

Crown and Carbon:



Determining an Effective Policy Model for the Sale and Management of Carbon Credits from MCFC Lands

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EXECUTIVE SUMMARY

With the upcoming renewal of Medway Community Forest Co-operative's licensing agreement with the Nova Scotia Department of Natural Resources, a proposal is being made for the establishment of a carbon offset program based on Improved Forest Management strategies. While similar programs have been successful elsewhere in the country, most notably in British Columbia, the necessary legal framework does not yet exist in Nova Scotia. By performing an inter-provincial jurisdictional scan, opportunities and threats concerning the implementation of such a program have been compared to the Nova Scotian context. The results of this study indicate that there is room in the legislation for the implementation of a carbon offset program, especially considering the commitments made by the government to emphasize sustainable prosperity and economic growth in the Environmental Goals and Sustainable Prosperity Act in 2007; however, it is less clear whether current ministers will approve of, and advocate for such changes. Yet, with forest practices currently under review in NS, and the imminent implementation of a federally-required Cap-and-Trade System, the time is ripe for innovative solutions to environmental problems. A carbon offset program dedicated to bringing environmental and economic benefits to rural Nova Scotian communities presents the opportunity to create real change for the province.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	3
EXECUTIVE SUMMARY	4
TABLE OF CONTENT	5
ABBREVIATIONS	7
1. INTRODUCTION	8
2. METHODOLOGY	10
2.1 JURISDICTIONAL REVIEW	11
2.2 CAPACITY GAP ANALYSIS	12
2.3 POLICY RECOMMENDATIONS	13
3. JURISDICTIONAL REVIEW	15
3.1 British Columbia Case Study	15
Introduction & Background	15
Legislative Framework for the Establishment of Carbon Offset Projects in BC.....	16
Legislative Framework for Forest Carbon Offset Projects in BC.....	17
Community Forests & Indigenous Communities	19
Application to MCFC	20
Key Take-Aways:	20
3.2 Other Canadian Case Studies	21
A. Alberta	21
B. Quebec	24
C. Atlantic Provinces.....	25
Key Take-Aways:	26
3.3 International Case Studies	27
A. California	27
B. Australia	28
C. New Zealand	30
D. Bolivia	31
Key Take-Aways:	33
3.4 Synthesis	33
4. CAPACTIY GAP ANALYSIS	35
4.1 The Present: Nova Scotia Opportunities	35
Legislation	35
Policy and Government Reports	39
Legislation and Indigenous Peoples of Nova Scotia.....	41
Key Take-Aways:	45
4.2 Present: Limitations	45
Carbon offset programs on Crown land.....	46
Offset Ownership	47
Permanence	48
Leakage	50

Baselines, Additionality and Verification	51
Participation in offset markets.....	52
Key Take-Aways:	54
4.4. The Future: MCFC	54
Establishment of a Legislative Toolbox	55
Establishment of Supportive Partnerships	56
Establishing the Marketability of Carbon	61
Key Take-Aways:	61
4.5 External Considerations	62
5. RECOMMENDATIONS	65
5.1 How do we get there?	65
A. Legal	66
B. Socio-Political	69
C. Financial	71
6. CONCLUSION	74
REFERENCES:	76
LEGAL CITATIONS:	84
APPENDIX A: Glossary of Key Terms	86
APPENDIX B: Key Search Terms for Literature Review	86
APPENDIX C: Other Jurisdictions	87
Saskatchewan.....	87
Manitoba.....	87
APPENDIX D: PESTEL Analysis	89
Executive Summary.....	89
Political Forces	89
Economic Forces	92
Social Forces.....	95
Technological Forces.....	98
Environmental Forces	100
Legal Forces.....	103
PESTE(L) Synthesis.....	106
REFERENCES:	107

ABBREVIATIONS

AB	Alberta
ACB	Abatement Certificate Provider
AEP	Alberta Environment and Parks
ABSA	Atmospheric Benefit Sharing Agreement (BC)
BC	British Columbia
CAR	Climate Action Reserve
CCAP	Climate Change Action Plan
CFA	Community Forest Agreement
CGA	Capacity Cap Analysis
FMA	Forest Management Agreements (AB)
FULA	Forest Utilization License Agreement
GHG	Greenhouse Gases
IFM	Improved forest management
ISO	International Organization for Standardization
JR	Jurisdictional Review
MCF	Medway Community Forest
MCFC	Medway Community Forest Cooperative
NB	New Brunswick
NKCAP	Noel Kempff Climate Action Project
NS	Nova Scotia
NSDNR	Nova Scotia Department of Natural Resources
NSE	Nova Scotia Environment
NTFP	Non-Timber Forest Products
ON	Ontario
QC	Québec
PESTEL	Political, Economic, Social, Technological, Environmental, Legal Analysis
SGER	Specified Gas Emitters Regulations (AB)
SK	Saskatchewan
WCI	Western Climate Initiative

1. INTRODUCTION

Medway Community Forest Cooperative (MCFC) is interested in developing a program for the sale of carbon credits acquired through the sustainable management of their forest lands. Currently, however, the province of Nova Scotia (NS) does not have an explicit legal framework in place to allow the sale of carbon credits from Crown land. This report was developed to explore the potential for such a program to exist.

The report begins with a jurisdictional review of legal precedents in other Canadian provinces and internationally to uncover best practices that could be adopted by the province. A variety of legal frameworks and agreements have been used to allow the sale of carbon offsets around the world. Some of these cases contain lessons that are relevant for MCFC's interest in carbon offsets.

A large portion of the review is dedicated to legislation in British Columbia (BC). The situation in BC is particularly relevant because the province has already developed an

entire legal framework for carbon storage and offsets sold from Crown land, and specifically from community forests. If the province of NS may benefit from exploring options for building a similar legislative framework, this will allow community forest management organizations like MCFC to profit from sustainable management. The review then explores policy and legislation in other jurisdictions around Canada, as well as some case studies of carbon offset projects around the world. These sections uncover several legal precedents and best practices for carbon legislation and both voluntary and regulatory offset programs.

One of the most significant lessons learned from the jurisdictional review is that most successful carbon offset programs on Crown or government-owned land require an extensive legal framework and commitment from government. For NS to adopt a carbon offset program, the government will need to develop a suite of regulations and policies that can open doors for

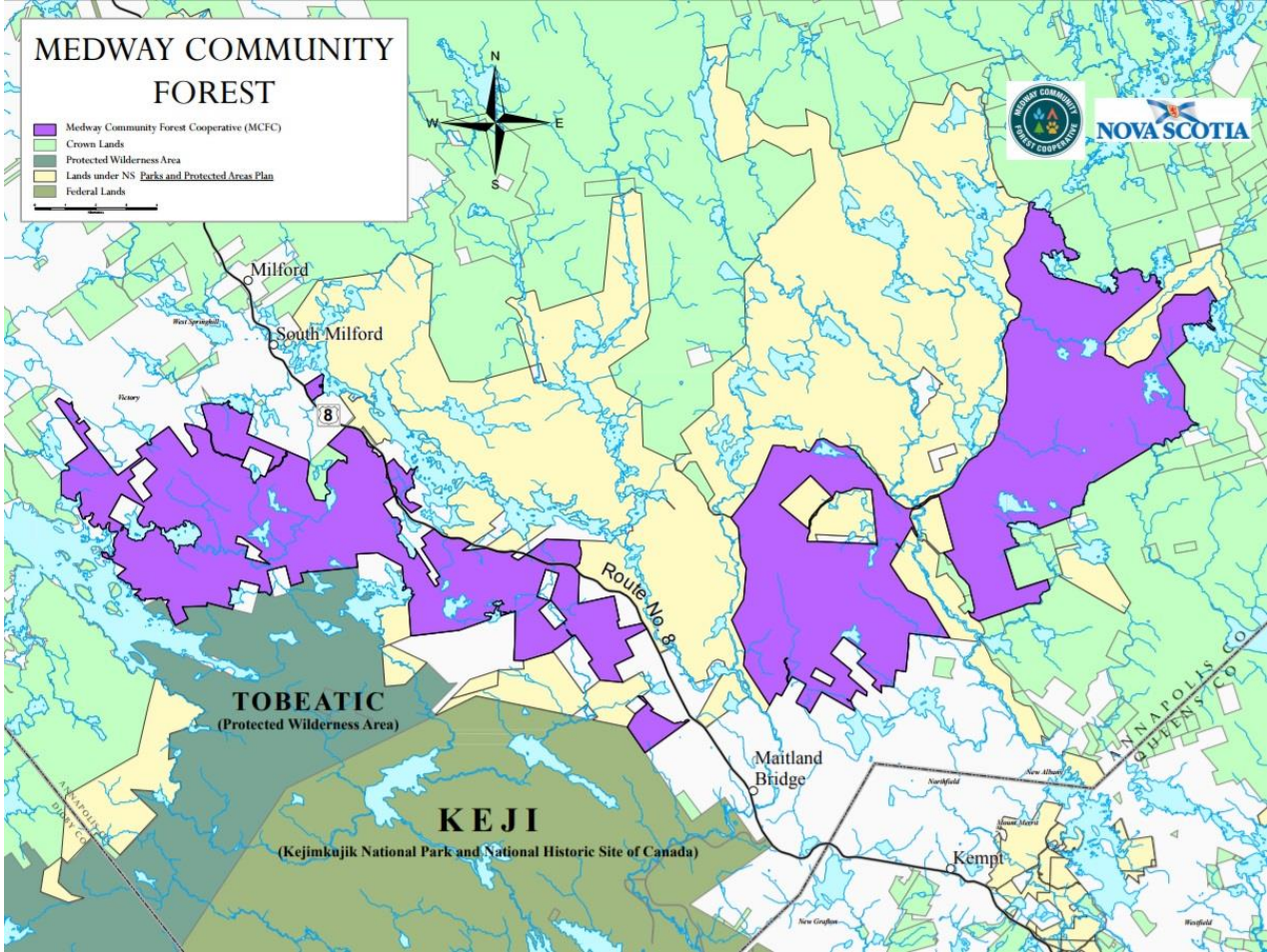
MCFC and other community forest groups to profit.

Following the jurisdictional review, the report examines the Nova Scotian legal system to determine whether the province has capacity to create the right conditions for the sale of carbon credits. This capacity gap analysis first examines the current legal system to understand whether there is potential for change, and then speculates about possibilities for the future of NS Crown land and carbon offset governance.

Based on the research, it became clear that in order for MCFC to develop a successful carbon credit program on Crown land, their plan should be built on three factors: that the program is financially feasible, that it is supported by a legal framework, and that it has the support of the local community. To that end, the report makes a series of

recommendations for MCFC, should the wish to pursue an advocacy campaign for the sale of carbon offset credits.

