights devolution has fostered investments by CFIs that recognize the social character of land and natural resources held under community ownership, and deliver environmental and social returns, as well as profits.

We examine these propositions using evidence from case studies of investment in and by CFIs associated with tenure reforms in Guatemala, Mexico, Nepal and Namibia. To guide our analysis, we develop a conceptual framework that draws from the literature on social enterprises, social innovation, and investment readiness. We then examine evidence from the case study countries to develop a clearer understanding of the sources and types of investment that have occurred in CFIs following rights devolution and the nature of investments on the part of CFIs once they begin to collect revenues. We also describe the environmental and social outcomes of those investments. Our discussion identifies key patterns emerging from the case analyses. Through comparative analysis we refine our guiding propositions and improve understanding of investment behaviour in contexts where ownership or management rights have recently been devolved to communities. We conclude with key findings and recommendations for additional research.

2. Investment in CFIs

2.1. Defining CFIs

Community-managed and owned forests encompass many forms of governance structures and management arrangements, ranging from legally recognized indigenous groups to community forest user groups to forest cooperative associations (Boscolo et al., 2010). A general pattern is that the community as a whole is recognized as the rights holder, and either new CFIs are established or existing ones are empowered to govern and manage access to and use of the forest commons (c.f., Ambrose-Oji et al., 2015; Cronkleton et al., 2011; Minang et al., 2019). CFIs typically consist of community user groups and similar entities that carry out forest governance functions together with associated community forest enterprises designed to capture the monetary values of forest commons (Bray and Merino, 2002; Foundjem-Tita et al., 2018). In some cases, CUGs perform both governance and enterprise functions; in others, CUGs license enterprises to harvest products on forest commons (Bray et al., 2006). As the holder of the resource rights, the CUG and its members (the community at large) are the beneficiaries of revenues generated by CFEs (Foundjem-Tita et al., 2018). The revenues cover the CFIs' administrative costs, but also are invested in enterprise development, forest management and protection activities, and community infrastructure improvements (Antinori and Bray, 2005; Humphries et al., 2018; MET/NACSO, 2018).

As noted earlier, the devolution of tenure rights can trigger community investments in forest commons. However, granting or recognition of tenure rights is not sufficient in itself to ensure that investments in CFIs will occur (Ambrose-Oji et al., 2015; Baynes et al., 2015; MacQueen, 2013). Ambrose-Oji et al. (2015) suggest that it is important to distinguish between policies aimed at encouraging forest ownership and those aimed at encouraging forest-based enterprises. They argue that the challenge facing policy makers is aligning land tenure policies with economic development and natural resource management policies such that a diversity of communities and business models can be supported. A comparative analysis of CFI investments in countries where CFIs have been relatively successful can help identify steps that may overcome barriers to investment in CFIs initially and over the long-term. Because it can be difficult to untangle investments in forest governance institutions from those in CFEs, we refer in this article to investments in CFIs, which may include investments in CUGs, CFEs, or both.

2.2. CFEs as social enterprises and social innovations

Community forest enterprises are the organizational structures that communities have established to commercialize production of goods and services linked to the use of community forest goods and services (Bray and Merino, 2002). Berkes and Davidson-Hunt (2010:2) refer to CFEs as social enterprises, which they describe as having the following characteristics:

“...the social purpose is the principal driver of activity, organizational sustainability is a core objective, there is little if any distribution of profit to individuals, and the organization is democratically run and is accountable.”

Social enterprises differ from for-profit enterprises in that their profits are “retained in their organizations and/or community either as direct services or as grants to the targeted population” (Foundjem-Tita et al., 2018:5). Not only are a CFE's assets owned by the community, but also its governance is based on the principle that representativity from within the community matters more in the selection of top management or board members than management skills or ability (Foundjem-Tita et al., 2018). This feature of CFE governance can increase the risks associated with investing in CFIs.

Recent scholarship in Europe and Great Britain has emphasized the

social innovation character of CFEs (Ambrose-Oji et al., 2015; Kluvánková et al., 2018; Polman et al., 2017). Researchers working for the Social Innovation in Marginal Rural Areas (SIMRA) project in rural Europe have defined social innovation as "...the reconfiguring of social practices, in response to societal challenges, which seeks to enhance outcomes on societal well-being and necessarily includes the engagement of civil society actors" (Polman et al., 2017:12). CFEs drive social innovation in rural regions by solving social problems that neither the state nor the market have proved capable of addressing (Ludvig et al., 2018). In addition to addressing unmet social needs, social innovations also may address other issues, such as power imbalances, social inequities, or environmental problems (Klúvánková et al., 2018).

Since the revenues that CFEs generate enable CFIs to accomplish their social and environmental goals, policies that facilitate investments in CFEs, thereby enhancing their financial viability, are essential (Ambrosi-Oji et al., 2015). However, creating policies capable of leading to the long-term viability of CFIs, requires understanding how social innovation systems work (Ludvig et al., 2018; Minang et al., 2019). Klúvánková et al. (2018) propose a model of social innovation dynamics which draws on McGinnis and Ostrom's (2014) socio-ecological system framework. They posit that the action arena, or the place "where particular manifestations of biophysical institutional factors interact with actors to trigger behavioral change and institute institutional change" (Klúvánková et al., 2018:166), is the central element to social innovation dynamics. Other system elements include the resources available to communities, the governance system (both formal and informal rules in use), and the social actors that are active community forestry participants, including both community members and external entities, such as government agencies, forest product companies, and NGOs. These elements, combined with the various actors' knowledge, shape the types of collective action that can take place. Klúvánková et al. (2018) describe the social dynamics of social innovations as an iterative, cyclical process that takes place in four stages: 1) generation and development of ideas which can be translated into collective action, 2) testing and stabilization of pilot cases, 3) implementation and spreading of social innovations, and 4) reconfiguring of social practices. The reconfiguration of social practices can take the form of adaptation, where new practices are integrated into the existing system. In other situations, reconfiguration takes the form of system transformation, which has much greater potential for scaling out to other communities. Because of the "complexity of forest-related goods and services, their often public or common good status, the heterogeneity of interests, different capacities", and the different levels of public support provided to forest communities, diverse outcomes are likely to result from social innovations in different communities (Klúvánková et al., 2018:170).

2.3. Barriers to investment in CFIs

Lack of financial capital limits CFI growth and success (Pandit et al., 2009; World Bank, 2014). Scholars have documented a variety of policy, capacity, and cultural barriers to investments in CFI (Ambrose-Oji et al., 2015; Badini et al., 2018; Baynes et al., 2015; Hernández-Aguilar et al., 2017; MacQueen, 2013). Key barriers that need to be mitigated or overcome in order to enable investment in CFI following rights devolution are summarized below.

1. In many cases, either insufficient forest rights have been granted (MacQueen, 2013), the rights are difficult to put into practice owing to requirements for complex and costly management plans (Larson and Dahal, 2012), or the resources to which rights are granted are degraded or have limited market value (Larson and Pulhin, 2012).
2. Forest and other resource commons are generally not subject to sale or purchase; hence the land and resources cannot be used as collateral for loans, and outside investors often cannot hold shares in CFEs (Antinori, 2000). As a result, banks and other lenders may be

reluctant to lend to CFIs, particularly in the early stages of their development (Boscolo et al., 2010). In situations where CFEs opt not to issue shares to outside investors, they are unable to take advantage of potential opportunities for private equity financing.

3. Rural community institutions and traditional authorities often lack the technical skills, knowledge, and social and political networks needed to successfully negotiate and manage investment and commercial partnerships (Bunge-Viver and Martínez-Ballesté, 2017; Vega and Keenan, 2014).
4. Rural community members and indigenous rights leaders and activists may be skeptical of commercial investors due to a long history of exploitation, inequities in the distribution of costs and benefits, and lack of formal recognition of ancestral/customary rights (Mayers and Vermeulen, 2002; Vermeulen and Cotula, 2010).
5. Community members may not support investment in commercial enterprises because they fear that exposure to markets may increase demand for resources and change community consumption patterns, eroding natural resources, traditional values, and cultural practices (Hernández-Aguilar et al., 2017).
6. When commercial investments are made in community-owned resources, tensions may emerge internally over trade-offs between equitable benefits and profit, democracy and hierarchy, managerial efficiency and traditional customs, and management for conservation versus production (Antinori and Bray, 2005; Cronkleton et al., 2011).

2.4. Overcoming barriers: investment readiness, risks, and assurances

The concept of investment readiness has emerged as a tool for guiding policies and programs aimed at reducing barriers to investments in small and medium enterprises (SME) (Mason and Kwok, 2010). Investment readiness here is understood as the ability of CFI managers to be aware of the specific needs of investors and to be able to address them through providing sufficient information and developing credibility and trust such that investors are willing to provide business financing (Fellnhoffer, 2015). Enterprises are investment ready when at least one investor "foresees sufficient return on investment, feels that the risk is at tolerably low levels, and does not expect to incur excessive monitoring, due diligence, psychic or opportunity costs in addition to the cost of purchasing equity in the new venture" (Douglas and Shepherd, 2002: 222). Elson (2012: 25) defines investment as "the act of handing over resources with the expectation of some kind of result at some point in the future." Investments in locally controlled forestry are either "enabling" or "asset" investments, and, as described below, the two are codependent (Elson, 2012: 27).

"The enabling investment creates the public goods, which in turn enable asset investments to create private assets. These private assets...are the assets formed by the rights-holders themselves: in companies, private savings, physical infrastructure and improved health and education."

Gynch et al. (2018) propose that, in the context of community forests, investment readiness can be viewed as an iterative process of internal and external social and economic development. Creating investment ready CFIs requires reducing or mitigating risks and transactions costs. A review of the literature on CFI investment reveals four key conditions that, when present, can reduce risks and provide investors with the assurances they need to invest in CFIs: 1) the presence of clear, secure, and sufficiently broad rights (Elson, 2012; Lawry et al., 2017; MacQueen, 2013), 2) relations of trust and strong social networks within communities and between communities and external actors (Baynes et al., 2015; Dasgupta, 2005; Murtazashvilia et al., 2019), 3) clear and enforceable rules and procedures governing the use and management of forests and associated enterprises (Dasgupta, 2005), and 4) sufficient technological, negotiation, and management capacity within the community (Hewitt and Castro Delgado, 2009; Lamsal

et al., 2017).

