IDENTIFYING GOVERNANCE PROBLEMS AND SOLUTIONS FOR FOREST LANDSCAPE RESTORATION IN PROTECTED AREA LANDSCAPES

Stephanie Mansourian[*1], Gretchen Walters[2], Emily Gonzales[3]

[*]Corresponding author: stephanie@mansourian.org

[1]Mansourian.org and University of Geneva, 36 Mont d'eau du Milieu, 1276 Gingins, Switzerland
[2]IUCN, Avenue Mauverney, 1196 Gland, Switzerland and University of Lausanne, Lausanne, Switzerland
[3]Parks Canada, 300-300 West Georgia St. Vancouver, BC V6B 6B4, Canada

ABSTRACT

Governance challenges – including ownership, decision-making, accountability, and sharing of costs and benefits – can impede forest landscape restoration in protected area landscapes. Understanding and addressing these challenges can improve the outcomes of forest landscape restoration. We tested the utility of applying an existing framework that focuses on three actions to understand governance – mapping stakeholders, contextualising and re-scaling. The framework was applied to large-scale restoration initiatives in New Caledonia's dry forest, Canada's Cape Breton Highlands National Park and a Community Resource Management Area in Ghana's Western Region to identify governance challenges and solutions in forest landscape restoration implementation in different contexts. Application of the framework revealed four types of governance challenges: overlapping jurisdictions, inter-institutional relationships, tenure and property rights conflict, and stakeholder power dynamics, and five types of governance solutions: supportive national-level policies, clarifying tenure, convening structures, benefit sharing and compensation, and cultural incentives. Overall, we found that the framework helped interviewees to conceptualise governance challenges and identify ways to address them.

Key words: Governance, restoration, forest landscape restoration (FLR), protected area landscapes, New Caledonia, Ghana, Canada

INTRODUCTION

Restoring forest landscapes has become an important global objective as exemplified by ambitious international commitments such as the Bonn Challenge and the Africa 100 Partnership, whereby governments commit to restoring millions of hectares of forest land (Aronson & Alexander, 2013). Forest landscape restoration (FLR)[1] complements protection and sustainable management and can be applied within and around protected areas (Keenleyside et al., 2012). Yet in practice, restoring forests within landscapes faces numerous governance hurdles (Hobbs et al., 2011). For example, who has a right to the forest? Do the same people have rights to the forest and to the benefits from restoring that ecosystem (e.g. Peluso, 1996)? Indeed, restoring forests, especially at large scale, straddles different ownerships and rights, alters land use, generates value as well as opportunity costs, and is subject to diverse formal and informal rules at different political scales, from local to international (Mansourian, 2016; 2017). In many cases, the landscapes in question include protected areas of different categories, which also generates governance challenges. Governance has been identified as a priority by several researchers engaged in large-scale restoration (e.g. McDonald et al., 2016). Yet, although the topics of forest governance and protected area governance are well addressed in the literature (e.g. Cashore et al., 2004; Agrawal et al., 2008; Borrini-Feyerabend et al., 2013), this paper is among the few (e.g. Guariguata & Brancalion, 2014; Wilson & Cagalanan, 2016) that address governance in the context of the process of large-scale forest

restoration in landscapes that include protected areas, and is one of the few that focuses on how to improve practice.

Governance is understood by different actors in a variety of ways (Van Kersbergen & van Waarden, 2004). Here, governance refers to the wider decision-making processes related to who decides and how; it encompasses policies, institutions, processes and power (Swiderska et al., 2008) and is often impacted by historical legacies of protected area establishment (Borrini-Feyerabend et al., 2013). A detailed review of governance and FLR can be found in Mansourian (2016; 2017) and Reinecke and Blum (2018).

Practitioners engaged in large-scale restoration frequently do not know where to start or how to address governance challenges. This is due, in part, to the cross-disciplinary nature of the issues, and to the large spatial scales involved which necessarily imply many stakeholders with often divergent interests (Sayer et al., 2013). In particular, it is useful for practitioners to have a framework to explore governance issues within a project setting, notably since principles for FLR refer to governance. A recent synthesis of FLR tools refers frequently to the role of governance in FLR and to the existing and needed research in this emerging field of study, however, it does not identify tools specific to FLR and governance (Chazdon & Guariguata, 2018). Using an existing inquiry-based framework (Mansourian, 2017), we worked with practitioners and researchers of three landscapes, that include diverse categories of protected areas, and were engaging in FLR, to identify governance problems and solutions and test the framework.

METHODS

We selected the framework on governance and FLR (Mansourian, 2017) as it is the only one (to our knowledge) that is designed specifically to understand governance in the context of FLR. Applying the framework to projects in different countries allowed us to examine its utility in different contexts. The choice of case studies for this analysis was in large part pragmatic: they were known to the authors and the interviewees were interested in participating. All three cases occurred within large spatial scales covering different land uses including protected areas of different categories and had undertaken restoration for at least two years. The three cases differed in their location, context and stakeholders. Our research was investigative and the case studies were instrumental (Stake, 1995) to assessing application of the framework

Park staff Rosie Smith helps visitors plant the first trees along the Skyline trail © Miranda Dodd (Parks Canada)

to identify governance problems and solutions. The aim in using case studies here was not to define causality or to extract generalisations (e.g. Yin, 1981; Rowley, 2002). Instead, it was to: 1) describe and understand governance challenges and solutions in each case, and to contextualise them; and 2) specifically, to test the framework.