It should be noted that while no legislative framework currently exists in NS that would allow carbon offsets, an independent review board, chaired by Dr. William Lahey, is currently reviewing Nova Scotia Department of Natural Resources' (NSDNR) forestry practices, and will be open for stakeholder engagement and input beginning in December, 2017 (NSDNR, 2017). That review, coupled with fact that MCFC's Forest Utilization License Agreement (FULA) is currently up for renewal, creates a window of opportunity for MCFC to push for change. The intention of this report is to aid MCFC in submitting concrete recommendations for consideration both under this review process, and in negotiations over a new license agreement.



2. METHODOLOGY

The primary objective for this research project is to establish a range of recommendations for MCFC to allow for the pursuit of a carbon credit program on Crown land. In order to determine best practices, the research for this report was guided by the following questions:

1. *What key lessons can be learned from similar community-based forestry management initiatives in other jurisdictions?*
2. *How might carbon offset legislation be incorporated into the federally required Cap and Trade (C&T) system in NS?*
3. *What is MCFC's best option to create a carbon offset agreement, and what are the potential risks and opportunities involved?*

To successfully answer these research questions, the study was divided into three sections. First, a Jurisdictional Review was performed to collect case studies from other provinces. Second, the current system of legislation in NS was compared against those case studies in a Capacity Gap Analysis to determine what changes need to be made in order to implement a successful carbon credit program. Finally, based on these research outcomes recommendations were developed to determine the best course of action for MCFC. A methodology for each phase was developed to ensure research was rigorous and exhaustive.

2.1 JURISDICTIONAL REVIEW

The Jurisdictional Review was designed to find legislative frameworks in other jurisdictions, both in Canada and internationally, that may provide guidance for developing a similar legal structure in NS. To find applicable examples it was determined that the following criteria must be met:

- Operational carbon offset programs operating on Crown or nationally-owned land; and
- Carbon offset programs that were granted based on sustainable forest practices.

Due to its strong adherence to these criteria, and stated interest from MCFC, the current legislative framework in (BC) was a primary focus of research. Additionally, due to the similar legislative structures between provinces across Canada, it was determined that these would have the most value for developing a system for NS. Canadian territories were not examined due to difference in legal structure, and shared rights-based governance that does not apply to NS. Therefore, an extensive investigation into existing carbon offset programs throughout the provinces was completed. To better understand environmental law and emissions regulations in Canada, research was guided by the Canadian legal reference book *Law of Climate Change in Canada* edited by Dennis Mahony (Mahony, 2017).

Although it is recognized that international frameworks for carbon offsetting are unlikely to be easily translated into the Canadian context, a few out-of-country examples of carbon offsetting were also explored to provide some insight into what other places may be doing better. This review included California, New Zealand, Australia, and Bolivia as the best-practice examples. However, because there is no straightforward correspondence between the history and structure of these international legal systems and NS, these examples were more program-based than legislatively focused.

To search Canada-wide and beyond, it was necessary to develop a list of key search terms, based on the two essential criteria listed above. Similar to the provincial review, a short list of key terms was developed to limit the scope of research in the international context. Both lists can be seen in **Appendix B**. Results were reviewed and the most applicable case studies were profiled to find best practices for forest management and the implementation of carbon offset projects.

2.2 CAPACITY GAP ANALYSIS

The purpose of the Capacity Gap Analysis was threefold. First, it was necessary for the analysis to determine the current operational legislative framework in NS regarding carbon offsets. As noted above, relevant legislation was found by consulting *Law of Climate Change in Canada* (Mahony, 2017). A review of this reference book revealed

relevant environmental and emissions law and policy in NS. Relevant law regarding forest management was then found using the above mentioned key search terms. Finally, policy papers, research reports, and planning documents were reviewed to understand current operations within the NS government.

Second, the Capacity Gap Analysis compares this framework against the case studies in the Jurisdictional Review to identify any differences between them. To expose any glaring holes in the NS legislative framework for the implementation of carbon offsetting programs, the findings of the Capacity Gap Analysis were compared against the results of the preliminary findings of a PESTEL analysis. The latter was completed very early in this study to ensure that external influences on MCFC were considered. The PESTEL has been attached to this report as **Appendix D**. Finally, the analysis recognizes the limitations to, and opportunities for, creating an operational carbon offset program for MCFC in NS. This section largely relies on research completed in the Jurisdictional Review to form the basis of comparison. This section contains initial recommendations based on general practice and perceived similarities.

2.3 POLICY RECOMMENDATIONS

The initial recommendations generated by the Capacity Gap Analysis provided the foundation for the finalized recommendations found at the end of this report. The gaps and limitations uncovered through the Capacity Gap Analysis were further enriched by understanding the context in MCFC's specific case, as described in the PESTEL analysis. Recommendations were then organized and summarized to maximize convenience for the partner organization.



3. JURISDICTIONAL REVIEW

The jurisdictional review outlines existing carbon offset initiatives, both in Canada and internationally. This review was designed to uncover best practices for the creation of a legal framework, as well as best practices for management to ensure the long-term stability and success of such a program.

3.1 British Columbia Case Study

Research shows that BC provides the most comprehensive legal framework for the establishment of carbon offset projects on Crown land. As a result, it is especially emphasized in this report.

Introduction & Background

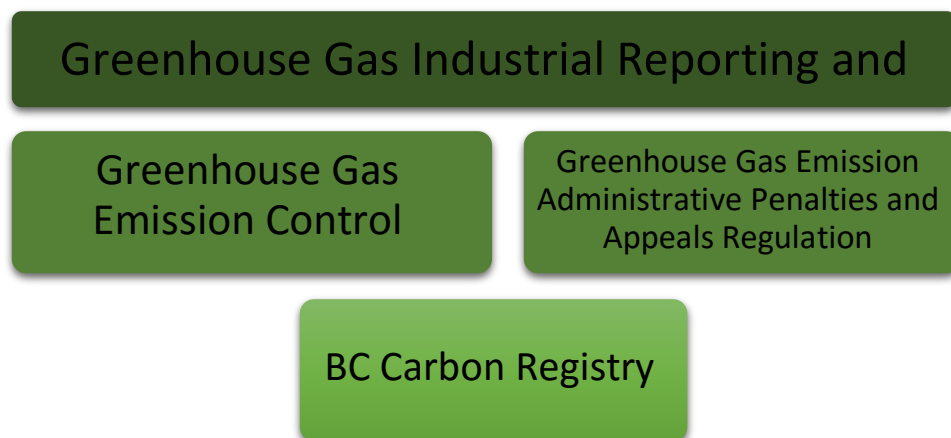
In 2007, the province of BC passed the *Greenhouse Gas Reduction Targets Act* (S.B.C. 2007 c. 42, s.2) which set the goal of reducing provincial greenhouse gas (GHG) emissions to 80% below 2007 levels by 2050, with an initial reduction of 6% below 2007 levels by 2012. This legislation also committed the public sector to the achievement and maintenance of carbon neutrality by 2010 through the authority of the *Carbon Neutral Government Regulation* (BC Reg. 392/2008). Although reduced emissions contributed to the government's success in this endeavor, the transition was largely made possible by investment in carbon credits provided by forest offset projects (Peterson St-Laurent, Hagerman, & Hoberg, 2017a). With 60 million hectares (ha) of forested land supplying storage for up to 70 billion tonnes (t) of carbon (Peterson St-Laurent & Hoberg, 2016), BC's forests present a significant opportunity for GHG mitigation. However, this magnitude of carbon sequestration is only possible via improved management practices as compared to the "business-as-usual" industrial forestry paradigm. In response, the last two decades in BC have undergone significant legislative innovation and a growth in the community forest sector (Ministry of Forestry, Lands, and Operations, 2015).

Legislative Framework for the Establishment of Carbon Offset Projects in BC

In recent years, the development of offset projects in BC has been under review (Peterson St-Laurent et al., 2017a). Originally, the *Emission Offsets Regulation* (BC Reg 393/2008), pursuant to the *Greenhouse Gas Reduction Targets Act* (S.B.C. 2007 c. 42, s.2), governed the validation and verification process for carbon offset initiatives (Mahony, 2017). Additionally, any projects under consideration were required to register with the Crown carbon offset agency, Pacific Carbon Trust (Mahony, 2017). In 2013, however, the Pacific Carbon Trust transitioned into the Climate Action Secretariat of the Ministry of the Environment to reduce government spending (Moore, 2013). Likewise, in 2015, the *Greenhouse Gas Industrial Reporting and Control Act* (SBC 2014, c 29) was passed, enforcing the *Greenhouse Gas Emission Control Regulation* (BC Reg 250/2015), *Greenhouse Gas Emission Administrative Penalties and Appeals Regulation* (BC Reg. 248/2015), and the creation of the BC Carbon Registry (the Registry), thus dissolving the previous legislative process (Lee-Anderson, 2016).

This legislative overhaul, as illustrated by Figure 1, was an attempt to streamline and further legitimize the development of carbon storage projects through the establishment of a single legal framework. However, while the framework adheres to the needs of industrial operations, most notably liquid and natural gas development, it does not address the requirements for a carbon-offset protocol.

Figure 1: Legislative Framework for the Establishment of Carbon Offset Projects in BC



Legislative Framework for Forest Carbon Offset Projects in BC

All forestry and land-management projects undertaken on Crown land in BC are subject to the legislative force of the *Forest Act* (RSBC 1996, c 157), the *Forest and Range Practices Act* (SBC 2002, c 69), and the *Land Act* (RSBC 1996, c.245). It was under the guidance of this legislation that the Ministry of Forestry, Lands, and Natural Resource Operations (FLNRO) developed *The Forest Carbon Emission Offset Project Development and Atmospheric Benefit Sharing Policy* (the Policy), in addition to *The Forest Carbon Offset Protocol* (FCOP) to guide the development of forest offset projects specifically. In addition to meeting the requirements of FLNRO, in order to be validated, forest carbon offset projects must also be in accordance with the requirements of the Ministry of the Environment, as are outlined in the previous section of this report.

There are two types of potential forest offset projects in BC, which can influence the protocol for their establishment: active and non-active (Government of BC, n.d.a). Active projects aim to enhance the health of the forest and increase its capacity for carbon storage through such activities as reforestation (Government of British Columbia, n.d.a). Conversely, the non-active projects are typically conservation projects which may provide ecological benefits such as carbon offsetting, but are less commonly approved than active projects (British Columbia, n.d.a). The following provides a general outline of the framework for forest carbon offset project establishment for both types of projects.