Policies that clarify rights and encourage transparency and accountability in forest governance, as well as investments in building monitoring and enforcement capacity can help reduce risks for investors to acceptable levels (Elson, 2012). Enabling investments focused on capacity building typically are required to reduce risks sufficiently to attract external financing for asset investments (Elson, 2012). To expand their negotiating power, local level community organizations often unite with similar organizations in other communities to form secondary-level organizations, such as federations, cooperatives, networks, and associations (Paudel et al., 2012). By uniting CFIs from multiple communities, secondary-level organizations can enable CFIs to more effectively take political action to shape the regulatory and institutional context to reduce risk and support investments and financing for communities.

Research suggests that investment in CFIs comes from multiple sources (Nijnik et al., 2019). Government agencies and donors tend to invest early on with a focus initially on building technical and administrative capacity of CFIs (Ludvig et al., 2018). They also invest in policy reforms to create enabling conditions conducive to CFI emergence and expansion (Ludvig et al., 2018). Donor and public sector funds are frequently channeled through NGOs, which often function as intermediaries between government agencies and donors and CFIs (Minang et al., 2019; Vega and Keenan, 2014). Private sector investment generally comes later once some of the risks have been reduced (Elson, 2012; Ludvig et al., 2018; MacQueen, 2013). CFIs self-invest as well, notably in the form of voluntary time and labor, and in establishing secondary-level organizations that advocate on their behalf for policy reforms and market position.

2.5. Theory of change

Drawing on the above research findings, we developed a theory of change (TOC) (Fig. 1) to guide our study of investment patterns following rights devolution. We propose a pathway in which community rights devolution triggers actions to reduce the risks and enhance assurances associated with investments in CFIs. The establishment of relations of trust, together with increases in CFI managerial capacity and knowledge of markets, enhances the ability of CFIs to generate revenues from their forest commons. The CFIs then invest the revenues in forest enhancement and community infrastructure development, which together with the income-generating opportunities provided through the CFEs, leads to improvements in socio-economic and ecological conditions. Our theory of change has the following elements:

Context. The condition of the resources, regulatory framework, and power dynamics within the community and between communities and other social actors shape the possibilities that exist for investment (Klůvanková et al., 2018).

Rights devolution and initial CFI formation. Once rights have been devolved, communities take steps to meet administrative requirements, including the creation or recognition and registration of the collective entities to which rights are devolved and boundary demarcation (Minang et al., 2018).

Overcoming barriers to financial investment in CFIs: A number of barriers potentially exist to investments in CFIs following rights devolution. Some or all of these barriers must be addressed to provide investors the assurances they need to take the risk of investing in CFIs.

Investments in CFI capacity building and community-held resources: Initial investments in CFIs are directed at increasing the capacity of communities to manage and use their resources for commercial gain. This may include improving governance structures, developing technical skills and knowledge of CFI managers, and

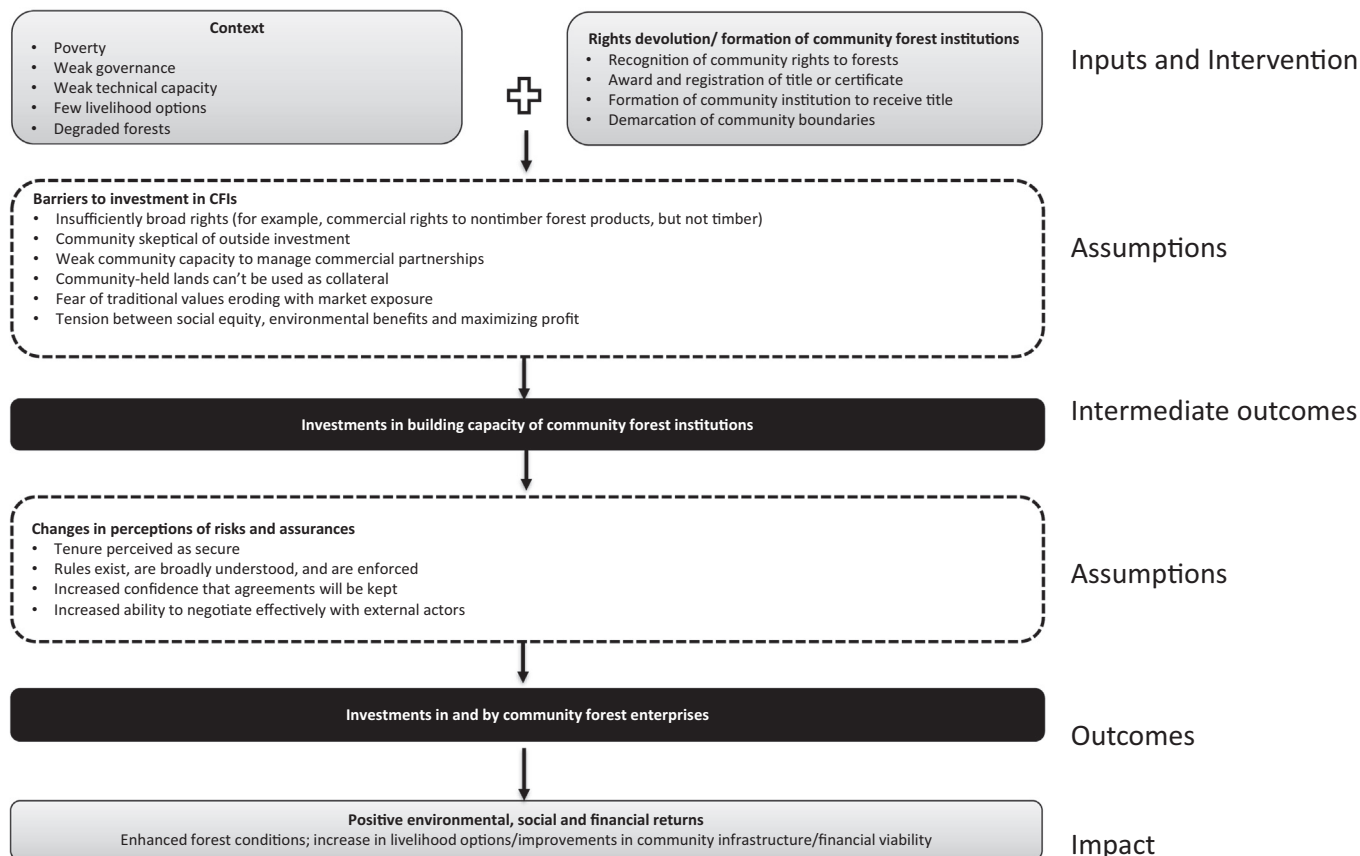


Fig. 1. Theory of change linking rights devolution to financial investments and environmental and social outcomes.

ensuring that administration and record-keeping procedures are accurate and transparent. During this stage, some investments also are aimed at improving the condition of forest resources. Once the CUG is functional and a sufficiently productive resource base exists, CFEs begin to emerge.

Changes in perceptions of risk and assurance leading to investments in CFEs: Investments in capacity building enable CFIs to more effectively make use of and enforce their rights. Doing so enhances tenure security and increases the confidence of insiders and outsiders that agreements will be adhered to. Enhanced tenure security also enables communities to become effective advocates for government policies and engage in contracts with businesses that protect their interests (MacQueen, 2013). These changes reduce perceived risks and uncertainty and lead to additional investments in CFEs, particularly by private sector investors.

Positive environmental, social and financial outcomes from CFI investments: Operating as social enterprises, CFIs structure the investment of community forest revenues such that forests are managed sustainably and benefits equitably distributed.

In this paper we unpack the investment “black boxes” that make up the theory of change described above. Specifically, we examine when, where, and why financial investments flow to communities following rights devolution, as well as how those investments impact socio-economic and environmental outcomes.

3. Methods

We used a comparative case study approach (Yin, 2009) to evaluate patterns in 1) the sources of investments, 2) investment mechanisms, 3) investment volume, 4) target sector(s) for investments, and 5) expected and realized returns or benefits within and across the four countries included in the study. We used mixed methods, drawing on multiple data sources, including observations from field visits and workshops, key informant interviews, published reports and articles, and, when available, financial investment data. Documents reviewed included scientific and grey literature on the social, economic, and environmental impacts of rights devolution in the four countries.¹ Donor and association reports were a source of financial investment data. However, publicly available quantitative data related to investments in CUGs are scarce. Additionally, the type and quality of data available varied considerably by country.

The cases we examined included Guatemala, Mexico, and Nepal, which have devolved forest rights to communities, and Namibia, which has devolved wildlife rights. These four countries are commonly acknowledged as among the most successful in terms of widespread community rights devolution (Banjade et al., 2017; Bray, 2013; Hoole, 2010; Monterroso and Barry, 2012) and therefore should have strong potential for financial investment in community forest enterprises (CFEs). The collective property arrangements studied were community forest concessions (CFCs) in Guatemala, ejidos and indigenous communities in Mexico, community forest user groups (CFUGs) in Nepal, and the community-based natural resource management (CBNRM) model in Namibia.

For each case, we describe the different sources of financial capital used to increase the economic activity and productivity of community held land and/or resources. DFID (1999) defines financial capital, cash

¹ Nepal included a review of academic and grey literature, donor/government reports and field visits. Namibia included a review of academic literature, government and donor reports, but the majority of data was collected from documents like the annual report of the Namibia Association of CBNRM Support Organizations (NACSO). Mexico included a review of literature, and donor/government reports analyzing ejidos/agrarian communities and community forest enterprises. Guatemala included a review of literature, workshop and field visits, and a review of the available dataset on donor financing of the MBR.

or equivalent, as the financial resources that people use to achieve their livelihood objectives or adopt different livelihood strategies. Financial capital includes flows (i.e., earned income, pensions, state welfare, etc.) as well as stocks (i.e., cash savings, bank deposits, livestock, etc.) and contributions to consumption and production (Gilmour, 2016).

When developing the case studies, we explored the legal and policy contexts that shape the CFIs and CFEs that emerge. We looked for data on investments by international donor and philanthropic organizations, the public sector, the CUGs themselves, and private enterprises. Where data were available, we describe the different investment mechanisms or structures, investment timeframes, and expected returns for investments in community held land or resources. We acknowledge there are other forms of investments, such as investments of natural and human capital, but we focus here on financial capital, which is often needed to establish new enterprises or industries that generate cash incomes.

4. Results

In the case study profiles, we begin with an overview of the rights devolution context and then explore the investments that have taken place and their impact on human well-being and the environment.