The framework provides three types of actions that can help to assess governance challenges and solutions: mapping stakeholders, contextualising and re-scaling. To complement the framework, we designed a questionnaire and interview guide that posed open-ended questions along the three categories of actions (Table 1). Interviews were semi-structured. A total of 10 interviews were held, a minimum of three per case study, with interviewees selected based on two criteria: 1) they were participants in the project (project leaders, managers, partners or researchers), and 2) they had in-depth knowledge of the project.

Table 1. Interview guide

Contextualising

What is the political, social, ecological and economic situation in the given area?

What are the constraints on each stakeholder group?

What motivates each stakeholder group to restore forests (e.g. laws, food, protection of water, best use of land, value of NTFPs or timber, etc.)?

Are there specific factors influencing the decisions to restore or not forests (e.g. payments/subsidies, free seedlings, to restore soil or water, demand for NTFPs, cultural reasons, government pressure, etc.)?

Can these factors be classified in some way (geographical scale, financial/cultural/ecological/social/political, proximate/distant, etc.)?

Mapping stakeholders

Who was engaged? And why were they engaged?

Were some stakeholders excluded (or felt excluded)?

How were stakeholders identified (what process)?

How were stakeholders categorised (and what was the rationale for these categories)?

To what extent were categories helpful/harmful when dealing with individual stakeholders?

Were any other stakeholders identified later in the process as needing to be engaged?

If you could do it again was there anyone else you would engage?

How do (did) different groups relate to each other (i.e. were there more powerful groups? Were there 'donors' and 'recipients'? Other categories, etc.)?

Were there any tensions or power issues between different stakeholders (and if so, what and why)?

What motivated these stakeholders to engage in restoration?

Are there winners and losers? Is it clear who they are?

What was/is planned to compensate losers?

Re-scaling

What geographical scale(s) was(were) considered for the 'project' (e.g. community, village, district, landscape, national, etc.)?

How did the geographical scale of the project correspond (or not) to an administrative scale?

Were there supportive institutions at the project scale (and if yes, which ones)?

Were there harmful/obstructive institutions at the project scale (and if yes, which ones)?

Were new institutions set up at the project scale (and if yes, which ones)?

Were wider external influences on the target location (from another scale) considered (and if so, which scale, which influences, and were they positive/negative)?

More generally how (and to what extent) were other geographical scales taken into account?

Any additional comments on governance problems and solutions?

Triangulation via multiple sources is a strength of the case study method (Rowley, 2002)); each researcher was familiar with at least one case study. The number of interviews is relatively small but is in keeping with the limited time that practitioners may have to apply such a framework. For each case study we completed a profile using the three sets of actions in the framework. These profiles formed the basis for our analysis. Each author led on a case study and the team came together for the analysis.

The case studies

New Caledonia

In 2000, nine public and private actors came together in New Caledonia to restore the dry forest ecoregion, of which only about 1 per cent was left in two of the archipelago's three provinces: Province Nord and Province Sud along the west of the main island (Figure 1). The highly fragmented patches of dry forest include the territorial parks (IUCN category II) of Ouen Toro and the zoological and forest park of Nouméa, and the nature reserve (IUCN category IV) of Leprédour Island. Active and passive restoration techniques were used, engaging both public and private stakeholders. De facto and de jure tenure systems have influenced relationships to the forest and land, reflecting the conceptions of indigenous and settler populations respectively. Ten years since their inception, the project and partnership were formalised as the not-for-profit 'Conservatoire d'Espaces Naturels' (CEN) (of which there are 29 in France and overseas) covering three priority focal areas: dry forests, UNESCO World Heritage and invasive alien species. This formal entity is a national multi-stakeholder platform that transcends provincial borders and facilitates work across the dry forest ecoregion.

Canada

In 2014 in Cape Breton Highlands National Park (Figure 2; CBHNP – IUCN category II) in Nova Scotia (eastern Canada), Parks Canada launched the five-year Bring Back the Boreal project to restore forests and engage Indigenous partners[2] (the Mi'kmaq of Nova Scotia), stakeholders and park visitors. The project sought to reduce the pressure on regenerating forests wrought by overabundant moose. It included the creation of a 5 ha moose exclosure to encourage forest regeneration, tree-planting, and localised (20 km²) moose population reductions. Consistent with a 2012 agreement with Parks Canada, representatives of the Mi'kmaq of Nova Scotia were given the first opportunity to harvest moose.