According to the Policy (FLNRO, n.d., p. 4), excepting areas where the government already recognizes aboriginal land title, and in the absence of any regulatory evidence to the contrary, the province identifies *itself* as being entitled to any atmospheric benefits Crown land might provide. Therefore, when attempting to enter into a forest offset agreement, a project proponent must first demonstrate the right to ownership that would entitle them to claim emission offsets from Crown land (i.e. the right to atmospheric benefits) and enter into an atmospheric benefit agreement with the province (FLNRO, n.d.). *Atmospheric Benefit Sharing Agreements* (ABSA), which will be discussed further in the following section of this report, may only be entered by

members of an Indigenous community. At present, there are only three forest carbon offset projects presently listed in the Registry, two of which are managed by Indigenous communities (BC Carbon Registry, 2017).

The policy does not explicitly state that only Indigenous nations can act as project proponents. Rather, it asserts that the province may “use legally established instruments (e.g. a tenure or license), to authorize a proponent to use Crown land for the purposes of undertaking a forest carbon emission offset project” (FLNRO, n.d., p. 5). That said, the only active forest carbon offset project listed in the Registry is the Quadra Island Forestland Conservation Project which was established on private land before being transferred to provincial control (Nature Bank, 2015). This casts doubt on the possibility of establishing similar projects on Crown land.

This is especially because all forestry offset projects must also adhere to industry standards for carbon storage. As mentioned above the FLNRO employs the use of FCOP, which was employed for the establishment for the Quadra project. Unfortunately, this protocol is currently under review and has not been approved by the director of the Greenhouse Gas Industrial Reporting and Control Act (FLNRO, n.d.). In addition, according to the Policy (FLNRO, n.d.), all forest carbon offset projects must:

- adhere to all legislation outlined above;
- receive approval from all appropriate Ministers (e.g. the Forestry Minister)
- demonstrate improved forest management [IFM] (i.e. ecosystem-based management);
- undergo a feasibility assessment;
- manage for **permanence** (e.g. plan for the event of unintentional reversal);
- share economic benefits with the province; and
- manage for enhanced timber supply and increased employment¹.

Due to the apparent challenges associated with establishing a forest carbon offset project on Crown land, particularly without the ability to enter into an ABSA, an effective

¹ Due to the complex nature of the legal framework associated with the establishment of forest carbon offset projects, a graphic outlining this process has been provided as an appendix to this report.

approach for small-scale forest carbon offset projects, such as community forests (CFs) may be to create partnerships with Indigenous communities.

Community Forests & Indigenous Communities

On Crown land in BC, CFs are typically granted land tenure through the *Land Act* (RSBC 1996, c.245, s. 93.4) and the *Forest Act* (RSBC 1996, c. 157, p.3, s.12.1e). Once granted, this tenure allows community forests, such as the Cheakamus Community Forest (Cheakamus), to employ community-based, sustainable forestry practices thereby enhancing the ecological integrity and social benefits provided by forested landscapes. Unlike the other fifty community forests in the province, Cheakamus was the first (and currently, only) CF to be granted an ABSA due to its close partnership with neighbouring Indigenous communities (Cheakamus, n.d.). Despite its issuance in 2015, as of October 2017, this agreement has not been added to the Registry.

In the last three decades, the BC government has endeavoured to reconcile their relationship with Indigenous communities. One such effort has been through the establishment of ABSAs. Unlike more industrialized carbon offset operations, employing forests as carbon sinks on Crown land presents an opportunity for local participation and community-based management (British Columbia, n.d.b). Thus, ABSA proponents must either be independent Indigenous communities or small organizations in partnership with these communities to establish projects on Crown land. Furthermore, approval for all such projects require consultation and accommodation with the associated Indigenous communities. It should be noted, however, that in order for an ABSA to be entered, the proponent community must first sign a Reconciliation Protocol Agreement (British Columbia, n.d.b). Once entered, all ABSAs are valid until 2025, and are subject to review every five years (British Columbia, n.d.b).

Application to MCFC

Successful applicants for ABSAs must either be independent Indigenous communities or small organizations in partnership with these communities in order to establish projects on Crown land. Furthermore, approval for all such projects require consultation and accommodation with associated Indigenous communities. Unlike Nova Scotia (NS) where 53% of forested land is under private ownership (CCFM, n.d.), 95% of BC forests are owned by the province (FLNRO, 2015). NS also has Peace and Friendship Treaties which were established with Maritime Indigenous Nations communities beginning in 1725 (Government of NS, 2017a) whereas in 1869 the BC government “unilaterally den[ied] the existence of aboriginal land title, claiming aboriginal people were too primitive to understand the concept of land ownership” (BC Treaty Commission, 2017).

Despite the relative success of the Peace and Friendship Treaties, current relations between the NS government and the Mi'kmaq people are strained. There may be an opportunity for the NS government to follow the example set by BC to grant Indigenous people agency over their traditional lands with the opportunity to economically benefit. Although the MCFC Board of Directors is structured to include a Mi'kmaq representative, that chair is currently unoccupied. The MCFC has a much greater chance of success if working in partnership with the Mi'kmaq Acadia First Nation to establish a carbon offset program.

Key Take-Aways:

The legal framework for the sale of carbon credits off Crown land that is in place in BC is a useful template for similar legal reform in Nova Scotia. In order to work, MCFC may need to form a mutually beneficial partnership with neighbouring Mi'kmaq communities.

3.2 Other Canadian Case Studies

It was found that other Canadian provinces did not have explicit frameworks for the sale of carbon offsets from forestry project on Crown land. It was therefore determined that research should be extended to examine applicable legislative tools for carbon offset programming both on public and private lands. The most relevant cases to NS were found in Alberta (AB), Quebec (QC) and elsewhere in the Atlantic provinces.

A. Alberta

The first Canadian province to implement any sort of carbon offset mechanism was AB. In 2003 the province passed the *Climate Change Emissions Management Act* (SA 2003, C-16.7) which regulated and set reduction targets relating to the release of greenhouse gases (GHGs). Under the act, the governments is allowed to ‘make regulations respecting emission offsets, credits and sink rights’ (s. 5). Under this legislation, *Specified Gas Emitters Regulations* (SGER) (AB reg. 139/2007; last amended 64/2017) applies to facilities from certain industries that emit over 100,000 t GHG per year. Within SGER, the specified industries have to achieve a yearly reduction of GHG emissions, for which different types of credits are available. For an emission offset project to qualify for accreditation, SGER s.7(1) specifies that:

Offsets must occur in AB;

- a) Reductions must be from an action taken that is not otherwise required by law (i.e. voluntary);
- b) These actions must have occurred/been implemented after Jan 1, 2002;
- c) Emission reductions must be real and demonstrable; and
- d) Emission reduction must be quantifiable and measurable, directly or by accurate estimation using replicable techniques.

In addition to this legislation, there are protocols in place that allow for different types of offset projects and provide direction on how to quantify those projects. While 20 or 30 are focused on agriculture, there are two that relate to forestry practices. The first is

currently withdrawn for technical review² (AEP, 2017), the second is called the *Direct Reductions in Greenhouse Gas Emissions Arising from Changes in Forest Harvest Practices* (Government of AB, 2011). This quantification protocol applies only to emissions emanating from changes to forest harvesting practices – in particular harvesting practices that involve “full tree harvesting with tree length hauling and chipping in a wood room at the mill to chipping using portable chipper” (Government of AB, 2011). In determining the baseline and the quantification of credits, the protocol focuses on changes to harvesting practices and transportation efficiency. This protocol applies to proponents operating on Crown land under a forest tenure or “Forest Management Agreement” (FMA).

Over the last decade, the government of AB has touted the forestry sector as a ‘provider of offset credits. These offset credits can be generated by burning wood (in the place of fossil fuels) and by changing in management practices to enhance carbon uptake. For forestry companies operating on Crown land, only those under FMAs are able to generate credits, but those credits are earned solely after the tree is harvested (Government of AB, 2010). Further “AB will cancel forestry tenures where forestry tenure holders have suspended timber harvesting solely to earn offset credits” (Government of AB, 2010). In order to generate carbon offsets in forestry projects on Crown land in AB, proponents must continue to harvest wood products. There are currently no opportunities or actions that can be taken by tenure holders associated with reforestation or conservation. That being said, protected areas that exclude timber harvesting may be created under the *Alberta Land Stewardship Act* (SA 2009, c A-26.8) by governmental actors and any proponent who has tenure on a location that is being protected may be compensated in part by offset credits. These credits are generated not by the actor themselves but are allotted to them by the government as a form of compensation. This means even though conservation is occurring, it is the government, rather than not third party actors, who are responsible for it. This differs from the Nova Scotian context as MCFC is using IFM techniques rather than conservation or

² As of October 24th, 2017

harvesting alone. As such, MCFC considers carbon pools in living biomass but may want to extend that to wood products as well.

The government of AB has been exploring the possibility of carbon offsets from conservation. A report presented to the Alberta Land Use Secretariat (Weber, 2011) looking at conservation offset options for AB. Although the report noted concerns around defining baselines and quantification, tenures issues, and the potential for strategic behavior; it recommended that the province should develop an offset credit program (either temporary or permanent) for reclamation and avoided disturbance on public and private lands. The report highlights that regulatory change is needed to create offset credit projects function on Crown land. The report highlights that in order to make offset credit projects function on Crown land, regulatory change is needed (Weber, 2011).

This reflects a larger regulatory issue in AB, namely that legislating carbon bio sequestration in stationary land-based sinks requires a distinction between property (e.g. land) ownership and personal instrument (e.g. license, permit) ownership (Lucas, 2010). According to SGER guidelines, one of the criteria for offset project eligibility is explicit ownership (Government of AB, 2008). Crown land projects are therefore not eligible under the SGER at this time. The government of AB (2008) cites concerns that permits for forestry plots are generally short-lived or temporary in nature creating liability for proponents who attempt to implement offset projects that take much longer to achieve (Weber, 2011). According to Lucas (2010), carbon sequestration over the long-term does not necessarily align with landowner interests; especially when the landowner is the government. Government cannot always foresee the value of land, and as public land dispositions allow for limited transferability of uses during a tenure (Weber, 2011) rules and/or regulations would have to be changed to allow for successful implementation of any type of long-term carbon storage.

B. Quebec

QC joined the WCI's Cap and Trade program with California in 2015. One of the strengths of QC's system is that it sets out strict conditions for what qualifies as an offset. In general, offsets are offered to actors who avoid causing emissions, or to actors who capture, store, or eliminate GHG's altogether. While other WCI members have forestry offset protocols in place, none of offset protocols in QC currently involve forestry projects. The approved projects include: the destruction of methane from agricultural practices (e.g. covered manure storage); landfill sites (CH₄ destruction), programs from coal mines, and the destruction of ozone depleting substance in old refrigeration systems (*Regulation Respecting A Cap-and-Trade System for Greenhouse Gas Emission Allowances* (Q-2, r. 46.1, Appendix D)).