4.1. Guatemala

4.1.1. Rights devolution context

Forests in Guatemala are concentrated in the 2.1 million ha Maya Biosphere Reserve (MBR), much of it in Petén department (Radachowsky et al., 2012). Efforts to promote agricultural expansion through colonization and privatization have increased the number of forest settlers in and around the MBR (Blackman, 2015). Table 1 outlines the trajectory of tenure reforms and forest rights devolution in Guatemala. In 1985, constitutional reforms led to the development of environmental regulations; these were followed by the establishment of new institutions including the national protected area system (Monterroso and Barry, 2012). The establishment of the MBR in 1990 was an attempt to transform the overarching goal for the region from agrarian development to conservation (Blackman, 2015). The MBR's initial master management plan did not include specific provisions for devolving use rights to indigenous and local communities, but it did recognize two types of forest concessions: industrial and community forest concessions. Specific provisions to implement community forest concessions were introduced in 1994 and modified in 1998. The 1996 Peace Accord negotiations related to land rights recognized the legitimacy of historic and recently settled communities, and guaranteed community members' access and rights to resources in protected areas. Communities organized to demand that the government fulfill this part of the agreement so as to gain access to management units located within the MBR's multiple use zone.

Community concession contracts, which are legal agreements between the state and an organized group of people living in local communities, are a key element of forest rights devolution in Guatemala. Concessionaire members are granted rights through 25-year contracts to manage and extract timber and non-timber forest products and implement ecotourism activities in protected areas. Community access and settlement rights, however, are granted only on the condition that high-value timber species be heavily regulated and certified (Radachowsky et al., 2012). The evolution of the community forest concession system took place in three stages: 1) protected area establishment; 2) formalization of community concession contracts; and 3) development of community forest enterprises, including developing markets for secondary timber species and value chains of non-timber forest products (Monterroso, 2015).

4.1.2. Investment in CFIs

Substantial investments from international donor organizations and NGOs were key in establishing the community concession model in the

Table 1
Evolution of collective tenure regimes and emergence of community forest management in the MBR.

Year	Policy-relevant factors
1985	Constitutional reform incorporated environmental regulations Establishment of the national protected area system
1990	Mayan Biosphere Reserve established (Decree 5–90)
1994	New policy on forest concessions allowed emergence of community forest concessions within the MBR
1996	Peace Accords included a provision that 100,000 ha should be turned over to organized communities within protected areas
1994–2002	Formalization of concessionaire contracts with community-based organizations Certification of community forest areas

Source: Hodgdon et al., 2013; Monterroso, 2015; Monterroso and Barry, 2012; Gómez and Méndez, 2005.

MBR (Bray et al., 2006; Gray et al., 2015). Data collected by PRISMA (2016) indicates that approximately USD 300 million were channeled into the system between 1989 and 2016. Between 1990 and 1996, USAID provided about USD 50 million, while the Inter-American Development Bank invested about USD 80 million and the German Development Bank provided USD 20 million (Gómez and Méndez, 2005). These funds strengthened public institutions involved in protected area management and supported technical assistance provision. After 2000, investments by international donors shifted toward sustainable forest management activities (accounting for 30% of total funding) and the promotion of secondary-level community forest organizations to build organizational, processing and commercialization capacities (PRISMA 2016). ACOFOP (The Community Forest Association of Petén), a secondary-level organization that includes all community forest concessionaire organizations, was established in 1997 (Devine, 2018). Another community-based secondary-level enterprise, FORESCOM (Community Enterprise of Forest Services Ltd), was established in 2003 (Hodgdon et al., 2013). Its members include seven community forest organizations with concession contracts. FORESCOM has facilitated market development for lesser known timber species, provided technical assistance, and up-scaled industrial timber processing (Hodgdon et al., 2013).

Funding from international donors declined after 2010 and now accounts for about 20% of total funding (PRISMA 2016). Current donor funding is channeled toward non-timber forest products (NTFP) value chain development, strengthening existing forest product value chains, and scaling-up CFEs. The development of institutional and legal frameworks for Reducing Emissions from Deforestation and Forest Degradation (REDD+) and other ecosystem service mechanisms related to tourism and biodiversity conservation are also prioritized by donors (Starr et al., 2016).

Government support for community forest concessions is weak. Indeed, the initial plans for the MBR envisioned only private company concessions, and community concessions were only established after an intense campaign by communities and international conservation groups organizations, together with millions of dollars in funding from USAID (Devine, 2018). The Guatemalan government's investments in the forest and environmental sector have not been significant to date. Bovarnick et al. (2010) calculated that public financing in the national protected area system represented less than 1% of the GDP in 2009. Government investment has targeted capacity building, policy implementation, and enforcement. Public investments in CONAP (the National Protected Area Service) were approximately USD 1 million in 2017. Concessionaires have begun to express concern about whether the government will agree to renew their concessions, many of which are due for renewal (Devine, 2018). Conservationists and archeologists have advocated for non-renewal of community concessions. They argue that logging damages the forest ecosystem and archeological sites and propose ecotourism development as a more viable economic model

(Devine, 2018). Community concessionaires are also concerned about further restrictions to their forest rights with the likely approval of carbon-trade projects (<https://wrm.org.uy/es/articulos-del-boletín-wrm/seccion1/guatemala-conservacion-perpetua-el-saqueo-de-los-bosques>).

In the Guatemalan MBR, regulations require that organizations must obtain certification from the Forest Stewardship Council (FSC) during the first three years of the contract. This requires a considerable financial investment at an early stage. Between 1998 and 2005, all community concessions became certified and as of 2012, about 350,000 ha had been certified (Hodgdon et al., 2013). Additionally, since 2008, eight community concessions have acquired certification for the extraction of xate palm and chicle. The initial investment to acquire timber certification was broadly supported by NGOs. However, the certification costs are now fully covered by individual concessions and managed as a group certification through FORESCOM. NGOs have supported non-timber forest product certification, which also is managed as a group certification to keep annual evaluation costs low.

4.1.3. Innovative CFE financing

Hodgdon and Lowenthal (2015) identify stringent financial guarantee requirements, prohibitively high and variable interest rates, and competing needs for cash among concessionaire members as key barriers to obtaining credit in the MBR. However, they describe a blended finance mechanism that involves the Multilateral Investment Fund (85%) and a commercial bank (15%), which is channeled through an NGO. Five CFEs recently accessed over USD 1.5 million in credit through this mechanism. This credit is used as working capital for technical assistance, legal compliance, administration and value-added infrastructure. To date, USD 750,000 has been repaid and additional loans have been accessed (Rainforest Alliance, 2017). Another initiative, promoted by Rainforest Alliance and using funds from USAID Development Credit Authority and a private commercial bank, leveraged USD 13 million in credit for commercialization activities, working capital, and expansion of NTFP value-chains (xate palm) (Rainforest Alliance, 2017). Evaluations of these two initiatives have shown increases in active participation of members within concessionaire organizations, improved administrative capacity among CFEs, and greater compliance with formal protected area regulations and internal concessionaire bylaws (Hodgdon and Lowenthal, 2015). CFE capitalization has allowed nine concessions to invest in a shared lumber mill, value-added processing, creating jobs, and diversifying livelihood opportunities (Stevens et al., 2014). In some concessions, formal purchase letters and contracts for mahogany and cedar have recently been put in place following the development of long-term informal relationships between concessionaires and with buyers.

4.1.4. Investments by CFI

Community concessionaire investments over the last 10–15 years have focused on increasing rights over other ecosystem services, such as carbon sequestration and biodiversity (Hodgdon et al., 2013), and the development of local governance systems, including financing the protection of concession boundaries (Tobler et al., 2018). Community concessionaire investments to cover fire prevention, monitoring, and control activities alone total more than 450,000 USD/year (Davis and Sauls, 2017). Community concessionaire investments vary depending on specific bylaws. For instance, cooperatives must invest at least 20% of net income in social development (e.g. health and education); 40% is allocated to cover production costs, and 40% is distributed as dividends to members (Monterroso, 2015). Investments in social mobilization and organization have not been extensively analyzed. However, studies suggest that investments in secondary-level organizations, including those comprised of community-based enterprises have been key in improving forest governance of community concessions (Devine, 2018; Paudel et al., 2012; Taylor, 2012).

4.1.5. Outcomes of investments in and by CFIs

Community concessions in the Petén have been shown to have deforestation rates equivalent to those in state-managed protected areas (Bray et al., 2008). Investment in demarcating and enforcing concession boundaries has been key in avoiding forest loss due to increases in narcotraffic, an activity which has negatively affected national parks (Sesnie et al., 2017). Tobler et al. (2018: 251) determined that well-managed certified community logging concessions in Petén did not negatively affect large and medium-sized mammal populations.

ACOFOP (Asociación de Comunidades Forestales de Petén) (2005) estimated that since 1995, concessions have created over 50,000 daily paid employment opportunities, benefiting more than 2000 members and 3000 non-members. More recent data from ACOFOP (2018) does not break down the information of beneficiaries by membership, but instead distinguishes between daily paid employment related to timber (15,705 daily paid employment opportunities between 2007 and 2017) and non-timber activities (15,549 daily paid employment opportunities between 2007 and 2017). ACOFOP (2018) data show that the annual average income for all concessions for the past 10 years from timber and NTFP sales was around USD 5 million.

Between 2000 and 2010, income from commercial forests in two community concessions increased household income by 33% (Monterroso and Larson, 2013). Stoian et al. (2015) showed that in non-resident concessionaire organizations, the household income from community forest enterprises varied from between 5% to 45% of total household income. In resident communities, household income from community forest enterprises ranged from 19% to 58%, dramatically reducing the incidence of poverty in forest-reliant households. Bocci et al. (2018) estimated that concession membership increased the average annual household income of resident concession members by roughly USD 1000 and non-resident concession member income by USD 2335.

4.2. Mexico

4.2.1. Rights devolution context

Mexico is among the top 12 mega-diverse countries in terms of biodiversity in the world (Jiménez Sierra et al., 2014). Around 33% (64 million ha) of the country's land area remains under forest cover (FAO, 2010), 69% of which is managed within social property arrangements (RRI, 2018). Mexico is unique among our four cases in that land rights devolution to communities began much earlier and preceded forest rights devolution by many decades. Community land rights devolution began with the Mexican Revolution in the early 1920s (Bray and Merino, 2002). Two types of community-based tenure regimes and forms of common pool resource management now exist in Mexico — indigenous communities and ejidos.² Roughly half of Mexico's land area has been formally recognized as ejidos or indigenous community lands, and approximately 9000 communities have forests in their lands (INEGI (Instituto Nacional de Estadística, Geografía e Informática), 1997). The number of communities with CFEs has been estimated at 2300 (Cronkleton et al., 2011). In 2017, more than 2134 ejidos and communities were reported to have forest management permits³ (Carrillo-Anzures et al., 2017).