**Figure 1. Map of New Caledonia's dry forest (Source: CEN)**
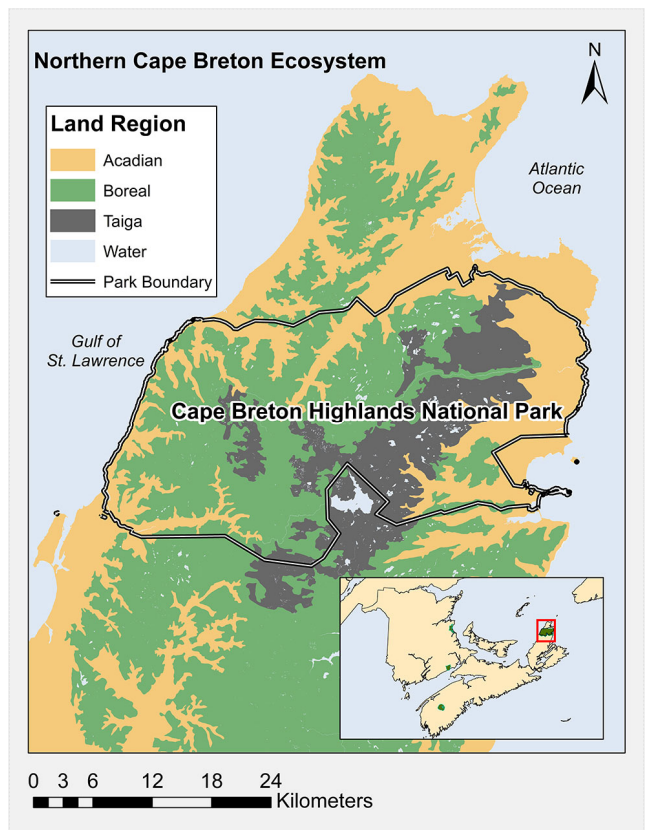
Figure 2. Map of Cape Breton Highlands National Park , Canada (Source: Michée Lemieux, Cape Breton Highlands National Park)

Ghana

In Ghana, community resource management areas (CREMAs) represent permanent, government-recognised bodies with legal, constitutional and management frameworks which support the integration of natural resource management with existing local production systems such as agroforestry. These areas are currently unclassified in the World Database on Protected Areas but are likely a Category V protected area. CREMAs are recognised by Ghana's Wildlife Division and are typically (and in this case), part of a wider landscape including forest reserves and national parks (Asare et al., 2013).

In 2004 in the Wassa Amenfi landscape in western Ghana, farmers joined together to form the Achichire-Sureso-Pebaseman (ASP) CREMA oriented towards tree planting (Figure 3). The ASP CREMA is found in a landscape with a mosaic of forests including other effective area-based conservation measures (OECMs) (Jonas et al., 2018), production forest reserves, privately-owned tree plantations and a variety of agricultural uses. The predominant agricultural activity and primary industry in the landscape is cocoa farming which is the main driver of the local economy.
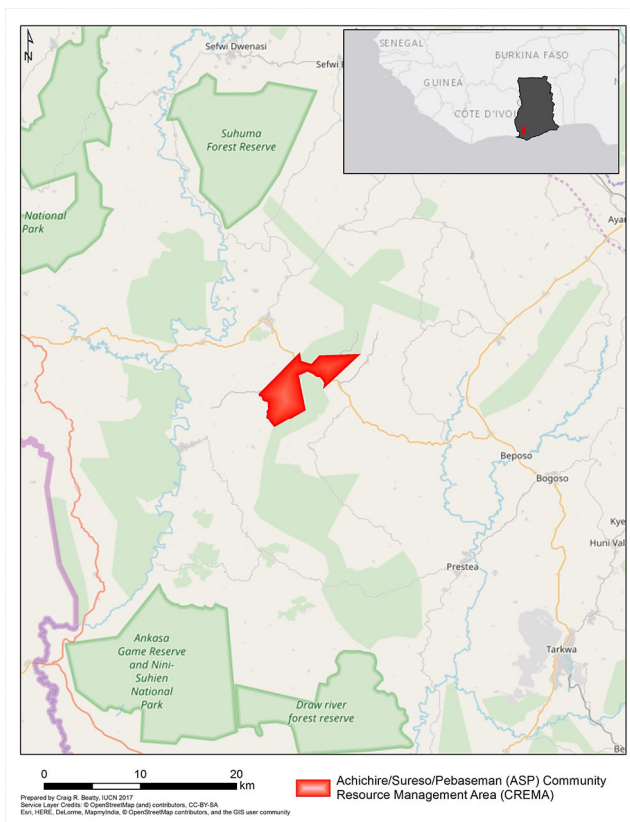
Figure 3. Achichire-Sureso-Pebaseman CREMA, Ghana. (Source: Craig Beatty, IUCN).

RESULTS

In this section, we firstly highlight the governance problems and solutions that emerged in the three case studies, then briefly discuss the application of the framework.

Identifying governance problems and solutions

Application of the framework revealed governance problems for the implementation of forest restoration projects, such as inter-agency incoherence, and highlighted instances where governance solutions, such as improvements in tenure, assisted FLR implementation.

Governance problems

Overlapping jurisdictions

Overlaps between sectors and between indigenous and government institutions were revealed. For example, in New Caledonia, each province has its own environmental policy, leading to some difficulty operating at the scale of the dry forest which crosses two provinces. In Ghana, national policies that promote agroforestry, when implemented at the local level may be problematic if not adapted to the local context: the initial top-down development of the ASP CREMA led to early disengagement by members.