While QC cannot be used as an example for carbon offsets from forestry, it still provides a potential framework for the implementation of a regulated offset accreditation and trading system in NS. It is particularly useful in the way QC has managed to deal with the issue of permanence. In order to maintain offset integrity, each project must make a deposit of 3% credits issued to the government. If the project is found to have not occurred (or has been reversed) for any reason, the credits are invalidated in accordance with the C&T regulations (sec. 70.2 and 70.21), which have been amended to the *Environmental Quality Act* (CQLR, cQ-2). Further QC has a renewal period for offset projects. Unless otherwise specified, "an offset credit project may be conducted during a continuous period of not more than ten years. At the expiry of that period, the promoter may, in accordance with this Chapter, request the renewal of the offset credit project [for the same length of time]" (Q-2, r.46.1, sec 70.3). QC is able to deal with the issue of permanence by making all projects temporary, but extendable in nature.

C. Atlantic Provinces

New Brunswick (NB) currently has no carbon offset program, though according to its 2016 Climate Change Action Plan (CCAP), it may be planning to develop one in the future (Government of NB, 2016). A key point is that rather than developing a case-by-case basis for offset projects, NB is following AB's example of developing a province-wide program focused on establishing carbon sinks. This strategy would affect land use decisions going forward, particularly in regards to forestry and agriculture. NB is considering establishing a "made-in-New Brunswick" price on carbon and caps on GHG emissions that reflects the reality of the NB economy. As part of the report, the government has committed to "explore the opportunity for participation in carbon offset markets (voluntary and regulated) as a means to capture GHG emissions and economic opportunities for New Brunswickers"; "Encourage the use of wood products in construction, including through building codes, standards and procurement policies"; and "incorporate climate change knowledge into Crown land operating plans, silvicultural planning and all forest management plans" (Government of NB, 2016). NB is on the cusp of using some sort of carbon offset credit mechanism going forward, but like NS nothing is in place yet.

In fact, based on this intention to incorporate climate change as a decision-making variable on forest management, they may arguably be ahead of Nova Scotia. The New Brunswick government's document is growing off of what landowners and land trusts have started with carbon offset projects already being carried out on private land. A New Brunswick Community Land Trust (NBCLT) report (2016) highlighted a few key aspects of implementing offset projects: new project proponents often partner with carbon project developers who have the technical expertise to assess project options and meet market requirements; while many costs are upfront, costs associated with monitoring and verification (required about every 6 years) need to be considered; some markets allow for aggregation so small landowners can pool their resources and credit in order to gain economy of scale; some proponents recommended that a substantial legal reserve be set aside in case of litigation.

Again, following the trend in developing province-wide carbon offset frameworks, Newfoundland and Labrador (NL) took the first step of potentially setting up an offset credit scheme of some sort. The *Management of Greenhouse Gas Act* (SNL 2016, c M-1.001) came into effect in 2017 and mirrors existing legislation in AB, Saskatchewan (SK), and QC wherein it works on the premise that CO₂ is a pollutant to be managed, and sets out definitions of offset credits (sec. 1(i)), and establishes how they can be earned.

A report from Viresco Solutions, Brightspot Climate & Climate Action Reserve, released March 31, 2017, explores key aspects of managing and implementing a carbon offset system in NL. It covers several issues that are discussed both in academic literature and in other provinces including: **additionality**; **leakage**; permanence; credit ownership; and aggregation. The report recommends implementing a system that conforms to the ISO 14064:2 standard to ensure proper measurement and validation of credits (Viresco Solutions, 2017). The report highlights the issue of carbon offset liability ownership of projects on Crown land. Again NL is also in the early stages of establishing some sort of carbon offset credit program but not enough mechanistic details are currently available.

Key Take-Aways:

- As seen from these examples, carbon sequestration value is put into living biomass and above-ground biomass that has been harvested. As such as the MCFC plans to continue harvests timber, they can get credits from post-harvested trees, depending on the product produced.
- Newfoundland finds itself slightly ahead of Nova Scotia in developing a carbon offset plan and provides a groundwork for what issues need to be addressed when designing any protocols including permanence and credit ownership issues.
- The examples from the provinces show that offset credits can be offered to different types of markets

3.3 International Case Studies

Many countries are engaging in efforts to use forest management techniques to limit carbon emissions and take advantage of carbon credits. It is possible to derive lessons from some of these international cases that can improve MCFC's potential program.

All of these projects share common barriers to success. One common problem is that technology has not adequately evolved to effectively measure the baseline by which to judge additionality. Moreover, the market for carbon offset credits is a clear example of having an information asymmetry. Information asymmetries are a widely used concept in politics and economics, more specifically contract theory. It exists when one party, usually the seller, has more or better information than the other party. A failure to address this problem can lead to the collapse of a deal (The New Palgrave Dictionary of Economics, 2008). This asymmetry is derived from uncertainty regarding issues of permanence and additionality that often leads to false positives. Another common factor is that there are high transactional and implementation costs associated with carbon offset initiatives (Galik et al., 2012). Due to these challenges, there are few examples of governments who have established frameworks by which forest carbon can be measured, registered and traded; however, some jurisdictions, including California, Australia, New Zealand, and Bolivia have regulatory structures in place.

A. California

The first carbon-offset program in the United States (US) was initiated in California. This case will be useful because Canada tends to follow the precedent of progressive legislation that first materializes in the US. According to California's climate policy, offsets must be "real, additional, quantifiable, permanent, verifiable, and enforceable" (International Carbon Action Partnership [ICAP] 2017). To demonstrate permanence, credited carbon reductions must endure for 100 years. To demonstrate additionally, projects must go above and beyond business as usual to sequester more carbon (ICAP, 2017).

California set up incentives for carbon sequestration through voluntary carbon management activities. They aimed to reduce the number of credits given out over time in order to reduce total carbon emissions. Three types of carbon credit projects were eligible under this program: IFM, which accounts for 84% of all projects, avoided conversion, which accounts for 6%, and reforestation at 10% of the total (Galik et al., 2012). The majority of the projects registered before 2015, after which time the government made changes to the protocol, making requirements more rigorous. In California, there is a 25-year crediting period followed by a 100-year monitoring period (ICAP, 2017). The requirements to qualify for the project were similar to other programs. Frequent checks, verifications, and reports must be completed to ensure the land is indeed sequestering additional carbon. The state has developed a consistent model for measuring the baseline for carbon sequestration, which helped make this project successful. A stringent baseline can limit a landowner's ability to misjudge the amount of additional carbon sequestered, mitigating the risk associated with the information asymmetry and permanence.

The major challenge of this program for California is that contracts take place over a very long period (100 years), and if landowners are already managing their forest in a sustainable fashion, there is little room for improvement (Galik et al. 2012). In order to address this challenge, the state chose to take a programmatic approach to the initiative, rather than a project-based approach. Thinking of the program as a whole instead of as individual projects mitigates the risk of one project not performing because there are others that can supplement it. Essentially, it is better to take a broad approach in a mitigation strategy instead of relying on one project.

B. Australia

Australia and New Zealand were two of the first countries to design and implement forest carbon mitigation schemes. Both countries designed and established carbon offset programs for forest landowners following the Kyoto Protocol in 1997, which established their emission reduction goals (Polglase et al., 2013). Australia and New

Zealand used emission levels from 1990 as their baseline for reduction targets; because a significant amount of land clearing occurred in that year the baseline for Australian landowners was low. This meant that achieving additionality was relatively easy.

In 1995, there was an amendment to Australia's *Electrical Supply Act* that required electricity retailers and some other entities to meet targets for abatement and offsetting (Australia Department of the Environment and Energy [ADEE], 2017). The act included a clause that allowed a portion of this abatement to be from carbon sinks. This amendment was key to the eventual development of forest carbon projects. The regulation stated that one had to be an Abatement Certificate Provider (ACB) in order to generate credits. These included state-owned forestry companies, along with private sector companies and NGOs.

The Australian government developed a unique approach to mitigating the risks of permanence and additionality, which required potential participants to have abatement projects and several different plots of land in order to qualify for the program (Polglase et al. 2013). This decreases permanence risks associated with reversals (e.g. from a forest fire). Similar to California, this is considered to be a programmatic approach to risk mitigation; however, unlike California, this program is mandatory. Legal arrangements are in place to ensure the program lasts for the full 25 or 100 year period. If the participants fail to comply, they must surrender certificates from other projects (ADEE, 2017). Regulations for risk mitigation around additionality undertaken by Australia involved the creation of a process called the "Australian Standard". Although, additionality can be measured using any methodology, there must a 70% probability that the net increase in carbon sequestration is greater than the number of credits allocated (ADEE, 2017). To date, Australia's regime is an effective model in that it reduces emissions without harming the environment (Dibley & Wilder, 2016).

C. New Zealand

In response to the 1997 Kyoto Protocol, New Zealand drafted the Permanent Forest Sink Initiative (PFSI). Like Australia, this initiative has emphasized issues of permanence and additionality (Dibley & Wilder, 2016). It is important to note that before adopting this policy, New Zealand was facing an economic depression. Despite the economic and political environment, New Zealand was successful in developing the initiative. The initiative was popular as citizens liked the idea of allowing landowners to profit from Kyoto protocol requirements and carbon sequestration (Dibley & Wilder, 2016). However, New Zealand and Australia have slightly different agendas. New Zealand includes its IFM reductions in its overall emissions targets while Australia does not. New Zealand's overarching goal is to de-incentivize deforestation and the emissions that result from it (Dibley & Wilder, 2016). Australia and some regions of Canada, however, are trying to ensure that forests can be used as long-term carbon sinks (Consumer NZ, 2017).

New Zealand uses a similar tactic to Australia in controlling the risks of permanence and additionality, with one significant difference: while Australia controls risk by requiring each participant to hold multiple plots of land, the New Zealand government has created a shared pool where all projects are accumulated and credits from the pool are allocated to program participants (Consumer NZ, 2017). The risk of any one project's failure is reduced by the likelihood of several other projects performing above expectation. New Zealand and Australia both consider the age of the a proposed project upon application. Newer projects are given a higher value as they diminish the potential that project proposals are not fully transparent. Meaning there is less uncertainty involved with measuring baselines. In other words the additionality of newer projects is easier to measure and therefore there is more certainty in their success so they are held to a higher standard than legacy projects (Dibley & Wilder, 2016).

D. Bolivia

Although the case of Noel Kempff Climate Action Project (NK-CAP) in Bolivia is older than the previous examples, it provides insight into challenges common to forest carbon offsetting projects. NK-CAP is a 30-year project that was developed through the UN's climate change framework (Forest Trends, 2017). This project was a partnership between several parties, including the government of Bolivia, American Electric Power and the Nature Conservancy (Forest Trends, 2017).