Although both ejidos and indigenous communities are considered private lands, for many years the Mexican government retained usufruct rights to forests. Landowner usufruct rights to forests were recognized in the 1986 Reforms to the National Forest Law (Bray et al., 2006). This law eliminated the concession system and established that

only the landowner (whether an individual or collective) is able to obtain authorization to harvest forest products. Division of collective property rights became possible after the 1992 constitutional reforms. Bray (2013), Bray and Merino (2002), and Bray et al. (2006) divide the history of community forest management in Mexico into three main periods: 1) state-led industrial forest exploitation; 2) pro-community focused forest policy; and 3) pro-community control of timber management activities. Table 2 provides an overview of the evolution of the tenure reform and rights devolution process.

4.2.2. External investment in CFIs

The national government has played a particularly active role in investing in CFIs, with support from donors and NGOs. Public investments in the 1960s supported community-logging company partnerships in which communities were obligated to supply products to one logging company. Negotiating conditions were unequal, but the federal government and NGOs invested resources in increasing community capacity to engage in the partnerships (Bray, 2013). In 1970, the National Indigenous Fund (FONAFE) allocated resources to promote ejido organizations, ejido unions (Moguel, 1990), and new timber parastatal enterprises. Parastatal investments in infrastructure and human capital were key to the emergence of community-based forest enterprises (Antinori, 2000).

The 1994 Forest Law authorized the establishment of a national program (PRODEFOR) to develop the institutional and regulatory framework for community forest enterprises. The government financed forest management plans, subsidized technical studies, provided forestry extension services, and invested in roads (Antinori, 2000). In 2001, the National Forest Commission (CONAFOR) was created to promote management and conservation activities in public forests. CONAFOR remains the most important institution supporting the community forest sector. The PROCYMAF (Conservation and Sustainable Forest Management Program) was established to promote sustainable forestry and resource conservation and strengthen the community capacity to manage forests through the provision of training and technical assistance (Ellis et al., 2015). In a study of 44 CFEs, 50% of CFEs had received some form of financial support from government programs, such as PRODEFOR and PROCYMAF (Antinori, 2000).

PROCYMAF was initially set up as a project in Oaxaca, with funding from the Mexican government and the World Bank. It continued for two more funding phases and was supported with USD 23.6 million between 1998 and 2003, and USD 28 million between 2003 and 2010 (World Bank, 2010). This funding allowed the project to become institutionalized within CONAFOR. Returns on that investment include capacity building and institutional strengthening of 475 communities, certification of 40 communal forests (encompassing over 800,000 ha), and sustainable forest management of over 1.5 million ha.

Hernández-Aguilar et al. (2017) note, however, that communities have uneven access to community forest program funding and other services. Nearly half of Southern Mixteca communities encountered difficulties engaging in CONAFOR and SEMARNAT programs, either because they lacked sufficient government financing or didn't meet the program application requirements. A reduction in CONAFOR's budget by 40% in 2016 has made it more difficult for communities to obtain financial support and technical assistance through government programs (Hernández-Aguilar et al., 2017). García-López and Antinori's (2018) research on multi-level forest alliances in Durango and Michoacán revealed that the state is simultaneously supportive and disruptive. In the 1970s, government policies favoring peasants and a progressive bureaucracy provided the support that enabled forest alliances to "foster social capital, leadership and political voice" (p. 210), from which emerged grassroots organizations. They argue that a combination of recent reforms in trade policies, a shift toward state policies that favor conservation over multiple use forests, and the declining power of ejidos unions are making it more difficult for CFEs to prosper.

² Indigenous communities are based on the recognition of customary rights while ejidos are a tenure form that emerged during the agrarian reform. Both types of tenure regimes are recognized in the Mexican constitution.

³ This is based on the characterization of forest producers in the 12 states (out of 32 states) that are the most important forest product producers.

Table 2
Evolution of collective tenure reform and emergence of community forest management in Mexico.

Year	Policy-relevant factors
1917	- Establishment of ejidos as a collective tenure regime as part of constitutional reform - Forest management remains state responsibility
1930s - 1970s 1970s - 1992	- State-led industrial forest exploitation based on industrial concession forest rights - Switch to pro-community focused forest policy - Inception of a national program of forest development activities - 1992 – Constitutional Reform
1986	- Recognition of communities' usufruct rights to forests in constitutional reform - Pro-community control of timber management activities on communal lands
1992–2000 After 2000	- Coordinated efforts to promote community forest management - Coordinated participation of grassroots and civil society movements in community forest management

Sources: Bray 2013; Bray et al. 2005; Bray and Merino 2002; Bray et al. 2006

4.2.3. Innovative CFI financing

Lara-Pulido et al. (2017) identified two major biodiversity conservation financing mechanisms in Mexico: green markets and payments for ecosystem services. Respectively, these two mechanisms accounted for 64% and 27% of cases in a sample of 162 cases of conservation financing. In 1997, the Mexican government created “Units of Management and Use of Wildlife” (UMAS), a program in which registered landowners receive economic support in exchange for agreeing to manage their lands for sustainable use. In another green market approach, the Mexican government together with NGOs have made substantial investments in assisting CFEs to certify their forests in the expectation that certification will enable CFEs to get better prices for their products. The Mexican government has taken a leading role in developing PES programs that provide financial incentives to landowners to manage all or a portion of their land for conservation objectives. Funds created and administered through long-term public-private partnerships are a key feature of these programs. These include three federally operated funds: the Mexican Forest Fund, which finances Mexico's Payments for Ecosystem Services program, a related matching funds program that provides incentives for local governments to fund PES programs, and the Biodiversity Fund. The NGO-operated Mexican Fund for the Conservation of Nature, which was created in 1994, also provides CFEs funds in exchange for setting aside lands to meet conservation objectives (Lara-Pulido et al., 2017). Another innovative source of funding for CFEs are impact investment funds, such as El Buen Socio (Lara-Pulido et al., 2017). These funds provide supplemental financing to communities that already have some funding from other NGOs, but which lack collateral or the credit history needed to get bank loans. Cooper and Huff (2018) found that international funds enabled CFE in Durango and Oaxaca whose operations were considered too risky by larger banks to acquire funds in the form of grants and loans. This funding increased the CFIs' ability to harvest and process wood, resulting in greater financial returns to communities. CFIs have also initiated innovative methods of self-financing, such as the establishment of vertically integrated inter-community companies, that enable them to achieve economies of scale (Valdez et al., 2012).

4.2.4. Investments by CFIs

Many CFEs in Mexico that either harvest timber and sell it to sawmills or that harvest and mill their own timber, have been able to develop viable long-term business strategies. In a cost-benefit analysis of 30 such CFEs distributed across 12 Mexican states, Cubbage et al. (2015) found that all but one was profitable. Virtually all of the CFEs' income came from timber. On average these CFEs devoted 72% of their forests to timber production and 28% to conservation uses. All of the CFEs had forest management plans and only three harvested timber in amounts deemed to be unsustainable. It is unclear whether CFEs that sell timber concessions to private loggers or those that don't manage their forests for timber are as successful (Hernández-Aguilar et al., 2017). Since 2005, CFEs in Quintana Roo have set aside lands either as part of national PES programs or for tourism (Ellis et al., 2015). Some of

those CFEs now earn more income through PES than through selling timber, but it is unclear whether this is occurring on large scale or in other parts of Mexico. Antinori (2000) reported that CFEs often obtained working capital from private buyers, in the form of advances on payments for goods, or through government programs.

Antinori (2000) found that CFEs invested their profits in public goods (e.g. road infrastructure, education and health), promotion of value-chains, and equipment. Although CFEs received some government support to acquire sawmills, 75% of the funding came from communal funds. Antinori and Bray (2005) found that “assets were purchased with community funds with little reliance on outside debt, suggesting barriers to credit, a bias against debt, or lack of need for debt financing”.

4.2.5. Outcomes of investments in and by CFIs

In general, studies assessing the ecological impacts of community-managed forests in Mexico suggest that they have positive environmental outcomes. Community forests have the lowest rates of land use change in tropical Mexico (Antinori and Bray, 2005; Barsimantov and Antezana, 2012) and ejidos that are communally held have lower rates of deforestation than those that have been individualized (DiGiano et al., 2013). Miteva et al.'s (2019) research in the Yucatan showed that protected areas of communal ejidos had lower rates of forest loss than either protected areas of private holdings or parcelized ejidos.

The evidence shows that positive social and economic outcomes are associated with CFI investments in Mexico. Frey et al. (2019) survey of 30 CFEs in 12 states in Mexico revealed that 21 CFEs provided direct community payments; and all CFEs provided forestry employment. The community payments supported local development projects, including road improvements, schools, and social programs. Community payments averaged around MXN\$ 333,000 (roughly USD 24,000) in 2011, but half of the payments were under MXN\$ 50,000 (about USD 3500). CFEs who took part in capacity development and certification programs harvested more timber and had more land and more timber. Certified CFEs who engaged in capacity development had larger timber harvests and higher community incomes. Frey et al. concluded that the CFEs are “balancing multiple objectives – trying to be financially sustainable and competitive, while at the same time providing direct benefits to the community” (p. 9). Torres-Rojo et al. (2019) sought to clarify whether environmental and poverty alleviation outcomes differed for investments in CFEs focused solely on human/social capacity compared with those that focused on simultaneously building human, social, environmental, and economic capacity. They found no statistically significant association between either type of investment and forest cover conservation. However, human/social capacity investments had a greater positive impact on poverty alleviation than joint capacity building investments.

An important but often undervalued social outcome of investments in and by CFIs is the creation and expansion of social capital. Bray and Merino (2002) identify three main forms of social capital that have

developed and grown stronger in Mexico since rights devolution (Bray and Merino, 2002): 1) *indigenous customary arrangements*, that have served as the basis for grassroots mobilization and the construction of community forest enterprises; 2) *institutional social capital promoted by the Mexican government*, particularly after establishing the ejido systems of organization, as well as secondary and tertiary-level associations that developed subsequently; and 3) *institutional social capital promoted by non-governmental organizations and foundations*, which have also provided support for grassroots mobilization.

4.3. Nepal

4.3.1. Rights devolution context

Nepal is highly diverse biophysically, climatically and ethnically (His Majesty's Government of Nepal (HMG/N), 2004; Central Bureau of Statistics (CBS), 2007). Over 25% of the total population lives below the poverty line, and the incidence of rural poverty (27.43%) is almost twice that of urban areas (15.46%) (CBS, 2011). Roughly 60% of the population relies on agriculture and forestry for some portion of their livelihoods (CBS, 2013).

During the late 20th century, forest management in Nepal experienced a gradual progression toward diverse types of community-based arrangements (Table 3), culminating in the Forest Act of 1993, which legalized diverse forms of community-based forest management, and recognized CFUGs as self-governing, perpetual, and corporate institutions that could acquire, possess, transfer and manage movable or immovable property. As of 2017, Nepal had 22,266 community forests, involving 2.9 million households and covering roughly 22.37 million ha (Bhandari et al., 2019).