Both in New Caledonia and Canada, differences between indigenous perceptions and understandings of institutions and those of the state generated challenges. "*Everyone has different points of view of what a national park is and what is its mission (…) and for the Mi'kmaq, the park is an artificial line put down by non-natives and means nothing*" (interviewee CA2[3]). Similarly, mismatches between ecological and social systems were apparent. In CBHNP, distinct jurisdictions in the wider landscape reflect a mismatch between the social and the natural systems. The problem of moose overbrowsing extends beyond the park's boundaries, so constraining the boundaries of the project to the national park was a limiting political choice.

Inter-institutional relationships

Governance challenges cross scales both horizontally and vertically. In New Caledonia, the agriculture and mining sectors generate challenges for FLR, as they compete for scarce land. In Nova Scotia, negotiations over harvesting rights between the Mi'kmaq and the province of Nova Scotia complicate moose reduction for the purpose of forest restoration for Parks Canada. Conversely, Parks Canada's partnership with the Mi'kmaq may strain its relationship with the province since the lands surrounding the park belong to the

provincial government, which severely limits moose hunting in a large protected wilderness area north of CBHNP.

Tensions may emerge between departments due to their differing mandates. In Nova Scotia, the Department of Natural Resources, which is responsible for wildlife and forest, encourages moose reductions through hunting licenses, while the Department of Environment, which is responsible for protected areas, discourages it implicitly through a ban on motorised vehicles.

Conflicts over tenure rights

Tenure of land, forests, trees, and goods and services from the trees, directly affect FLR implementation. In New Caledonia and Canada, where there are conflicting tenure systems between traditional authorities and settlers and historical dispossessions, the problem is all the more apparent.

Territorial disputes exist between indigenous Kanaks and settlers in New Caledonia, "*We have mapped each tribe (…) The zones that overlap are the zones of confrontation*" (interviewee NC1). Today, forest clearance continues to be used and "*fire is a tool for protests; contested lands are burnt*" (interviewee NC1). Also, recent land reform in New Caledonia has led to the fragmentation of private property, leading to much smaller individual plots, further fragmenting the dry forests.

Tenure in the wider landscape impacts restoration activity, as found in Canada, where the non-Indigenous communities neighbouring the park felt excluded from moose harvesting opportunities. This lack of broader engagement generated opposition: "*More early and repeated local community engagement may have reduced tensions and objection to the project*" (interviewee CA3).

Stakeholder power dynamics

Power dynamics affected the restoration process in all three case studies. In CBHNP, power relations emerged with guides and local community members often feeling powerless against government departments which prioritised Indigenous partners for the moose reduction. Tensions remain between communities, guides, the federation of anglers and hunters and the Nova Scotia government on overall moose management and between the Mi'kmaq, and communities and hunting interests. These are all essentially centred on the economic value of moose, although there are also tensions related to the perceived alteration of an ecosystem that is valued.

More broadly, the project in CBHNP has exposed long-held grievances. There are no Mi'kmaq communities proximal to the park and so some local residents, including those whose properties were expropriated during the park's establishment, perceive this project as inviting people from outside their community to take their historically held resources. In response, Chief Rod Googoo (2015) wrote: "*For decades, Mi'kmaq were denied access to traditional resources while others exploited them; Mi'kmaq were forcibly removed from our traditional lands next to these resources and moved to reserves.*"

In Ghana, elite capture and a lack of accountability for decisions within the CREMA Executive Committee have caused tensions (Baruah, 2017). Furthermore, the way the ASP CREMA was initially founded, beginning with the top level Executive Committee, rather than with the local inter-village-level Community Resource Management Committees (CRMCs), was problematic. Without CRMCs being part of the CREMA's initial design, the institution was not inclusive of the communities which in theory formed part of the CREMA. As noted by one interviewee, "*The building blocks of any good CREMA are the CRMCs*" (interviewee GH2).

In New Caledonia, although different stakeholders are represented on the CEN, the public sector partners have a stronger voice. In the same case study, whilst the scientific partners were initially part of the ten-member consortium, they were sidelined to an advisory role when the CEN was established as it was felt that too much effort had focused on research rather than implementation in the first phases of the project; this remains a bone of contention between the different partners in the programme.

Governance solutions

Supportive policies and frameworks

Policies may provide a supportive environment for engaging in restoration and may generate specific incentives and resources for FLR. In Ghana, four political frameworks support FLR implementation: the 1986 national agroforestry policy, the government's commitment to the Bonn Challenge, the REDD+ strategy, and the National Biodiversity Strategy and Action Plan which focuses notably both on restoration and on the role of CREMAs in biodiversity conservation. In New Caledonia, the French State provides funding via a multi-year budget provided by France which includes long-term core funding for the dry forest programme (Mansourian & Vallauri, 2014). Commitments for reconciliation between the Canadian Government and

Cocoa farmers in the CREMA catchment, such as this one, have agreed to restoration activities on their farms © G. Walters

Indigenous People provided support for Indigenous partnerships for the *Bring Back the Boreal* project.

Clarifying tenure

Clarifying and addressing tenure issues has helped to advance restoration. For example, following conflict between the indigenous Kanaks and the settlers, land redistribution is being implemented in New Caledonia as a governance solution. Tenure systems influence restoration implementation, as different restoration strategies are required for private, public and customary lands. With about half of the dry forests on private lands, the engagement of landowners is negotiated individually. *"We have to work delicately with individual landowners since if it annoys them, they can burn everything"* (interviewee NC2).