NK-CAP was founded on the concept that local communities should participate in and benefit from forest conservation projects (REDD+ Database, n.d.). During the first phase of the project, profits were used to support local communities by filling urgent needs, such as infrastructure for health, education and access roads (REDD+ Database, n.d.). NK-CAP also provided assistance to indigenous communities to obtain territories large enough for sustainable resource management (Brown et al, 2016). Communities were able to grow their capacities, and eventually the indigenous communities in the territory were able to unify and legally gain title over the land, allowing them to fully benefit from the project (REDD+ Database, n.d.)

One major challenge that the program originally faced, much like the other international examples, is the issue of additionality. To monitor additionality, proponents compared carbon storage in plots within both the project area and a nearby logging area through the use of remote sensing (Brown et al, 2016). The carbon-offset benefits were then calculated as the net difference between carbon pools inside and outside the project area (Brown et al, 2016). Carbon offsets were estimated by means of averted logging and conversion to agriculture, and baselines were adjusted as new forestry laws were enacted (Brown et al, 2016). To help ease the burden of additionality, the NK-CAP was able to prove that deforestation would have eventually made its way to the Noel Kempff land. They also have plans to develop wood and non-wood products (Brown et al, 2016). It should be noted, however, that NK-CAP has been heavily criticized by environmentalists, being referred to as a "greenwash nightmare" for its inability to deal

with leakage issues (Pearce, 2010). Clearly, the project has a long way to go before it could be considered a good model for MCFC.

While these activities reduce the risk of additionality and permanence, the NK-CAP still faces challenges with leakage, baselines, carbon inventorying, monitoring and verification. Project funds were used to compensate logging companies for giving up logging rights, which were subsequently retired (Brown et al, 2016). This reduced the possibility of leakage, and also proved that such an initiative can be more profitable than logging (Brown et al, 2016). The NK-CAP also took many other steps to minimize leakage. For example, logging equipment was purchased from companies with previous rights to the land to ensure harvesting would stop. In order to monitor and evaluate leakage, the NK-CAP tracks local harvesting companies and wood production, and also developed a long-term plan for the forestry sector. The initiative also reduces soil degradation and improves agricultural production. It is important to note that the Noel Kempff Climate Action Project took place on a larger scale than the MCFC's initiative and therefore was able to take advantage of economies of scale.

Each international case study faces similar challenges in dealing with risks associated with permanence, additionality, baseline measurement, leakage, and carbon monitoring. Each project found unique and creative ways to mitigate those risks. New Zealand and Australia created laws to mitigate risks, such as **pooling** and new project requirements. Others were strategies taken by the landowners themselves, such as the programmatic approach taken by the California project, or the diversification of sequestration projects used by Noel Kempff. As the technology evolves, it will be easier and more cost effective to take part in carbon-offset projects, but there is ample evidence that it can be profitable. As noted above, each international project evolved under very different political and economic conditions than Canada's current state.

Key Take-Aways:

Proving additionality and permanence are common difficulties across all of the international case studies that can affect the financial viability of the program. Common tactics to reduce the risk include a programmatic approach, and determining a stringent baseline by which to measure additionality. Bolivia's framework was developed to directly benefit the local communities, which provides a strong example for how MCFC can work with the local people to improve support and emphasize community development.

3.4 Synthesis

The intention of this jurisdictional review was to identify similarities in legal frameworks across jurisdictions which successfully sell carbon offsets off of Crown Land. However, within Canada, only one province, BC has successfully sold carbon offsets off of Crown Land. While other provinces in Canada do have some sort of legal framework in place which may allow for the sale of offsets, there are gaps in implementation, or other barriers to carbon offset sales. This jurisdictional review was also expanded to identify international case studies where carbon offsets are sold off of public land.

As stated above, BC is currently the only province in Canada that has fully implemented legislation and regulation, and negotiated agreements which allows for the sale of carbon offsets from Crown land. Four pieces of legislation are primarily responsible for establishing the legal framework for the sale of carbon offsets in BC, which include the *Greenhouse Gas Industrial Reporting and Control Act*, the *Forest and Range Practices Act*, the *Land Act*, and Atmospheric Benefit Sharing Agreements.

On an international scale, four jurisdictions have implemented successful carbon offset sale programs: Australia, New Zealand, California, and Bolivia. Carbon offset sale programs are similar in both Oceania countries, in that they require pooling to mitigate the risks presented by permanence. Conversely, the program in California does not use

pooling, taking a programmatic approach instead, which is also used to mitigate risks caused by permanence. The pooling approach demonstrated by international jurisdictions may present opportunities for ‘best practices’ in regard to the mitigation of risks surrounding permanence for MCFC or other forests looking to sell carbon offsets. In Bolivia, the inclusion of local stakeholders in project design and developing relations with Indigenous community were important and directly applicable to the Nova Scotian context.

In conclusion, this jurisdictional review provides an overview of the successful sale of carbon offsets in international jurisdictions comparative to Canadian jurisdictions. Despite the establishment of multi-level frameworks and legislation across Canadian jurisdictions, BC is the only province which has actually allowed the sale of carbon offsets from a community forest on Crown land. However, the process of creating the legal framework for this was not linear and included changes to a variety of legislations, acts, and agreements. As such, there is no clear path to achieving allowance of carbon offset trading from Crown land in NS.



4. CAPACITY GAP ANALYSIS

4.1 The Present: Nova Scotia Opportunities

If MCFC wishes to develop a carbon offset program on provincial Crown land, it has two, interconnected options: the organization can lobby the government to change current legislation, or it can enter into negotiations with the province to change the circumstances of its Forest Utilization Licence Agreement (FULA). The following section is an overview of NS legislation and the current MCFC FULA agreement, demonstrating where changes might be made to allow MCFC to profit from selling carbon offsets.

Legislation

Crown Lands Act

In accordance with section 92(5) of the Canadian Constitution 1867, the government of Nova Scotia has jurisdiction over all provincially owned land in the province, and the management and sale of any wood on that land (*Constitution Act 1867*, S92(5)).

Provincially-owned land is managed in accordance with the *Crown Lands Act* 1989, under the control of the Department of Natural Resources (NSDNR) (*Crown Lands Act*, 1989). The *Crown Lands Act* enables NSDNR to issue licenses and leases to people and organizations who wish to exploit Crown land for economic purposes, including foraging, hunting and forestry (Mahony, 2017).

Section 32 of the *Crown Lands Act* contains allowance for the issuance of FULAs which allow companies to harvest and sell wood from Crown land. The *Crown Lands Act* states that FULAs should be undertaken “for the purpose of ensuring the best possible utilization of the forests of the Province and the timber thereon” (s. 32(1)). There is nothing in the *Crown Lands Act* that specifically prohibits the sale of carbon offsets. The Act is specifically suggesting that FULAs should be made to ensure the best possible utilization of the forest, which arguably could include carbon offsets.

Included in the act is the fact that the provincial government must improve the wellbeing of the forest, and it can be argued that the province would benefit politically from environmental management measures. The land is not purchased, which significantly reduces overhead and startup costs, and there is no land/property tax.

It should be noted, however, that the Act also states that in order to issue a license, the Minister must consider whether it would “unfairly influence the marketability of such products from privately owned lands” (*Crown Lands Act*, s. 32(2a)). The province is likely to consider the perception of a community-based forest management group, which already has a certification as a sustainably managed forest (NSDNR, 2016a) and may see extra publicity from the sale of carbon offsets. It could be argued that these factors will unfairly influence the marketability of MCFC’s wood products against those sold from privately owned lands.

Forests Act

The Forests Act was written to legislate the healthy and sustainable management of forest lands on both private and Crown land (*Forests Act*, 1989). Applications for a FULA to manage Crown land in Nova Scotia need to adhere to the directives of sustainable forest management as they are detailed in this Act. According to the *Forests Act*, forest management techniques must be designed to consider “the importance of making the best economic use possible of all primary forest products harvested” (*Forests Act*, 1989, S7(f)). This act focuses on the harvest of forest products, making it difficult to find space for carbon offsets under this legislation; however, it may be possible to argue that carbon storage is a “forest product”, as the act includes no official definition for “forest products”.

If it is possible to argue that carbon storage and the sale of carbon offsets can be included under the definition of “forest products”, MCFC may argue that under section 15 of the Act the Minister is able to “undertake programs to support and encourage the further development of the forest products sector”, including the ability to “encourage and assist in the development of new products and new markets and in the production

of higher value-added products” (*Forests Act*, 1989 s15(2b)). A carbon offset program is certainly adding value to MCFC’s portfolio, and may even add value to their forest products.

There is a section of the Act dedicated to buyers of forest products (*Forests Act*, 1989 s 19). This section outlines requirements for forest product buyers, including the fact that they would have to obtain permission from the province in order to buy any forest products (*Forests Act*, 1989 s 19(1)). A special set of regulations may need to be in place in order to allow companies to buy offsets from MCFC if it is through the regulations.

Environmental Goals and Sustainable Prosperity Act (EGSPA)

This act was established to limit the use of GHGs in Nova Scotian infrastructure, regulate recycling and waste disposal systems, and encourage environmental technologies. (*EGSPA*, 2007). The act falls under the authority of the Department of the Environment (NSE) (*EGSPA*, 2007 s2(d)).

In the act, the province states a clear intention to support clean energy and sustainable leadership practices (*EGSPA*, 2007 s4(2)). Specifically, the NSE states that it will support implementation of a “framework to support a transition to... sustainable uses of energy to produce greater economic, social and environmental benefits for Nova Scotians” (*EGSPA*, 2007 s4(2a)). This act states the province’s intention to grow the province’s economy through the stimulation and cultivation of innovative sustainable energy practices. Even more succinctly, the act specifically encourages any actions that grow the capacity of the community and sustainable practices in product stewardship (7(1da; e)). This would apply to a carbon offset program in which MCFC was selling credits based on its sustainable management practices, and bringing additional money back into the community through that stewardship.

Environment Act

The *Environment Act*, under the jurisdiction of the NSE (*Environment Act*, 1994) contains potential to make big changes to environmental policy in the province (Mahony, 2017). The act is intended to provide protection and sustainable use of the environment (*Environment Act*, 1994), and it appears almost as a precursor to EGSPA in that it maintains the principles of sustainable development.

For MCFC's purposes, the most important part of the act is section 15, which promotes development of programs that enhance the "research, development and use of economic instruments and market-based approaches for the management of the environment and for the purpose of achieving environmental quality objectives in a cost-effective manner" (*Environment Act*, 1994 s15). Specifically, the act gives permissions to NSE to establish tradable emissions permits, tax incentives and subsidies, as well as air quality standards and caps on various forms of emissions (*Environment Act*, 1994 s15(a-j); Mahony, 2017).