4.3.2. External investment in CFIs

Donor funding has played an important role in strengthening CFIs in Nepal. Between the early 1980s and late 2000s, donors provided over USD 237 million to the agriculture and forestry sectors, including USD 40 million from the UK's Department for International Development as part of its Multi Stakeholder Forestry Programme (MSFP), USD 28 million from the Swiss Agency for Development and Cooperation, and USD 29.5 million from the Government of Finland (DFID) (Hobley and Jha, 2012). During 2015 and 2016, the Ministry of Forests and Soil Conservation received approximately USD 125 million, or roughly 23.5% of the total ministry budget to support 12 major forestry projects, making up 23.5% of the total ministry budget (MoFSC, 2015; MoFSC, 2016). Such funding, which is often channeled through NGOs and government agencies, has been used for technical training and workshop activities, capacity building, and infrastructure development. Donors and NGOs have also invested in assisting CFIs to obtain Forest Stewardship Certification (FSC) for nontimber forest products (NTFP),

so as to improve their ability to participate in export markets (Acharya et al., 2015).

Financial investment from donors has been declining in Nepal. The foreign aid to government expenditure ratio reached an all-time low of 10.6% in 2015, a substantial drop compared to 26.4% in 2000 (MoF, 2017). Uncertainties related to Nepal's "One Window System" for foreign aid mobilization and the presence of an increasing number of local government units will likely exacerbate the already declining foreign aid investments. Another source of uncertainty is Forest Bill 2019, a proposed law that would allow the government to take back rights to community forests in cases where CFIs are judged to have not complied with their operational plans.

4.3.3. Innovations in CFI financing

Nepalese CFI have used their proprietary rights to attract investment in a diversity of forest-based enterprises, such as timber processing, tourism activities, and processing and marketing of non-timber forest products (e.g., essential oils, fruit juice). Statistics from the Department of Industry (DOI, 2016) indicate that 395 agroforestry and forestry-based industries were registered between 1990 and 2016; of these, 231 were approved for foreign direct investment. The approved investments were valued at roughly USD 38 million. Small-scale forest enterprises, most of which rely on access to community-owned and managed forests, are proving successful. By 2016, there were an estimated 14,708 small-scale forest enterprises (most of them unregistered) with a capital investment of approximately USD 94 million (Paudel and Adhikary, 2017). Furniture enterprises were the most common (69%), followed by medicinal and aromatic plant and other NTFP enterprises (17%), and sawmills (13%).

Nepal's Forest Investment Program (FIP), which is funded by five multi-lateral development banks and implemented by the Nepali government, uses blended financing to channel investments to a range of commercial forest activities (MoFSC, 2017). Nature-based tourism is emerging as a potentially viable economic activity for Nepalese CFI. Investments into 'hill stations', homestays, small-scale infrastructure, and capacity development for homestay owners amounted to over USD 1.5 million, and were financed by the government, communities, and FIP. However, only USD 11,881 came from private investors. Little detail is available on the sources of private investments or the returns private investors are receiving. Some successful CFIs have introduced sliding-scale membership fees to cover capacity building costs, generate capital for re-investment, and help to guarantee buy-in from community members.

4.3.4. Investments by CFIs

To legally harvest timber or operate forest-based enterprises on community forests, Nepalese CUGs must first develop a constitution and

Table 3

Evolution of collective tenure regime and emergence of community forest management in Nepal.

Year	Policy relevant factors
Pre-1970s	- State control of forests - Exacerbated mistrust between state agencies and local communities - Accelerated deforestation
Late 1970s	- Introduction of the National Forestry Plan (1976) - "Handing over" of forest management to the local governments (Panchayat)
1982	- Decentralization Act (1982) - Increased international pressure further empowers the Panchayat to manage local resources and attracted donor support
1987	- Efforts to advocate for the transfer of forest rights to local communities gain momentum - First national community forestry workshop is organized to devise frameworks, policies and strategies to support community forest management
Late 1990	- Panchayat system is overthrown - Multi-party parliamentary system strongly supports rights devolution agenda
1993	- Parliament passes the Forest Act (1993)
1995/1996	- 1995 Forest Regulations and 1996 Community Forestry Guidelines specify circumstances under which CUGs can engage in commercial forest activities; requires a CUG operational plan

Source: Fox, 1993; Hobley, 1996; Shrestha and Britt, 1998

Table 4
Evolution of collective tenure regime and emergence of natural resource management in Namibia.

Year	Policy relevant factors
1980s	- Rights to manage and benefit from wildlife on freehold land recognized for white commercial farmers - Community game guard system established in the north western Kunene region - Community leaders and the Ministry of Environment employ local Namibians to patrol communal lands and report poachers
1990	- 21st March 1990 Namibia gained its independence.
1992	- The Policy on the Establishment of Conservancies provided the framework for granting rights over wildlife to communities
1995	- The Policy on Wildlife Management, Utilization, and Tourism in Communal Areas ensured that the same rights to manage wildlife that applied to freehold land also applied to conservancies on communal land. - The policy was supported by the passing of the Natural Conservation Amendment Act (NCAA)
1998	- The National Communal Area Conservancy Program was launched - First four communal conservancies gazetted, covering approximately 16,800 km ²
2002	- The Communal Land Reform Act (Act 5) clarified the powers of Traditional Authorities and Land Boards in the administration of communal lands

Sources: Long, 2002; Government of Namibia, 1996.

management plan. Community Forest Guidelines issued in 2014 require CUGs to invest at least 35% of their income in pro-poor activities and community development; another 25% must be invested in forest conservation and management (Baral et al., 2019). In a study of 42 CFI done prior to the 2014 Guidelines, Chhetri et al. (2012) found that roughly 45% of total CUG income went toward financing local public services and infrastructure, with higher income CUGs allocating a larger percentage of their expenditures to such investments. Subsequent to the 2014 Guidelines, Baral et al.'s (2019) study of 2322 households indicated that 42% of CUG investments went toward private goods (forest product collection, forest employment, alternative energy, skill development), 31% to common goods (disaster risk reduction and special provisions for women and the poor), and 27% to public goods (roads and other infrastructure). Bandhari et al. (2019) compared investments by 43 CUGs before and after the 2014 guidelines went into effect. In the year prior to the guidelines, 52% of investments went toward forest development and 26% went toward community development. The percentage of income devoted to community development investments doubled to 52% the following year, and then declined slightly to 49% in 2016.

4.3.5. Outcomes of investments in and by CFIs

Studies have shown positive associations between community forests in Nepal and forest product supply (Koirala et al., 2013), public environmental goods (Koirala et al., 2013), and biodiversity (Luintel et al., 2018). A study by Oldekop et al. (2019) which examined forest cover changes associated with community forest management across Nepal, showed a net positive relationship between community forest management (CFM) and change in forest cover between 2000 and 2012. The positive environmental effects were greater for VDC with larger forests and where CFM had been in place for longer periods.

Investments in CFIs have yielded positive social and economic outcomes in many areas. Oldekop et al. (2019) found a positive association between CFM and poverty alleviation in Nepal. VDC with larger forest areas under CFM and those which had had CFM longer showed greater reductions in poverty. Koirala et al.'s (2013) study of 14,571 Nepalese CUGs estimated that annual income for all CUGs exceeded USD 49 million, amounting to USD 137 per CUG household. Evidence suggests that even when CUGs adhered to pro-poor provisions, wealthier households were more likely to benefit from CUG investments in private and public goods, whereas poorer households were more likely to benefit from investments in common goods (Baral et al., 2019).

Investments in CFIs have also contributed to the strengthening of social capital and local governance capacity. FECOFUN's advocacy efforts for policy reforms that facilitate the establishment and operation of CFIs have played a key role in creating an enabling environment for investments in CFIs. Chief among these reforms include: the 2014 Revised Community Forest Guidelines, which provide for technical and financial assistance to CFIs; the 2015 Forest Policy, which prioritizes forest enterprise development through private sector investment; the

2017 Industrial Enterprises Act, which makes it easier and less costly to establish small enterprises. During Nepal's civil war of 1996–2006, community forest institutions remained among the few functioning local institutions (DoF, 2015; DFRS, 2015).

4.4. Namibia

4.4.1. Rights devolution context

Namibia is predominantly arid, although precipitation varies considerably across the country (Barnes et al., 2001; Jones, 1999). Much of Namibia's population lives in rural areas and is highly dependent on natural resources for their livelihoods. Throughout the 1970s, rural poverty, civil war, drought, and limited incentives to protect wildlife resulted in the decimation of Namibia's wildlife and environment. Customary natural resource governance practices were undermined by a combination of colonial policies, racially discriminatory legislation, poaching, and environmental stress (Benkenstein et al., 2014). The government has been working to achieve a better balance in land ownership and resource access through land redistribution and tenure reform (Table 4).

Granting the rights to manage wildlife to communities, first on freehold land and eventually on communal lands, was at the core of Namibia's tenure reform strategy (Jones, 1999). In 1996, the Government of Namibia set out to address the twin goals of environmental protection and rural economic development through community-based natural resource management (CBNRM) (Boudreaux, 2010). Prior to the reforms, natural resources were the sole property of the state. Under the new tenure system, rural residents can create community conservancies, which are approved and registered with the Ministry of Environment and Tourism. Nelson and Agrawal (2008) argue that key factors enabling the conservancy reforms in Namibia included relatively low levels of institutional corruption, as well as relatively limited public revenues from wildlife populations use on communal lands due to years of over exploitation and drought, resulting in little financial incentive for officials to retain control of wildlife resources.

Under Namibia's CBNRM program, communal area residents form a common property institution called a conservancy. To register a conservancy, residents must develop zoning and sustainable resource management plans, voluntarily register for membership, and set up a representative conservancy management committee and constitution. The conservancy enables local communities to manage, use, and benefit from wildlife and other natural resources on their traditional lands (Naidoo et al., 2016; Hoole, 2010). As of 2017, Namibia had 83 registered conservancies covering roughly 163,000 sq. km, or 53% of all communally owned lands (MET/NACSO, 2018).