In Ghana, a tree tenure policy was promoted to incentivise farmers to engage in FLR. According to one interviewee (GH3), *"The fear before then was that if they [farmers] planted the trees, the government would take them (…) there was an initiative by the Forest Services Division to register planted trees off reserves on cocoa farms but farmers did not have copies of the registration forms. IUCN subsequently held discussions with the district Forestry authorities and made copies of the (…) tree registration certificates for the farmers (…) Following that exercise, farmers felt more convinced that the planted trees were theirs and felt motivated to plant trees in their cocoa and food crop farms"* (interviewee GH1).

Convening structures

Institutions that help bring stakeholders together to achieve restoration present an important governance

solution. For example, in New Caledonia, the creation in 2011 of the national level CEN (made up of both public sector and civil society entities) has provided a means of unifying actions across provincial scales and bringing both public and private actors under the same umbrella. Decisions are taken collectively by the representative board, although as noted by an interviewee (NC3), ultimately public entities carry more weight because of the funding they bring and their political responsibility to manage natural heritage.

In Ghana, CREMAs are an important 'participatory model' encouraging local communities to engage in forest conservation and management. They bring together stakeholders from the national (Forestry Commission) and district levels (District Assembly) with international and local NGOs, allowing vertical linkages across levels. Furthermore, they promote exchanges between CREMA members and the private sector (e.g. timber companies). Increased participation of women in the ASP CREMA has led to their empowerment and more generally, the ASP CREMA is enabling women and men to question accountability of elders, chiefs or educated elites despite the cultural norms of not doing so.

Benefit sharing and compensation

Financial compensation can be an important tool to redress imbalances between winners and losers in FLR. To date, no direct financial compensation has been applied although there are discussions in New Caledonia to adopt the French policy that reflects the mitigation hierarchy of "avoidance, minimisation and compensation". In Ghana, the reluctance of

communities to join the CREMA was partly attributed to the fact that returns from restoring trees are uncertain and not immediate. Identifying benefits and explicitly incorporating them in the restoration process also provides added incentives to engage in FLR. For example, in Canada, moose harvesting reduced pressure on the forest whilst providing the Mi'kmaq with access to a culturally significant resource.

Cultural incentives

Culture may serve to promote restoration. For example, in New Caledonia, traditionally, the Kanak culture has strong ties with land and forests: "*humans define themselves according to their land*" (interviewee NC1). The forest is associated with natural medicines, although such traditions are being lost among the younger generation and some forest sites are considered sacred where people can only enter for particular ceremonies (Noullet, 2007). In Nova Scotia, moose harvesting is a sacred, cultural event for Mi'kmaq whose traditions state that the people promised the moose that they would hunt it with love, treat it with respect, share it with those in need and harvest all of its parts. As highlighted by an interviewee (CA2), the Mi'kmaq were motivated to take part in CBHNP's forest restoration

project out of: 1) concern for the declining state of the forests, 2) a desire to become co-jurisdictional partners in managing resources, and 3) concern for their livelihoods related to moose hunting and tourism. More generally, Parks Canada recognises the linkages between ecological integrity and human activities, and Indigenous People are partners in most of Parks Canada's hyper-abundant wildlife management projects (Parks Canada, 2017). In Ghana, CREMAs are typically built on cultural norms (Asare et al., 2013). However, if customary authorities and the communities they govern are not properly involved, it can result in disengagement from the CREMA development process (Gilli, 2018).

Utility of the framework

Restoration of protected area landscapes can be critical for improving human wellbeing and conserving biodiversity (Keenleyside et al., 2012). Furthermore, restoring across wider landscapes, between protected areas to improve connectivity (Worboys et al., 2010) is an increasing focus of large-scale restoration initiatives (Holl, 2017). However, restoration of these landscapes is complex and involves multiple stakeholder groups, "requiring interdisciplinary collaboration to identify solutions" (Wilson & Cagalanan, 2016:14). The

Table 2. Governance problems and solutions for forest landscape restoration

Governance problems for FLR	Example
Overlapping jurisdictions	In Canada and New Caledonia, indigenous territories overlap with provincial boundaries.
Inter-institutional relationships	Differing access rules between the Department of Natural Resources and the Department of Environment in Canada.
Conflicts over tenure rights	In New Caledonia, fire is used as a form of protest because of contested tenure.
Stakeholder power dynamics	In Ghana, the top-down creation of the CREMA encouraged elite capture and a lack of accountability.
Governance solutions for FLR	**Example**
Supportive national-level policies and frameworks	In Ghana, government commitments to the Bonn Challenge on FLR provided a favourable context for local restoration actions.
Clarifying tenure	Certificates for tree tenure in Ghana incentivised farmers to participate in restoration.
Convening structures	Establishing a multi-stakeholder platform in New Caledonia (CEN) to institutionalise FLR.
Benefit sharing and compensation	In Canada, moose harvesting reduced pressure on the forest whilst providing the Mi'kmaq access to a culturally significant resource.
Cultural incentives	Strong ties with land and forests and other natural resources for Indigenous Peoples in both Canada and New Caledonia promote restoration.

framework we applied helps practitioners in protected area landscapes to reflect on several issues central to restoration including engaging with stakeholders, considering scale within FLR initiatives and understanding how the restoration context influences outcomes. Thus, it helps to identify solutions to restoration governance issues in their projects.