Section 111 of the Act also gives authority to the Minister to enact regulations that will manage and enhance air quality in the province, including "sale and use restrictions to address air quality issues of regional or global significance" (*Environment Act*, 1994 s. 111(b)). This gives permission for the Minister to create a C&T program, and it does not preclude the creation of regulations for a specific program to monetize emission reduction in forestry.

Cap and Trade Legislation – "Design Options" report

While not currently written into legislation, the province is required to design a legal framework to reduce carbon emissions by the beginning of 2017. The legislation is currently being drafted, and both law and regulations are expected to be implemented Fall 2018. The province released a "Design Options" report to ask Nova Scotians to give their feedback on how that legislation should operate, which is reviewed here to understand as far as possible what may be coming, and whether there is any room for a carbon offset program under the incoming legislative framework.

It may be possible for MCFC to create a carbon credit program that does not operate under C&T legislation, and instead operates privately, perhaps under some of the legislation listed above. The report is clear, however, that the province intends to make a decision about the generation and use of offsets from industries that are not participating in the program (NSE, 2017b). Currently, the NSE is proposing that no voluntary participation will be allowed into the program. If that remains true in the final legislation, MCFC will not be able to participate under this program, and any potential buyers would also be required to operate outside of this framework. This could potentially mean that the top 20 polluters in the province would have no reason to buy offsets from MCFC as they would already be buying offsets to comply with the C&T program.

The report also states explicitly that there will be no trading carbon credits outside of the province. This would mean that in order for MCFC to work within the forthcoming C&T program, it could not sell credits to companies operating outside of the province, and it could also not participate in any partnership programs with other jurisdictions, such as the WCI. Once C&T comes into effect, if it keeps the proposed regulations, MCFC would not be able to sell to the 20 biggest emitters in the province, or to any companies outside of the province. This would severely limit the market for their carbon credits, even if a program was allowed to operate.

It is important to recognize that these proposed solutions are not yet finalized. The government is currently looking for input on allowance distribution, compliance flexibility, and use of offsets from industries not participating in the program, so there may be some room for change.

Policy and Government Reports

To understand the current state of forest management in the province, this research examines reports that have recently been released by the province. These reports outline policy initiatives, as well as specific projects and research that are underway. It

is interesting to note the different features that are communicated in these reports, as it helps to clarify the government's priorities and the projects of which they are most proud.

EGSPA Progress Reports (2014-2015 and 2015-2017)

EGSPA was created to set goals for sustainable development in the province, thus every two years since the act was established, the province releases a report outlining progress toward NSE achievement of those goals (NSE, 2016).

Interestingly, while the report that was released in 2015 is 60 pages long, and contains detailed information on ongoing projects, detailed updates on all of the goals, and information on the goals behind new regulations and policies, the update that was just released for 2015-2017 is only 6 pages long, and does not even require a table of contents (NSE, 2017a). It is difficult to tell whether this is an indication of a change in priorities for the government, or whether this is due to the fact that the large, 5-year review of EGSPA is due to come out this year (NSE, 2016).

The MCFC is mentioned by name in the 2014-2015 report as a positive partnership with government that will “nurture forest-based businesses that support local economy” (NSE, 2015). The project is particularly celebrated for its benefits to sustainable development, contribution to local community needs, and as a way to increase dialogue and collaboration between several different stakeholder sectors and government (NSE, 2015).

The 2015 report observes that the Minister of the Environment's 2015 mandate letter directs them to “ensure the integration of green environmental objectives with shared economic goals” (NSE, 2015). It is therefore a stated priority of the liberal government that economic and environmental goals should be married through the implementation of policy. Carbon offsets could fall within this objective.

Climate Change Action Plan

Nova Scotia is planning to implement climate change adaptation and mitigation policies under this plan under the authority of the NSE (NSE, 2009). The plan outlines six key mitigation strategies for the future: use less energy; use renewable energy; use cleaner energy; *use nature to clean*; *lead by example*; and plan for change (pp. 7-8, emphasis added). It is true that there are few examples of carbon offset projects on Crown land in this country, or indeed in many places on the planet. But NS has long been a leader in emission reduction and climate change mitigation policy (NSE, 2017b). Starting an offset program with MCFC could be a way of achieving those goals, to use nature to clean and to lead by example.

While research plays a big role in this climate action plan, it should be noted that currently, the NS government shows little interest in doing research into the potential for carbon storage in forests. The province's current interest in carbon storage projects only includes research for underground carbon storage with the Carbon Capture and Storage Research Consortium group, in partnership with AB and the federal government (Natural Resources Canada, 2016; Mahony, 2017).

Legislation and Indigenous Peoples of Nova Scotia

Based on the jurisdictional review, it was determined that MCFC may be able to develop a carbon offset program if it is done in partnership with an indigenous community, as is the case in BC. This review of Canadian law relating to the rights of Indigenous Canadians will help to determine whether there is any legal precedent for this type of partnership in Nova Scotia.

Section 35 of the *Constitution Act*, 1982 affirms existing aboriginal and treaty rights of the Indigenous peoples of Canada (*Constitution Act*, 1982 s.35). Therefore, since 1982, indigenous peoples of Canada have had a unique set of rights (Indigenous and Northern Affairs Canada [INAC], 2015). Treaty rights were gained through specific treaties signed between the British Crown and aboriginal nations. Aboriginal rights are

more difficult to define, and are currently being debated through negotiations and occasionally through the Supreme Court (INAC, 2015).

Treaty Rights

A series of treaties, referred to as the *Peace and Friendship Treaties*, were signed by the British Crown and the Mi'kmaq, Passamaquoddy and Maliseet Nations between 1726 and 1779 (INAC, 2015). Unlike most treaties between Indigenous nations and the British government over the following few centuries, these treaties made very few explicit mentions of land ownership and use (Wicken, 2010). Thus, the Mi'kmaq who occupied what is now Nova Scotia never ceded any of their land to the British Crown.

In NS, treaty rights were further defined during a Supreme Court case in 1999. In *R. v. Marshall* (1999), Donald Marshall was charged with selling eels without a license. The Supreme Court of Canada determined that Mr. Marshall had a treaty right to make a “moderate livelihood” based off a clause in the 1760-61 agreement, which stated that the signatories had the right to establish truck houses, and to “furnish... them with necessaries” (*R. v. Marshall*, 1999). According to the judge, “necessaries”, understood in the modern context, can be redefined as a “moderate livelihood” (*R. v. Marshall*, 1999). The court emphasized that the right to moderate livelihood could not be understood as a right to the “accumulation of wealth” (*R. v. Marshall*, 1999).

Unfortunately, however, the court did not further specify what a moderate livelihood should entail, and therefore there is still a debate between the Mi'kmaq and the NS government (Beswick, 2017). The decision, however, refers very specifically to the right to “hunt, fish and gather” (INAC, 2015), and not to logging rights.

Aboriginal Rights

Mi'kmaq rights to the use and exploitation of natural resources were further defined through a few other Supreme Court cases. While “aboriginal rights” were not defined in the 1982 Constitution, some cases in the Supreme Court have determined that certain aspect of indigenous peoples’ living, particularly traditional uses of natural resources for

“food, social and ceremonial purposes” are a *prima facie* right (*R. v. Sparrow*, 1990). In order to claim title over a resource or land, an indigenous community must be able to prove prolonged traditional use. Two cases in particular may have an effect on whether partnership with a Mi'kmaq nation would be a practical way to develop a carbon offset program.

R. v. Marshall; *R. v. Bernard* (2005):

Respondents were charged with harvesting wood off Crown lands without a license for commercial purposes. The respondents argued that they had both a treaty right (by way of *R. v. Marshall* 1999) and an aboriginal right to log Crown land for commercial purposes. The judges ruled that the 1760-1 treaty gave no explicit rights over the trade of wood products. The judges further ruled that the respondents had been unable to demonstrate exclusive occupation of the land, and therefore they did not establish aboriginal title.

R. v. Sappier; *R. v. Gray* (2006):

Respondents (Gray, Sappier and Polchies) were charged with illegally removing wood from Crown land. The wood was used to build a house for Polchies and the leftover wood was used for firewood. Respondents argued that they have an aboriginal right based on the fact that the Maliseet and Mi'kmaq peoples needed wood to “fulfill the communities’ domestic needs for such things as shelter, transportation, tools and fuel”. These Crown lands were traditionally harvested by the Maliseet and Mi'kmaq nations, and therefore the decision was made that in this case the respondents had an aboriginal right to harvest wood for domestic uses, though maintained the earlier ruling from *R. v. Marshall* *R. v. Bernard* (2005) that aboriginal right to timber did not extend to commercial activity.

Impact

Based on these two cases, it seems that the Mi'kmaq have no treaty or aboriginal right to harvest wood commercially. It seems likely that this lack of constitutional right would extend to profiting off the sustainable management of a forest.

Despite the lack of constitutional right, the Mi'kmaq, the NS government and the federal government are currently in negotiations to create a new natural resource management framework, called the Mi'kmaq-Nova Scotia-Canada Framework Agreement (NSAA, 2007). The number of court cases surrounding the issue of rights and title in use of natural resources in the 1990s and early 2000s prompted the government of Nova Scotia and the 13 Mi'kmaq nations of Nova Scotia to start a negotiation process. This process began in 2002 with the Umbrella Agreement (NSAA, 2011), and were formally established in 2007 through the Framework Agreement (NSAA, 2011). Negotiations were expected to end in a memorandum of understanding six years after the document was signed, however, the negotiations are still ongoing today. The outcome of this process will have serious impacts on the MCFC project.

In addition to these ongoing discussions, there is mention in a NS government report, titled *Five Years of Progress: An Update on the Path We Share*, of a negotiation between the Mi'kmaq and NS government for a three-year Forest Operating Agreement. Under the agreement, the Mi'kmaq would be responsible for managing 20,000 hectares of forest land in Nova Scotia (NSDNR, 2016b). While this seems to be an interesting development towards a potentially beneficial program for the Mi'kmaq, there is no other publically available information on what shape this would take, and whether the associated policies and regulations would apply in the case of a partnership between the Mi'kmaq and MCFC.

One of the major foundations of Mi'kmaq spirituality is the concept of **Netukulimk**. Netukulimk is reliant on a holistic conception of the world, in which all living things are interdependent (Prosper et al., 2011). It guides the way that humans interact with the natural world: “you can take the gift that the creator has given you without compromising

the ecological integrity of the area... the gift has been taken from” (Marshall, 2011). Many have said that Netukulimk is the Mi’kmaq word for sustainability (Marshall, 2011; Prosper et al., 2011). When the Mi’kmaq are given the opportunity to manage natural resources, they do so in line with this concept. Should MCFC wish to enter into an agreement, they should do so with the intention of managing the forest (MCF) in accordance with the principles of Netukulimk.