4.4.2. External investment in CFIs

Donor support has played a significant role in the success of CBNRM in Namibia (Jones, 2010). In 1993, the government partnered with USAID and WWF to fund and develop a project called Living in a Finite

Environment (LIFE) (Hoole, 2010; Jones, 1999). LIFE employed international advisors and local staff to support implementation of project activities and provide technical assistance. The 2017 State of Community Conservation Annual Report (MET/NACSO, 2018) lists 30 donor funding partners, including USAID, the World Bank, WWF International, DFID, GIZ, NORAD, SIDA, and the EU, among others. Between 1990 and 2017, approximately USD 162 million was invested in the CBNRM program, mostly supplied by donors (MET/NACSO, 2018). In 2001, Barnes et al. reported that donors provided much of the initial capital and recurrent input costs to conservancies. However, conservancies were not entirely dependent on donor funds, and they concluded that the removal of donor funds would only affect conservancies that had limited viability. Twenty years later, the Namibian Association of CBNRM Support Organizations (NACSO) identified declines in donor and NGO funding as a serious challenge (NACSO 2016–2020 Strategic Plan). Nuulimba and Taylor (2015) attribute the decline in donor funding to the re-categorization of Namibia as a middle-income country in 2009.

The Namibian government has made significant investments in policy development, education and outreach regarding new regulations, boundary demarcation, and licensing since the conservancy program was established. The Ministry of Environment and Tourism (MET) has provided in-kind contributions, such as staffing and vehicles, that enable the conservancies to operate (MET/NACSO, 2018). However, MET's capacity to support conservancies is diminishing as new conservancies with low wildlife numbers and limited appeal for tourists become registered. To address this challenge, a joint government and NGO taskforce has been exploring possibilities for other sources of funding, such as endowment funds (Nuulimba and Taylor, 2015).

The CBNRM program in Namibia is considered one of the most successful examples of how communities can protect biodiversity while generating social and economic benefits through tourism (Jones, 2010; Munthali, 2007). Newsham (2007) attributes this success in large part to the network of like-minded actors in Namibian conservation that drove policy reform at the time of independence. The LIFE program director saw the benefit of working in partnership with a Namibian NGO and ensured that WWF, a key international contributor to the project, was part of the broader CBNRM actor network. Private sector actors became active in the conservancy program very early on, primarily through joint venture agreements. The principle of involving multiple stakeholders has carried down to the individual conservancy level. Conservancy management planning occurs “at the interface between elected committees, chiefs, MET staff, NGOs, consultants, and sometimes...private entrepreneurs from the tourism sector” (Bollig and Schwiieger, 2014:170). Integrated Rural Development and Nature Conservation (IRDNC) and NACSO are two key Namibian NGOs that have provided critical support to the conservancies including assistance with conservancy registration and JV agreement negotiations; training in governance, finance, and administration; and development of wildlife damage insurance schemes and wildlife and financial monitoring systems. Although there is no national level association of conservancies, several regional level conservancy associations advocate on behalf of their members and serve as knowledge sharing forums. Investments in Namibia's conservancy program have gone through several phases since its inception (NACSO, 2007). During its early years, investments centered first on getting a small number of conservancies registered. They then shifted toward helping other conservancies get registered, implementing training in financial administration and governance, and developing a wildlife monitoring systems and wildlife damage insurance scheme. They have since moved toward income diversification, such as developing markets for veld products and handicrafts.

4.4.3. Innovations in CFI financing

Joint Venture (JV) is one of the most common models of investment

for Namibia's conservancies. By 2017, conservancies were engaged in 54 tourism and 56 conservation hunting joint venture agreements. JV lodges (either conservancy-owned with a private sector operating partner, or investor-owned with conservancy contracts) provide new forms of employment for conservancy members. JV-related employment has resulted in conservancy residents earning a total cash income of roughly N\$65.8 million (USD 4.3 million) from wages, most of it from tourism (MET/NACSO, 2018). Better management of natural resources has improved the harvesting practices of indigenous natural products, and the influx of tourists has increased product sales, leading to more diversified income sources. Nonetheless, accessing external capital remains challenging for many conservancies due to perceptions that the level of risk is too high for banks to assume (World Bank, 2014). Conservancies are seeking alternative revenue streams, such as NACSO's recently established Wildlife Credits and Incentives Scheme, which links the conservation performance of conservancies with external investors willing to pay for conservation (NACSO, 2019).

4.4.4. Investment by CFIs

The 2017 State of Community Conservation report (MET/NACSO, 2018) describes the types of investments made by conservancies. These include investments in governance institutions, such as setting up management structures and maintaining transparent financial processes. Other investments are oriented toward conservation, including monitoring wildlife sightings, participating in the annual game count, fire management, and enforcement of hunting regulations. Hoole (2010) attributes much of the conservancy program's success to the capacity building efforts, coordination, and advocacy of the Namibian Association of CBNRM Support Organizations (NACSO) at the local and national level. Despite their success, Bollig and Schwiieger (2014:179) describe the conservancies as being “still in a transition process, in which institutions are developed, implemented, and changed by various actors with differing bargaining power in order to adapt to new challenges”.

Conservancies with revenues exceeding their costs have invested their gains in households, infrastructure, and social services, such as education and health care (Barnes et al., 2001; MET/NACSO, 2018). However, not all conservancies are financially successful (Corbier-Barthaux and Lapeyre, 2013; Humavindu and Stage, 2014): In 2017, In 2007, four partnership lodges out of 25 generated half of all conservancies' cash income derived from tourism and nine lodges generated nearly three quarters (Corbier-Barthaux and Lapeyre, 2013); less than 10% of the 50 conservancies in operation at that time earned more than N\$1,000,000 (USD 66,000). As the conservancies gain experience in governance and financial management, the inequalities across conservancies are diminishing. In 2017, one-quarter of the 83 conservancies generated cash income exceeding N\$1,000,000 (USD 66,000). Nonetheless, 14 conservancies generated no cash income or in-kind benefits in 2017 (MET/NACSO, 2018). Geographic factors explain much of the disparity in revenues. Larger, physically attractive conservancies with smaller human populations generate significant incomes from tourism and sports hunting, while more recently established conservancies in less attractive, and more populated areas often struggle to generate income (Humavindu and Stage, 2014).

4.4.5. Outcomes of investments in and by CFIs

Namibia has experienced significant increases in wildlife populations since the conservancies were established (Galvin, 2018). Gains in populations of elephant and desert lion have been particularly notable. The elephant population increased from roughly 7500 individuals in 1995 to 22,800 in 2016; the lion population grew from 25 individuals in 1995 to 150 in 2017 (MET/NACSO, 2018). Increases in wildlife populations are attributed to joint efforts by the government and conservancies to reduce poaching, including enforcement and programs to compensate residents for crop and livestock losses due to wildlife, together with investments in fencing and animal translocation. Although

populations of some herbivores, such as gembok and springbok, increased dramatically during the first 20 years of the conservancy program, since 2012 their populations have declined (MET/NACSO, 2018). Scientists attribute the declines to a combination of prolonged drought and a recent uptick in poaching incidents (MET/NACSO, 2018).

Statistics from the 2017 State of Community Conservation Report (MET/NACSO, 2018) illustrate the economic contribution of CBNRM. Cash income and in-kind benefits generated by conservancies have increased steadily since 1998, reaching N\$132 million (USD 8.7 million) in 2017. The economic rate of return of investments in conservancies between 1990 and 2017 has averaged 17%. In 2017, 171 natural resource enterprises were hosted in 62 conservancies, providing 5350 jobs. Tourism enterprises generated the majority (61%) of overall conservancy income and was followed by conservation hunting (25%). Most conservancy income is spent on staff wages, vehicles, community infrastructure, and public services. The value of cash payments and meat distributed to households from conservancy returns totaled N\$ 111.9 million (USD 7.3 million) in 2017; funds spent on operational costs and capital developments amounted to N\$ 14.5 million (USD 951,000).

Naidoo et al.' (2016) study of financial and in-kind benefits generated on 77 conservancies between 1998 and 2013 showed that tourism and hunting brought in substantial revenues to conservancies. However, these activities benefitted different segments of the population. Hunting revenues were used to cover conservation management costs; the main benefit to community members was meat. Tourism created salaried jobs at lodges, most of which went to community members. Muyengua's research on five conservancies in 2011 revealed that, although 40% or more of residents received cash benefits, the mean annual cash dividend was only USD 7.89.

In addition to the income opportunities they provide, conservancies are widely viewed by many rural communities as a means to political empowerment and a tool for asserting and reinforcing claims to land (Scanlon and Kull, 2009). Joint planning and wildlife management activities involving MET and communities working closely together over long periods also has led to an improvement in government-community relations (Scanlon and Kull, 2009). However, these changes in political dynamics are not unproblematic: studies indicate that tensions have arisen between traditional leaders and conservancy managers as the latter gain in political and economic power (Scanlon and Kull, 2009).

5. Discussion

In the following section we examine our three guiding propositions in light of the data analyzed for the four case studies. Refinements to the original propositions are noted in italics.

Proposition 1. Barriers to investment in CFI are not insurmountable and investment in CFI is taking place. External investment has come primarily from donors and governments, but private sector investment is increasing.

As indicated in Table 5, the case studies demonstrate that substantial investments in community-owned natural resources are occurring in all four countries, and that, as was the case for social innovations in the nature and energy sectors in Europe (Kubeczko et al., 2006), multiple actors are implicated in the social innovation system triggered by rights devolution. Public investment is greatest in Mexico, which has the longest functioning system of community forests. Public sector investment in CFI in Namibia and Nepal has been strong, but much of the investment has been in the form of staff time, equipment, or funds acquired through donors. State financial support in Guatemala has been limited, and donors have supplied most of the public sector funding for CFIs.

Multilateral and bilateral donors have made massive investments in CFIs in all four countries, typically channeling their funds through state

agencies and international or local NGOs. The scale of donor investments has been such that it is likely that social innovation in these countries would have proceeded at a much slower rate if it had been lacking. Declining donor funding has been identified as a threat to the viability of CFI programs in Nepal, Namibia, and Guatemala. It is of much less concern in Mexico where many CFI have developed forest enterprises that are able to generate sufficient funds for their operating costs through product sales.

External private investment also has occurred in each case, but the nature and level of investment varies by country. Joint ventures between CFI and private enterprises are common in Namibia and Mexico, where a number of financially viable CFIs have emerged. Additionally, many CFIs in Namibia and Mexico have matured to the point where they are self-financing. More CFIs in Nepal and Guatemala may still require government or donor grants or subsidies. Nonetheless, some enterprises in both countries have built sufficient capacity that they are able to obtain blended financing, in which a development bank or donor assumes some of the risk on loans, typically channeling the funds through NGOs.

Proposition 2. Investment readiness of CFIs requires that prospective investors and investees have assurance that the obligations of each party will be honored. Each sector (i.e., public, civil society, private) takes on specific roles and responsibilities for mitigating risk. Investment readiness develops over time, in stages, as levels of assurance increase.