We found (as did our interviewees) that the framework was generally valuable in identifying both governance problems and solutions for FLR (Table 2), and restoration more generally, in all three projects. The process of reflecting on the framework's three dimensions brought out some issues that interviewees had not previously considered important. For example, in Ghana, interviewees realised that the creation of the Community Resource Management Committees (as advocated by the CREMA model, but not actually implemented in the ASP CREMA), might support better restoration and governance as opposed to the top-down management of the past. In Canada, the issue of categorisation and engagement of stakeholders at different scales surfaced during the interviews. In New Caledonia, the influence of private landowners and Kanak populations, as well as that of different spatial scales became apparent in interviews.

While the contextualising dimension of the framework was quite open-ended, it proved challenging to limit the breadth of the research. On the one hand, some specific issues were not addressed directly by the questionnaire (e.g. culture) but on the other hand during the discussion with interviewees, many of these issues did emerge.

The 'rescaling' component of the methodology was particularly useful given the scale of the projects concerned. Frequently, project implementers focus on the scale at which they are working, such as a particular protected area, without considering how the project interacts with other scales, especially on policy implementation and influencing. Through our interviews and by probing the issue of scale, the interviewees made linkages across spatial scales that they had not initially considered. For example, in New Caledonia, piecing together the site-level restoration work with the ecoregion-level plans, the provinces' policies, priorities in customary areas, communal land use plans and the influences of global nickel markets, began to provide a comprehensive picture of the governance challenges facing the dry forest restoration programme. In Ghana, the CREMA, although desiring to work at a landscape scale, did not have extensive collaboration with the managers of the forest reserve nearby.

The framework is designed specifically to avoid normative judgements on governance. As such, issues of accountability, transparency, representation, etc. were purposefully not explicit in any of the questions. Some of these issues did emerge in the interviews however, as there is a strong association in many people's minds between governance more broadly and 'good governance'.

DISCUSSION
Comparison and analysis of case studies
Contextualising

Historical, cultural, economic, political, social and ecological contexts all play important roles in translating FLR objectives into practice (Reinecke & Blum, 2018). Associating context and stakeholders serves to understand motivations and determine effective, locally-relevant, engagement strategies (Ostrom, 2007). The relationship between context and stakeholders will determine the feasibility of FLR and can transform governance from being a problem to being a solution; for example, transforming a restoration project within a protected area by scaling it up to the landscape enables the active engagement of more stakeholders. As an FLR project changes over time, the landscape and stakeholders also evolve, necessitating re-assessments (Mansourian, 2016).

In our case studies, 'contextualising' brought together political, historical, economic, social and cultural factors that influence stakeholders' relationships to the

Tree nursery in New Caledonia © CEN

restoration process. Economic aspects form part of the context (Holl, 2017). Much of the conflict in Nova Scotia could be traced back to the economic implications of harvesting moose. In Ghana, economic incentives to participate in the CREMA were important given the local development challenges faced by farmers and their families.

Tenure and property rights emerged as an important theme in all three case studies. In Ghana it concerned the rights to trees, in New Caledonia, the rights to land and in Canada the rights to moose and natural resources more generally. Tenure and property rights shape engagement in or opposition to the restoration process.

All three case studies are situated in countries where settlers and Indigenous populations are still seeking to establish acceptable modes of governance. Conflict – open or latent – between different communities, plays out in the practice of restoration. For example, in New Caledonia forests continue to be set on fire as a means of protest.

The evolution of the projects is particularly interesting. In New Caledonia, the more formal establishment of a multi-stakeholder body (the CEN) provided a legal status and financial security for the dry forest restoration programme which for 10 years had operated as an 'informal', yet powerful, multi-stakeholder partnership. Both New Caledonia and Ghana highlight new institutions (the CEN and the CREMAs respectively) to promote restoration. In Canada on the other hand, the project worked exclusively with and through existing institutions. Given that the project in Canada is the newest, this could evolve in the future.

Mapping stakeholders

Understanding stakeholders, their needs and perspectives, and engaging them accordingly, helps to secure sustainability (Reed et al., 2009). Overly simple analyses of stakeholders and superficial stakeholder engagement have been criticised for missing key relationships among stakeholders and stakeholder relationships to the project (e.g. Cooke & Kothari, 2001) and power is commonly missing from institutional analyses (Kashwan et al., 2018). The framework and methodology used here are intended to give insights into how stakeholders may be identified and their relationships 'mapped', and how the project has engaged with them. Stakeholder involvement and power may also evolve over time.

Engaging stakeholders forms a best practice visible in restoration and conservation literatures (e.g.

Keenleyside et al., 2012; McDonald et al., 2016; Sterling et al., 2017). The diversity of potential stakeholders can be seen in all case studies. Furthermore, when exploring the influence of different scales even more stakeholder groups emerge. Interestingly, volunteers played a prominent role in New Caledonia and Canada in the planting operations, but did not appear as a major stakeholder group.