Key Take-Aways:

This review of NS legislation outlines the fact that not only are there no laws prohibiting the implementation of a carbon offset program on Crown land, but that government policy and legislation expresses a specific interest in programs that would grow the economy for the rural forestry sector. The fact that the NS government places such an emphasis on economic growth and sustainable prosperity suggest that it is important to demonstrate how a carbon offset program can generate economic benefits. The emphasis for economic benefits rests very clearly in growth and development for whole communities, rather than for individuals. It may therefore be prudent for MCFC to develop a proposal for a program that would explicitly bring economic benefits not just to stakeholders and to the organization, but also to the community they inhabit.

4.2 Present: Limitations

The purpose of this section is to detail how NS and other jurisdictions have addressed the challenges associated with carbon offset forestry projects based on legislation, regulation and policy. As discussed in the Jurisdictional Review, there are several limitations and challenges regarding the sale of carbon offset credits on Crown land. Here, those limitations are summarized, along with potential solutions.

Carbon offset programs on Crown land

The *Crown Lands Act* is an important tool for allowing a carbon credit system to be implemented by the MCFC, however, it also presents limitations. The Minister of Natural Resources has all powers, rights, duties, authorities, and privileges over everything pertaining to Crown lands under the *Crown Lands Act* (R.S., c. 114, s. 4). When the land is leased, licensed, or under easement or encumbrance, the Minister retains authority and control, even when a land use agreement has been signed. This is the most important limitation for MCFC. Agreements can limit the proponents' actions, for example, if an agreement has been made to use Crown land in a particular manner, the Minister has the right to void the agreement if the land is being used in violation of the conditions of the arrangement. If the agreement is terminated, any structure or personal property remaining may be disposed of in whatever way deemed appropriate by the Minister (R.S., c. 114, s. 5).

The *Crown Lands Act* states that the Minister may set aside special areas for specific uses such as the maintenance and management of the forest to reflect the *Forest Enhancement Act* (Crown Land Act. R.S., c. 114, s. 16). The Minister can also designate areas for forest research, and the protection and management of wildlife and wildlife habitats. Under this act, IFM, undertaken for the purpose of increasing carbon storage, could be considered. The *Crown Lands Act* states that no license shall be granted for a period longer than two years with a renewal period no longer than one year (R.S.C. c. 114, s. 31). This presents a challenge for MCFC in the sense that most carbon-offset programs take place over the course of 50-100 years. There is a risk that if MCFC strays from their agreed upon path, they may lose the rights to their land. They will be closely monitored as records must be available to the Minister at all times.

There are factors to be considered before the Minister will allow for a FULA. The first is whether the availability of primary forest products from Crown land will unfairly affect the sale of such products from privately owned land. Secondly, the Minister will consider if the agreement will unfairly limit access to other primary forest products, including hardwood, on Crown land (Crown Lands Act. R.S.C. 114, s. 25). The latter is more

significant for the purpose of this report. An IFM program requires a reduction in the amount of wood cultivated from the land, which limits access to primary forest products. Also, stumpage and other charges apply to companies under agreements to cut down trees. A carbon offset program leading to a reduction in the number of trees removed from Crown land could lead to a decrease in government revenue. Lastly, no agreements can be made for a period longer than 20 years, and may hold whatever other provisions the Minister deems necessary (Crown Lands Act. R.S.C. 114, s. 32; 2012, c. 6, s. 3). It is important to note that any agreement with the Crown does not give the permit-holder any rights to the land beyond those outlined in the agreement. The key limitation of a carbon offset program on Crown land is negotiating with the Minister who acts as a powerful landlord who retains a significant amount of control over the activities that take place on their property.

Offset Ownership

In order to sell carbon offsets off of Crown land there must be a clear legal claim to GHG reductions achieved. Many third party carbon-offset certifiers, including the Climate Action Reserve (CAR) will not certify offset projects on Crown land unless they are explicitly approved through legislative or regulatory means (Smith, 2012). However, issues can arise when the land being used is not owned by the project proponent, as it is unclear whether carbon offsets are owned by the land owner or the land tenant. Issues over ownership centre around liability. There must be assurance that credits offered are not double counted and that if something goes wrong there must be someone liable (Weber, 2011; Viresco Solutions et al., 2017).

According to Lucas (2010), long-term carbon sequestration does not necessarily align with landowner interests, especially when the landowner is the government. This creates liability for long-term ownership and legality of offset creation because the timeline for land-use contracts on public land is not equal to the timespan necessary to complete a proper forestry offset credit generating project. Whereas most contracts are 20 to 30 years depending on the jurisdiction, a proper forestry offset project can take up to 100 years.

AB is one province that has emphasized land ownership rights wherein the project developer is required to provide evidence of ownership (AEP, 2008). For those leasing land, if the right to generate and participate in carbon offset projects were written into the contract, there would be no issues regarding the generation of those credits. In BC, most forest tenures only grant rights to manage timber (Hoberg et al., 2016). Contracts that are broader in scope, including Community Forest Agreements, create the possibility of getting rights to “botanical forest products and other prescribed products” (Hoberg et al., 2016). Hoberg et al. (2016) recommend that carbon rights should be included in “tenure holder contracts”, which award project proponents permits for harvesting. A scan of tenure types by Wyatt et al. (2013) found that some provinces were developing new tenure types that allowed for innovative forest uses such as protecting biodiversity, producing carbon offsets, and enhancing ecosystem services. Most tenure holder contracts have been signed with indigenous groups, as is the case with ABSAs in BC (Cheakamus, n.d.).

Lucas (2010) likens the inclusion of carbon offsetting rights to the way in which the *Alberta Public Lands Act* allows ranchers to sign contracts for grazing rights on public land. To address the nature of mismatched land tenure contracts and offset accreditation periods, the two need to be aligned (Hoberg et al., 2016). For example, California has a system by which offsets are generated over a 25 year crediting period on plots of land that have a 100 year monitoring period (Caldwell et al., 2014). Australia meanwhile has either a 25 or a 100-year period (ADEE, 2017).

Permanence

In contrast to offset ownership, where long term contracts are better suited, risk of permanence can be mitigated through short term initiatives. Often carbon projects are not economically viable for all landowners every year, the projects also impose significant constraints on land use (Caldwell et al., 2014). Therefore, temporary short-term carbon offsets provide landowners with options for project types, and ability to change land use after the expiry period ends (Yemshanov et al., 2012).

Australia and New Zealand have reduced the uncertainty of permanence by creating a 'pooling requirement', within which a shared pool of carbon offset credits is created (Consumer NZ, 2017). QC addresses the issue of permanence with temporary agreements and a deposit program. In QC, each offset project must provide a 3% deposit of credits, which is given to the government. This mitigates the risk that a project is unable to fulfill their offset commitment, in which case, the project would be invalidated (C&T regulations, s. 70.2 and 70.21). In addition, offset projects may only be conducted during a continuous period of no more than 10 years, after which they may be eligible for renewal.

Importantly, this information conflicts with what was stated earlier, namely that land-lease agreements need to be long term in order to allow for proper offset accreditation periods. The use of long term agreements would increase certainty around credit ownership, de-risking the process for project proponents while allowing for more than one land-use/offset project over the long-term. This way, project proponents have the flexibility to change offset project types midcourse if they deem appropriate for either environment or economic reasons while still ensuring permanence.

Many studies have found that carbon offset projects are dependant upon local economic and geographic context and the type of project being implemented (van Kooten et al., 2004; Yemshanov et al., 2012; Vázquez-González et al., 2017). The definition of permanence is dictated by the jurisdiction that administers the policy. This affects the types of projects that can occur, and creates variability in profit. (Yemshanov et al., 2012). For example, different accounting methodologies can lead to different per unit returns, even for very similar projects (Yemshanov et al., 2012). Furthermore, the benefits derived from carbon credits will decrease over time based on the rate of inflation (Vázquez-González et al., 2017). As such, future policies on credit pricing and conditions for permanence will dictate the risk of offset projects.

In order to support permanence, consideration must be made for carbon stored in long lived wood products. As the price of carbon offsets increase, it will be more profitable to use native long-lived tree species (Yemshanov et al., 2012). In fact, it can be argued that storing carbon in wood products is superior to storing carbon in soil. According to Climate Change Central (2002), the ability for soil to absorb carbon may decrease after a period of 6-7 years. Therefore, methods of storing carbon in wood products may decrease the risk of permanence and some Canadian provinces have been encouraging this action. For example, NB's 2016 *Climate Change Action Plan* promotes the use of wood products as a source of renewable construction which sequesters carbon in the long term. AB maintains that FMA license holders may only be able to earn offset credits after the tree has been severed from the stump (Government of AB, 2010). If license holders suspend their timber harvests for the sole purpose of earning offset credits, their forestry tenure will be suspended or cancelled (Government of AB, 2010). BC's previous carbon offset policies were criticized by the BC Auditor general for failing to provide incentives for other types of forest offset projects such as the use of long-lived hardwood products (Peterson St-Laurent et al., 2017a). Storing carbon in wood products will also mitigate against natural threats to permanence such as forest fires, insects, and extreme windstorms (Upton et al., 2007).

Leakage

Leakage is a difficult limitation to address. Some other jurisdictions may provide some lessons for new project proposals, such as the government of NL, which will likely require that all future protocols and proposals from project proponents be developed in conformance with the ISO 14064:2 standard. The standard includes an analysis of potential leakage effects (Viresco Solutions et al., 2017). ISO 14064:2 "specifies principles and requirements and provides guidance at the project level for quantification, monitoring and reporting of activities intended to cause greenhouse gas (GHG) emission reductions or removal enhancements" (ISO, 2006). Similarly, members of the WCI (i.e. California, ON, and QC) must conform to ISO 14064 protocols. While ISO does not specify how these protocols should be developed, it provides guidelines for doing so. Deforestation is fungible, meaning when blocked in one area it can easily be

pursued in others, so when a carbon offset project or conservation initiative is implemented the harvesting can move elsewhere (Sedjo et al., 2011; Dodds et al., 2012). For example Sedjo et al. (2011) found leakage rates of 50% in Bolivia, and anywhere between 10-90% for projects in the USA. In other words this review found no clear solutions to the leakage problem.

Baselines, Additionality and Verification

All carbon offset projects must be real, demonstrable, quantifiable and measurable (SGER, 2007). The methods used to calculate the amount of offset credits generated must be valid and repeatable. As NL develops its carbon offset scheme, a report to government from Viresco Solutions et al (2017) showed how different jurisdictions have adopted ISO 14064-2 protocols, which has standardized offset projects in different jurisdictions. AB, BC, and members of the WCI (California, QC, ON) have all adopted their own protocols which set baselines and quantify potential for additional offsets. Further, there are dozens of third-party offset project accreditors that will certify projects in these jurisdictions, each of which develop their own verification methods. The standards of carbon-offset providers differ, however, and the industry suffers from a low degree of transparency and accountability (Dodds et al., 2012). Therefore, a considerable risk for falsehoods or errors exists. Nevertheless, many jurisdictions still participate in offset projects.