In all four cases, donor and governmental investments were critical for building CFI capacity early on in areas such as governance, financial literacy, organizational administration, business plan development, and the technical aspects of forest or wildlife management (see Table 5). Donors often channeled funds through external NGOs or consultants to build capacity, broker deals between investors and communities, and provide assurance to investors that they would see desired returns. People with the skills needed to perform these key functions may be scarce in rural areas, hence the importance of bringing in external NGOs and consultants to provide these services until local competency is developed. Willingness on the part of key actors to engage in long-term investment, as well as their commitment to forming partnerships and engaging in new types of relationships with communities and each other has been important in all four countries. Our finding that donors and governments are the dominant investors in CFI capacity building early on in their evolution concurs with research on CFIs in Cameroon (Minang et al., 2019), as does our observation regarding the intermediary role played by NGOs.

A key feature of social innovation systems is the development of new modalities of interaction between system actors (Polman et al., 2017; Nijnika et al., 2019). Our cases indicate that the formation of new partnerships was instrumental in the emergence of financially viable CFIs in the four countries. CFIs generally must comply with national regulations and meet industry standards for product quality and sustainability if they wish to access global markets. However, meeting those standards is often costly. Assistance from NGOs enabled CFIs to obtain Forest Stewardship Council (FSC) certification for timber in Guatemala and Mexico and for NTFPs in Nepal. In Namibia, experienced private sector partners in joint ventures have provided training to community members that has enabled them to achieve international hospitality and tourism standards, increasing their competitiveness in the ecotourism sector (World Bank, 2014).

The social innovation literature identifies active engagement of civil society as a key feature of social innovation systems (Ambrose-Oji et al., 2015; Minang et al., 2019; Nijnika et al., 2019). In all of our cases, civil society actors in the form of national-level federations and associations have played a key role in enabling financially viable CFIs to emerge following rights devolution. Through these secondary-level organizations, CFIs have advocated successfully for policy and regulatory reforms that have improved the enabling conditions for community-based

Table 5
Patterns of investment in community forest institutions (CFI) in Mexico, Guatemala, Nepal and Namibia.

Country	Donors	Government	Community forestry institutions	Private sector	Non-governmental organizations (NGOs)
Guatemala	Substantial financial investment beginning in the 1980s. Areas of focus include: * support for public institutions and concessionaire development and governance * technical assistance * support for secondary-level institutions Funding from donors is declining as concessionaires gain competency Recent donor investments shifting from capacity-building to value-added support and scaling up community forest enterprises (CFEs)	Financial investment minor; most state funds originate from donors and development banks Areas of focus include: * forest governance and management capacity building of public institutions * policy implementation * enforcement	Substantial financial investment (relative to revenues) as concessionaires have gained in competency. Areas of focus include: * capacity building to manage/administer concessions * forest management plans * value chain development* * rights strengthening * fire protection * jobs for concessionaire members and other households * health and education Secondary-level institutions (the Community Forest Association of Petén (ACOFOP) and Community Enterprise of Forest Services Ltd. (FORESCOM)) are key to acquiring additional funding/expanding influence	Limited financial investment thus far, but partnerships between development banks and commercial banks providing credit to forest enterprises are beginning to emerge	Donors typically channel assistance to CFIs through NGOs * forest management skills * forest management plans * Forest Stewardship Council (FSC) certification * business management training * value chain development (timber and nontimber forest products (NTFP)) * policy reform advocacy
Mexico	Moderate investment (beginning in the 1980s) relative to government and parastatals Areas of focus: * institution-building/strengthening; forest governance and management capacity building * training/technical assistance to communities * assistance with certification (channeled through NGOs)	Financial investment significant; substantial amounts originate from donors and development banks Areas of focus * capacity building to participate in parastatal partnerships (1960s) * parastatal investment in institution-building (ejidos and ejidos unions), infrastructure, and human capital (1970s) * development of CFEs (1990s) - forest management plans, technical studies, forestry extension, roads * management and conservation in public forests (1990s/2000s) - training and technical assistance; certification; institutional strengthening Substantial financial investment but much comes through donors and development banks. Areas of focus: * technical training * CFI forest governance and forest management capacity building * infrastructure development	Substantial financial investments (relative to revenues) as CFI have gained competency. Areas of focus: * forest management plans * value-chain development/equipment and facilities * forest improvements/conservation * jobs for community members * road infrastructure, education, health Numerous secondary institutions (ejido unions, joint venture associations) play a key role in strengthening community use rights to forests and building CFE capacity to manage and commercialize forest products. Joint venture associations between communities make financial investments in enterprise development and public goods Substantial financial investments (relative to revenues) as CFI have gained competencies. Areas of focus: * jobs for members * forest-based enterprises * forest management plans * forest protection/improvements * roads, water, education, health care The secondary institution, Federation of Community Forest Users Nepal (FECOFUN) plays a key role in strengthening community use rights to forests and building CFE capacity to manage and commercialize forest products. Substantial financial investments (relative to revenues) as CFI have gained competency. Areas of focus: * job creation * ecotourism and conservation hunting enterprises	Publicly subsidized logging company-community partnerships dating back to 1960s invested in capacity of communities to participate in partnerships Parastatal investments in infrastructure and human capital in 1970s provided foundation for community forest enterprises to emerge Community-buyer alliances are common	Donors typically channel assistance to CFIs through NGOs * forest management plans * forest management skills * FSC certification * business management training * value chain development * policy reform advocacy
Nepal	Substantial financial investment dating from 1980s Areas of focus: * technical training * CFI governance and forest management capacity building * infrastructure development	Substantial financial investment but much comes through donors and development banks. Areas of focus: * technical training * CFI forest governance and forest management capacity building * infrastructure development	Substantial financial investments (relative to revenues) as CFI have gained competencies. Areas of focus: * jobs for members * forest-based enterprises * forest management plans * forest protection/improvements * roads, water, education, health care The secondary institution, Federation of Community Forest Users Nepal (FECOFUN) plays a key role in strengthening community use rights to forests and building CFE capacity to manage and commercialize forest products. Substantial financial investments (relative to revenues) as CFI have gained competency. Areas of focus: * job creation * ecotourism and conservation hunting enterprises	Limited external private sector involvement. Small and medium scale forest enterprises have begun to invest in timber processing, tourism activities, NTFP processing and marketing. A blended finance program involving multiple development banks, the Nepali government, and communities has recently emerged.	Donors typically channel assistance to CFIs through NGOs * forest management plans * forest management skills * FSC certification for NTFPs * financial skills/business management training * NTFP value chain development * policy reform advocacy
Namibia	Substantial financial investment dating from early 1990s. Areas of focus: * technical assistance * capacity building for governing and managing wildlife conservancies	Substantial financial investment, but much comes through donors and development banks. Areas of focus: * policy development * mapping and licensing of	Substantial financial investments (relative to revenues) as CFI have gained competency. Areas of focus: * job creation * ecotourism and conservation hunting enterprises	Strong private sector involvement. Numerous joint venture agreements exist between conservancies and private sector operators An emerging alternative source of revenue is a Wildlife Credits and Incentives stream,	Consortium of local and international NGOs founded the Namibian Association for CBNRM Support Organizations (NAGSO); its predecessor organization was key player in policy reforms that led to conservancy program

(continued on next page)

Table 5 (continued)

Country	Donors	Government	Community forestry institutions	Private sector	Non-governmental organizations (NGOs)
	* provision of starting capital for conservancies	conservancies * awareness-raising about new rules * training * long-term planning * staffing and vehicles	* infrastructure * education/health care * wildlife protection/habitat enhancement * resource management plans Lacks a national level conservancy association but three regional level conservancy associations are members of the Namibian Association for CBNRM Support Organizations (NACSO).	linking conservancy performance to investment.	Areas of focus: * legal assistance for conservancy registration and joint venture agreements * development of and training in use of wildlife monitoring/wildlife damage insurance systems * financial and administrative skills training * veld product value chain development

enterprises. Moreover, membership in these organizations has allowed CFIs to participate in defining what their rights are rather than merely exercising rights that external actors have pre-determined (Devine, 2018; Paudel et al., 2012). The foci of these secondary-level organizations, however, varies by country. Secondary-level organizations in Nepal, Guatemala, and Mexico, place greater emphasis on political mobilization, empowerment, and democratization. In Namibia, regional conservancy alliances play a mobilization role, but NACSO, the more powerful and nation-wide association that supports conservancies (rather than representing them), focuses primarily on technical assistance and helping communities engage effectively with private sector partners.

The introduction of new practices is a hallmark of social innovation systems (Polman et al., 2017). In all four of our cases, we see evidence of new practices, notably around finance mechanisms, being experimented with and then institutionalized. In Namibia, where the number of CFIs is rapidly outstripping the capacity of NGOs and the state to support them, NACSO has created the Community Conservation Fund of Namibia (CCFN) to source funds from a variety of sources and channel them to conservancies (NACSO, 2019). Access to such funds will be particularly important for newly established conservancies and those located in areas that are inaccessible or unattractive to tourists or sports hunters. In Mexico, some CFIs have developed innovative inter-community associations that enable them to achieve economies of scale (Valdez et al., 2012). Guatemalan forest concessionaires are experimenting with blended finance mechanisms involving a combination of multilateral funding and bank credit (Hodgon and Lowenthal, 2015). CFI in both Mexico and Guatemala are increasingly undertaking capacity building activities themselves, rather than relying on external service providers. In Nepal, some CFIs have developed self-financing mechanisms such as stratified membership fees to cover training and equipment costs. These developments are evidence of a gradual maturation in CFIs, as indicated by an ability to self-finance capacity development.

Our results support Kluvánková et al.'s (2018) proposition that community forest enterprises are a type of social innovation and that they can best be understood if viewed as part of a broader dynamic social innovation system. In our cases, the social innovation systems have been set into motion by the devolution of forest (or wildlife) rights to communities. Our cases indicate that investments in CFIs materialize in phases, with levels of assurance and needs changing over time as the system evolves. We broadly identify three phases, beginning from the point at which rights are devolved. Fig. 2 depicts our revised theory of change diagram, which we modified so as to take the phased nature of the social innovation system triggered by forest rights devolution into account.

Investment in rights devolution and forest governance institutions: Phase one is characterized by investments in effectuating rights devolution and facilitating the emergence of CFIs that can effectively govern forest or other resource commons. The state and donors are the dominant external investors during this phase, with local and international NGOs serving primarily as intermediaries between CFIs and state agencies and between CFIs and donors. Barriers to investment in enterprises associated with CFIs typically exist and need to be overcome. During this phase, investments fall into Elson's (2010) "enabling investments" category.