Terminology and in particular the classification of different groups as 'stakeholders' proved problematic. In Canada in particular, clear distinctions between 'stakeholders' and 'interested parties' proved possibly too divisive as highlighted by one interviewee (CA3).

One emerging lesson is that grouping 'stakeholders' under broad categories (e.g. Indigenous/non-Indigenous in Canada and New Caledonia) is not always helpful and "*it's easy to get stuck in categories and silos*" (interviewee CA2). Kowasch (2014), for instance, shows how Kanaks in one tribe in the North Province value some areas for their sacredness, while another tribe (also in the North) feels no attachment to ancient sacred sites. Working with private landowners over the last 15 years, the New Caledonia Dry Forest Programme also had to negotiate individual deals with different landowners. More generally, individual differences and motivations can significantly affect the relationship to a restoration programme (similarly to integrated conservation and development projects, see Blom et al., 2010); broad categorisations may hide individual preferences and preclude better stakeholder engagement.

Understanding stakeholder motivations is central to reaching a satisfactory negotiated outcome (Allendorf et al., 2013). In Canada, reducing moose populations for ecological integrity and asserting the right to harvest moose are related actions but with different underlying motivations.

Re-scaling

There are multiple geographic and jurisdictional scales that interact and create complexity for governance in FLR (e.g. Newig et al., 2016). The protected area landscape under restoration rarely coincides with an administrative unit; also, multiple jurisdictional scales impact on the landscape, both at smaller and larger scales (Cash et al., 2006; Görg, 2007; Ekroos et al., 2017). Re-scaling refers in this case to the observation and tracking of influences from different scales, be they formal (e.g. a Ministry, policies or formal partnerships) or informal (e.g. informal partnerships or traditional forest use and rights systems). Re-scaling can be particularly important ensuring connectivity across

Planting trees in the dry forest, New Caledonia © CEN

several protected areas, in broader, often agricultural landscapes (Chassot & Monge-Arias, 2012).

Understanding the influence of and interconnections between different spatial scales on the landscape helps to broaden implementation choices (Cash et al., 2006). Influences from other scales were teased out through our analysis. For example, in New Caledonia, restoration planning and objective-setting is focused at the scale of the dry forest ecoregion. In contrast, individual private landowners need to operationalise restoration, customary authorities need to be on board, communes can help to integrate restoration in their plans, CEN partners have a say, and the role of the French state in funding restoration actions in the long term is critical.

The influence of the national scale is also apparent in all three case studies. In Canada, federal elections as well as wider negotiations between First Nations' groups and the Government of Canada influenced the project; in New Caledonia, funding from the French government is critical to maintain the dry forest programme, and in Ghana, commitments by the government to restore 2 million ha of forests provide a national framework for the CREMA's restoration work, while also potentially addressing landscape connectivity with nearby protected areas.

In the case of Ghana, operationalising national policies and laws at a local level was often difficult. Although there are legal provisions for supporting the establishment of CREMAs, their creation takes time and funding. However, in creating the CREMA, members obtain increased recognition by the state and other actors, and can increase their participation in national initiatives such as national restoration efforts. In New Caledonia, the dry forest programme, and later the CEN, mobilised partners so that they could scale up their efforts and act as a cohesive group vis-à-vis other political actors, notably the private sector or the French State.

Overall, our analysis also revealed that governance problems that emerged were not mirrored by governance solutions. This is not surprising as this assessment also brought out the fact that there remains limited effort on systematically tackling governance challenges in large-scale restoration projects. Follow-up work to apply such a framework could ensure that governance solutions can be identified for all highlighted problems.

CONCLUSIONS

Governance is a complex process that interacts with another complex process, that of restoring forested landscapes. Finding tools to simplify the analysis of these governance challenges and to negotiate governance solutions can help to advance FLR implementation.

The use of the framework and related questionnaire helped us to extract four categories of governance

challenges: overlapping jurisdictions, inter-institutional relationships, conflict over tenure rights, and stakeholder power dynamics. It also revealed five categories of governance solutions: supportive national-level policies and frameworks, clarifying tenure, convening structures, benefit sharing and compensation, and cultural incentives. These are by no means exhaustive, and may be different in other contexts.

We found some overlap between the three areas of investigation. For example, contextualisation may overlap with mapping stakeholders and identifying distant stakeholders may overlap with re-scaling. Dividing the three core components into sub-categories could facilitate data collection. In particular, we would suggest that the contextualisation section requires sub-categorisation according to cultural, ecological, economic, social and political factors.

The addition of background studies from the restoration sites related to some of the questions also proved useful for filling in some information gaps and understanding the interviewees' results. Future use of the framework should include this project site literature review.

It is clear that this framework fills an important gap of existing FLR tools which help practitioners to identify and resolve governance issues in their restoration projects and in protected area landscapes. However, since our research covered just three projects, we recommend further testing the proposed tool in order to validate its use and to increase the knowledge base on governance and large-scale forest restoration. While in this application of the framework, projects were already underway, it would be useful to test the framework in other conditions such as in a pre-project situation (to define interventions) and in ongoing monitoring of projects.