Investment in governance and technical capacity: Phase two focuses on building the CFIs' administrative and organizational management capacity. Building these capacities increases the likelihood of transparency in decision-making and administration, as well as the likelihood that rules governing resource use and conservation will be enforced. This together with technical capacity building and associated management activities stabilizes or improves the condition of natural resources. Additional investments support the emergence of communal enterprises focused on established markets such as timber and tourism. Donors and the state continue to be the dominant external investors,

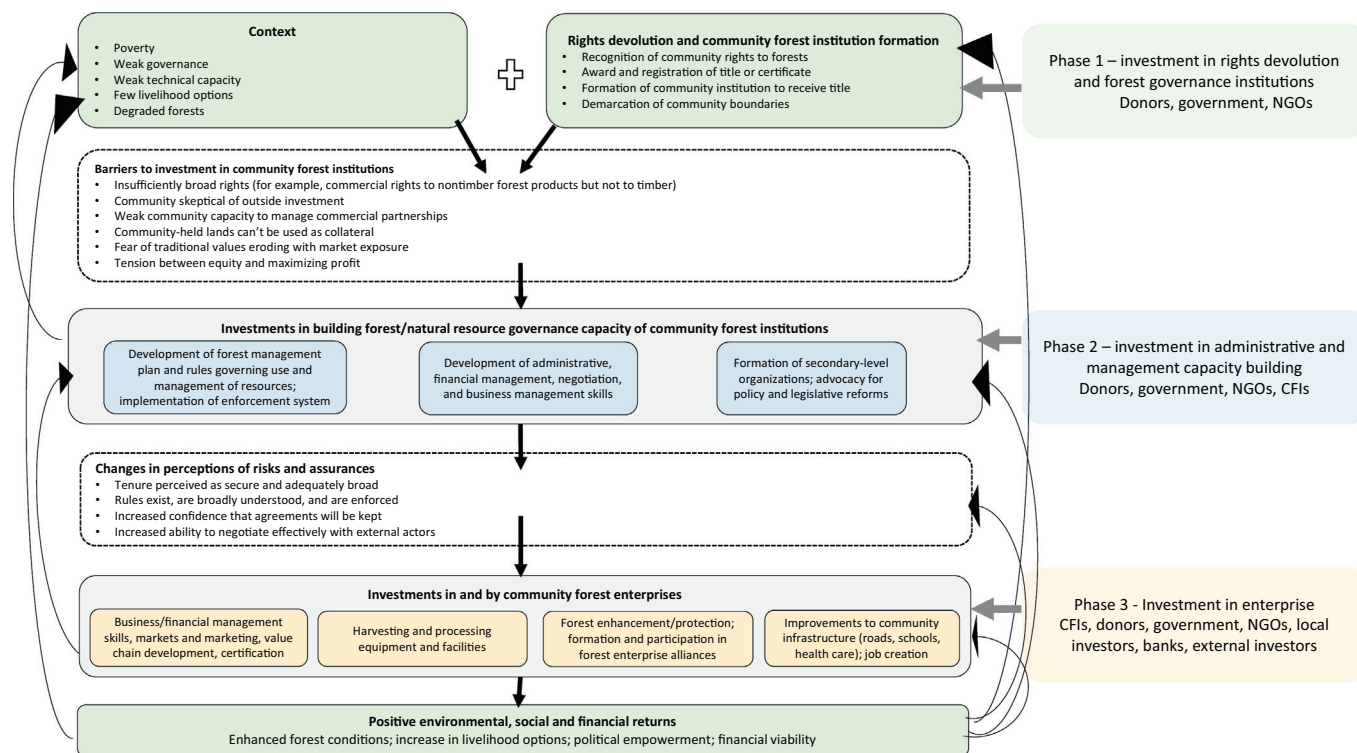


Fig. 2. Adapted theory of change linking rights devolution to financial investments and environmental and social outcomes.

and NGOs continue to function as intermediaries. CFIs, often with NGO support, establish regional or national federations that represent CFI interests and that advocate for policy reforms and help CFIs realize economies of scale. During this phase, investments fall primarily into the enabling investment category, but some asset investments are also made.

Investment in enterprises: Phase three sees an increase in CFI credibility and concomitant reductions in perceived risks and transactions costs that provide the assurances that make them attractive to a broader array of private sector investors. CFI federations focus initially on negotiating a supportive regulatory environment for their enterprises and ensuring that governments follow through on their commitments to rights. Once conditions are more favorable, they then give greater attention to promoting commercial investment. Improved community capacity and knowledge about markets and marketing enables diversification and investment into new sectors, as well as the development of value chains and adherence to global market standards. Certified forest use and extraction plans help CFIs meet the stringent conditions of international buyers and enable them to attract investors requiring higher environmental, social and governance standards. As CFI enterprises emerge, they cement their social character, ensuring that poor sections of the community are supported and that a portion of surplus revenues is invested in the provision of public goods. Donors and the state continue to make investments in CFI enterprises at this stage, but external private sector investment begins to expand in this phase. The emphasis begins to shift to asset investments, although enabling investments, such as acquiring FSC certification, continue to be made.

We hypothesize that progress from one stage to the next depends on the effectiveness of existing and emerging social capital and organizational capacity, offering a possible explanation as to why some CFI initiatives remain at phase one.

Proposition 3. Community rights devolution has fostered investments by CFIs that recognize the social character of resources held under community ownership, and deliver environmental and social returns, as

well as profits.

Our case study evidence supports previous research findings that CFIs function as social enterprises that seek to be financially viable while also improving socioeconomic and ecological conditions in their communities (e.g., Ambrosi-Oji et al., 2015; Foudjemi-Titu et al., 2019). CFIs in all four of our case studies emphasized creating employment opportunities even at the expense of some loss of financial competitiveness. They preferentially provided part-time employment to all members of the community who would like to work, rather than offering full-time employment to a select few. Some CFIs, notably those in Nepal, intentionally sought to provide jobs to poorer segments of the population. Many CFIs distributed a portion of any profits generated as dividends to community members, dividends which the case study evidence indicates do get widely distributed. However, the per household amounts tended to be small except for the relatively few CFIs that had large profits. In all four cases, the CFIs have taken on some governmental functions, specifically the provision of public goods such as roads, schools, and health clinics. The CFIs in the case study countries also typically make investments aimed at enhancing forest (or wildlife) productivity, investments which have tended to yield positive environmental outcomes. The social character of CFIs in our cases shows that the final element in our theory of change, namely that investments by CFIs tend to lead to positive social and environmental outcomes, is validated.

6. Conclusion

We note three key features from the cases that can inform policies and programs aimed at supporting investments in CFIs. First, **different sources of financial investment enter at different stages.** Public sector and donor investments are critical in the first phase when risks to investors are highest. They continue to be needed in phase two, when risks and transaction costs, although reduced, remain high. Private sector financial investment ramps up in phase three, once risks and transaction costs are sufficiently reduced. Public sector or donor

investments are still needed to ensure that enabling conditions remain supportive of enterprise development as new forms of financing, technologies, and markets emerge. However, unless CFIs are weaned off of public funds at some point, the public's appetite for funding them will diminish.

Second, **the types of investments required change as the social innovation system moves into each new phase.** Enabling investments are needed initially after forest rights devolution to establish the institutions and social infrastructure needed for communities to be able to actualize their rights. Enabling investments continue to be important as the system moves into phase two, but their focus shifts to building technical and managerial capacity of CFIs so that their operations are more transparent and financially viable, and therefore more likely to attract private sector investors. Asset investments gain in importance during this phase as they increase the likelihood that CFIs will be able to deliver an adequate supply of products with qualities that investors require. As the system shifts into phase three, asset investments, such as the purchase of harvesting and processing equipment and facilities, forest productivity improvements, and public infrastructure development, begin to dominate. However, additional enabling investments are likely to be required as new spheres of operation (i.e., export trade, addition of value-added processing, etc.) open up.

Third, **the evolution of investments in CFIs is iterative.** The outcomes of the initial enabling investments alter the context and catalyze the need for asset investments, as well as additional enabling investments, in a dynamic and evolutionary process similar to that described by Kluvánková et al. (2018). Through a constant process of learning and adapting, CFIs build the confidence of their members and external investors that they can deliver adequate financial returns. An important lesson from our cases is that public investment provides the cushion that CFIs need to be able to experiment, learn, and adapt; reducing the risks and transaction costs sufficiently that CFIs become "investment ready" from the perspective of private sector investors.

We note one area in particular where special attention will need to be paid if CFIs are to develop their full potential as social enterprises. Social innovations involve the adoption of new practices, including new ways of interacting with each other (Polman et al., 2017). A critique of rights devolution processes is that governments often seek to retain former levels of control through imposing excessive regulations on the emerging CFI (Larson and Dahlal, 2012). Our analysis suggests that the governments of Mexico and Namibia have grasped the importance of adjusting their behavior to fit the new context brought about by the social innovation of community forestry. In both countries, a combination of pro-CFI policies and forest bureaucracies that have been willing to take some risks, have provided an environment that has enabled many CFIs to become financially sustainable. It is less clear that the governments of Nepal and Guatemala have the political will to give up sufficient control for CFIs to prosper over the long run. Although Nepalese CFIs have benefitted from rights devolution, they have had to struggle to obtain the right to harvest timber commercially and are currently faced with proposed legislation that could reduce their tenure security. Likewise, in Guatemala, community forest concessionaires have benefitted greatly from tenure reforms in the MBR, but they now face the prospect that their concessions may not be renewed. In Guatemala, advocacy by ACOFOP and national and international friends of the MBR, as well as recent and ongoing research on the beneficial social and environmental effects of the concessions model (Monterroso et al. 2018) may convince policy makers of the wisdom of renewing the concession agreements. Likewise, FECOFUN in Nepal appears to be mounting a strong campaign against dilution of the community forest rights under the Forest Law.

Communities, governments and the private sector have to be viewed by all parties as co-equal partners in social innovation systems that create and sustain the conditions that enable community-based social enterprise, serving a variety of environmental, social and economic goals. A shared understanding of the systemic character of innovation

process can't always be taken for granted, and some parties, especially in government and the private sector, don't understand that fundamental, permanent changes in some of their own policies and practices are also required. Forest agencies need to dial back their forest-use enforcement functions and invest more in protecting community rights and building local organizational capacity. Private businesses need to be willing to accommodate the social welfare and employment aims of CUGs. They can do this by observing labor use and environmental standards associated with various certification regimes. Additional research is needed on the sources, mechanisms, volume, and direction of investment in community-managed resources that can create the action space for social innovation. Given the changing capital needs of CFIs as they grow, we argue that it is important to focus research on gaining a better understanding of their financing options and investment potential at different stages of their development.

Declaration of Competing Interest

None.

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