ENDNOTES

[1] Defined by Worldwide Fund for Nature and International Union for Conservation of Nature as "a planned process that aims to regain ecological integrity and enhance human wellbeing in deforested or degraded landscapes" (WWF and IUCN, 2000).

[2] In Canada, Indigenous People are considered partners, rather than stakeholders, because they have constitutionally protected rights and expect to interact with federal, provincial and territorial governments on a Nation-to-Nation basis.

[3] Interviewees are referenced according to the case study (NC = New Caledonia, GH = Ghana and CA = Canada);

interviews in New Caledonia were conducted in French, excerpts here have been translated.

ABOUT THE AUTHORS
Stephanie Mansourian is an environmental consultant. She is also a research associate with Geneva University (Switzerland) where she did her PhD specifically on governance challenges related to forest landscape restoration. Her work in the last 20 years has spanned several environmental topics, including restoration, air pollution, environmental governance, protected areas, among others. She is a member of the Society for Ecological Restoration and is on the IUFRO Task Force on Forest Adaptation and Restoration under Global Change.

Gretchen Walters, at the time of writing this article worked for the International Union for Conservation of Nature's Global Forest and Climate Change Program. She is an anthropologist and ecologist, whose work over more than 20 years, has focused on biological and social aspects of natural resource use and governance in Sub-Saharan Africa, often in protected area landscapes and in the context of implementing conservation projects and changing cultural and historical contexts. She is now an Assistant Professor of Conservation and Development Practice at the University of Lausanne, Switzerland. She is a member of the IUCN World Commission on Protected Areas, amongst others.

Emily Gonzales is an Ecological Restoration Specialist with Parks Canada. Her current responsibilities include strategic conservation planning, policy development for the management of hyperabundant wildlife, and restoration with Indigenous partners. Her PhD explored the ecological processes that facilitate species invasions and the role of herbivores in shaping plant communities. She teaches in the Restoration of Natural Systems program at the University of Victoria (Canada) and is the Chair of the Science and Policy Committee for the Society for Ecological Restoration.

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RESUMEN

Los desafíos que plantea la gobernanza -incluidos la propiedad, la toma de decisiones, la rendición de cuentas, y la distribución de los costos y beneficios- pueden impedir la restauración del paisaje forestal en los paisajes de áreas protegidas. La comprensión y el abordaje de estos desafíos pueden mejorar los resultados de restauración del paisaje forestal. Pusimos a prueba la utilidad de aplicar un marco existente centrado en tres acciones para comprender la gobernanza –realización de un mapeo de las partes interesadas, contextualización y reclasificación. El marco fue aplicado a las iniciativas de restauración a gran escala en los bosques secos de Nueva Caledonia, en Cape Breton Highlands National Park en Canadá, y en un Área de Gestión de Recursos de la Comunidad en la región occidental de Ghana, para identificar desafios y soluciones de gobernanza relacionados con la restauracion de paisajes forestales en diferentes contextos. La aplicación del marco reveló cuatro tipos de desafíos relacionados con la gobernanza: superposición de jurisdicciones, relaciones interinstitucionales, conflictos sobre derechos de tenencia y dinámicas de poder de las partes interesadas, y cinco tipos de soluciones a los desafíos que plantea la gobernanza: políticas de apoyo a nivel nacional, aclaración de los derechos a la tenencia, estructuras de convocatoria, compensación y distribución de los beneficios, e incentivos culturales. En general, encontramos que el marco ayudó a los entrevistados a conceptualizar los desafíos relacionados con la gobernanza y las formas de abordarlos.

RÉSUMÉ

Les problèmes de gouvernance - y compris l'appropriation, la prise de décision, le cadre de responsabilisation et le partage des coûts et des bénéfices - peuvent faire obstacle à la restauration des paysages forestiers dans les aires protégées. Il est donc important de comprendre et de relever ces défis afin d'améliorer les résultats de la restauration des paysages forestiers. Nous avons voulu vérifier l'utilité d'un cadre existant qui vise trois actions pour mieux comprendre la gouvernance: identifier les parties prenantes, contextualiser et redimensionner. Ce cadre a été appliqué aux initiatives de restauration à grande échelle dans la forêt sèche de Nouvelle-Calédonie, dans le parc national des Hautes-Terres-du-Cap-Breton au Canada et dans une zone de gestion des ressources communautaires dans la région occidentale du Ghana, pour examiner les problèmes de gouvernance et les solutions en matière de restauration de paysages forestiers dans divers contextes. La mise en oeuvre de ce cadre a révélé quatre problèmes notables de gouvernance: des juridictions qui se chevauchent, des relations interinstitutionnelles, des conflits de régimes fonciers et de droits de propriété, et la dynamique liée au pouvoir des parties prenantes; ainsi que cinq solutions de gouvernance: des politiques de soutien au niveau national, la clarification du régime foncier, des structures de consultation, des mesures d'indemnisation et de partage des avantages, et des incitations culturelles. Dans l'ensemble, nous avons constaté que ce cadre a aidé les personnes interrogées à conceptualiser les problèmes de gouvernance et à identifier les moyens de les résoudre.