In Canada, several provincial programs have endured criticism. BC's FCOP was disparaged for lacking guidance on baseline scenario calculation, leading to vague and therefore easily manipulable standards (Peterson St-Laurent et al., 2017b). Similarly, a report to the AB government noted concerns regarding the definition of baselines and quantification, and the potential for strategically manipulative behavior. Nevertheless, the report recommended that the province develop an offset credit program for reclamation and avoid disturbance on public and private lands (Weber, 2011).

Some provinces have learned from these mistakes. QC, for example, addressed these concerns by collecting a deposit on every certified offset project. If a project is found to

be incorrect, the government reserves the right to cancel those credits and deny renewal (Sec 70.21 of Regulation respecting a Cap-and-Trade system for greenhouse gas emission allowances (q-2, r. 46.1). This system places greater emphasis on monitoring and verification, which was made possible through the increased use of technology such as satellites.

Improving the accuracy of offset baselines and monitoring mitigates issues of transparency and increases reliability, in addition to supporting strong public policy. Where proper monitoring can be executed, incentive schemes can be easily developed for forest offset projects (Sedjo et al., 2011). NS should require that all projects pass a regulatory additionality test based on the approaches used in other jurisdictions. These policies have been well developed in the BC, AB and WCI jurisdictions.

Participation in offset markets

Participation in offset markets varies throughout Canada; however, currently there is no framework in place that creates a Cross-Canada market for carbon offsets, nor is there any indication that one will exist in the near future. In 2007, when the Harper minority government released a discussion paper that included the regulation of industrial emitters C&T system that would allow final emitters to meet their targets, in part, by purchasing offsets (ECCC, 2007) many provinces moved to design provincial policies to accommodate this pending program. For example, SK's 2007 CCAP, promoting the use of natural carbon sinks, assumes that a national emissions trading scheme would come to fruition (Mahony, 2017). It never did, however. Since then most provinces are only interested in offering provincially-based C&T programs. For example, AB's offset market is limited to emitters included under their C&T program. All the offsets purchased through this policy must be "made in Alberta" (s. 7(1(a)) of SGER). This limits their offset market, and bars the purchase of offsets from external jurisdictions.

The same has been seen in BC's offset market, with public sector attempts to achieve carbon neutrality through the implementation of a provincial voluntary market (Hoberg et al., 2016; Swallow & Goddard, 2016). One of the issues with BC's offset market,

however, is that the list of buyers is small. Apart from the government, BC politicians hope to develop and regulate the Liquefied Natural Gas sector which could then buy offsets (Hoberg et al., 2016). But this development has experienced many setbacks, leaving a large supply of available credits with little buyer demand. As such, those participating in the sale of offset credits are restricted by the frameworks in other jurisdictions. One consideration to the contrary would be if NS were to join an international carbon market, such as the WCI. This option has essentially been ruled out, however, by the NS government (NSE, 2017).

In the international context, participants aiming to sell credits typically have to choose between a voluntary or regulatory market. There are more than 14 voluntary standards in existence as “carbon-offset companies are working in a vacuum regarding international regulations and options for projects that are legally mandated, monitored, and verified” (Dodds et al., 2012). Despite some being perceived as more credible than others, the lack of regulation around voluntary markets tends to dissuade participation. This often creates uneven demand for offset credits, and a “volatile and fickle” marketplace, and therefore lower prices (Peterson St-Laurent et al., 2017a). Regulatory markets are less supportive of biotic sequestration and tend to avoid bio-carbon sink offsets, preferring technologically-based methods.

Proponents seeking establishment in jurisdictions where no market exists must ensure that their standards will be accepted and recognized by other jurisdictions. Proponents may consider compliance markets, where standards are often higher, but which often result in higher prices. Since bio-carbon offset projects tend to exist within a voluntary framework, this may be a more likely pathway for MCFC, however these projects are subject to increased price volatility. When looking to participate in a provincial market, a proponent should be sure that the demand is there. Private woodlot owners and land trusts often partner with experienced carbon project developers to overcome these challenges, and to assure that proposed projects will meet the rigorous standards of compliance markets (NBCLT, 2016).

Key Take-Aways:

- Proponents can reduce the risk of project liability by having carbon offset rights written into their land use agreements.
- To mitigate against permanence, MCFC should consider long-lived wood products.
- Research was unable to find any successful cases that could protect against leakage, suggesting that this limitation will remain challenging for MCFC in the future.
- NS should require that all projects pass a regulatory additionality test based on the approaches used in regulated systems in other jurisdictions, using ISO 14064-2 methodology
- Partnering with experienced carbon project developers can assure that proposed projects will meet the rigorous standards of compliance markets

4.4. The Future: MCFC

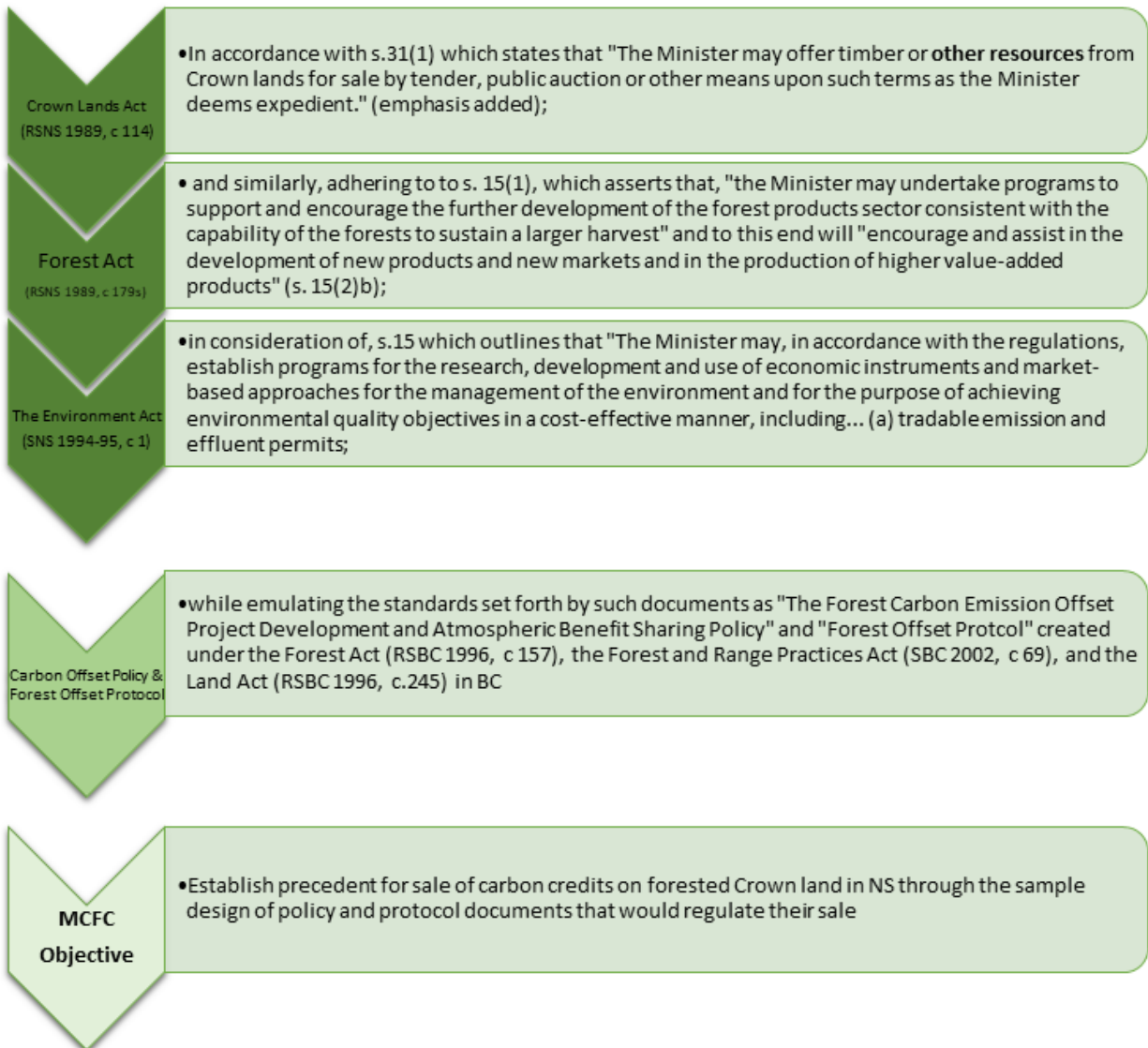
The motivating force behind the formation of MCFC was to use ecosystem-based management to promote Acadian forest restoration while supporting the economic viability of the surrounding community (MCFC, 2016). While MCFC carries out IFM techniques, their primary business venture is the sale of firewood to surrounding campgrounds. Although this has generated enough revenue to sustain the cooperative, it has failed to adequately engage the community or bolster the local economy in any meaningful way (Mary Jane Rodger, personal communication, September 15, 2017). With the renewal date of the three-year License Agreement between NSDNR and MCFC rapidly approaching, it is important for MCFC to be prepared to diversify their economic prospects while recognizing engagement and employment opportunities. By proposing the establishment of a carbon offset market based on IFM, MCFC is providing an opportunity for the province of NS to diversify the provincial economy and

set a new national precedent for environmental innovation. The following outlines the primary objectives that must be achieved to allow MCFC to sell carbon credits from Crown land in NS based on the preceding analysis.

Establishment of a Legislative Toolbox

Put simply, without the establishment of the appropriate legislative pathways, MCFC will be unable to trade carbon credits generated from Crown land. Although NS is making progress toward the implementation of a provincial C&T system, it is unclear the extent to which this advancement is due to provincial momentum or is the result of the federal ultimatum issued to the provinces in 2016 by Prime Minister Justin Trudeau (Harris, 2016). According to environmental lawyer Meinhardt Doelle (2017), based on the provinces commitment to the minimum obligatory reduction targets set by the Pan-Canadian Framework, the latter is likely the case. Either way, by 2018 NS will be implementing a C&T system, and with it will come a legislative framework for its implementation. This moment of policy innovation presents an opportunity for proposals that will advance and initiate the provincial carbon market. While gaps in existing legislation were extensively explored in the “Present” section of this report, Figure 2 outlines the regulatory vehicles that must be put in place to make the sale of carbon offsets from IFM a reality in NS.

Figure 2: Legislative requirements for the establishment of a carbon market from forested Crown lands in NS



Establishment of Supportive Partnerships

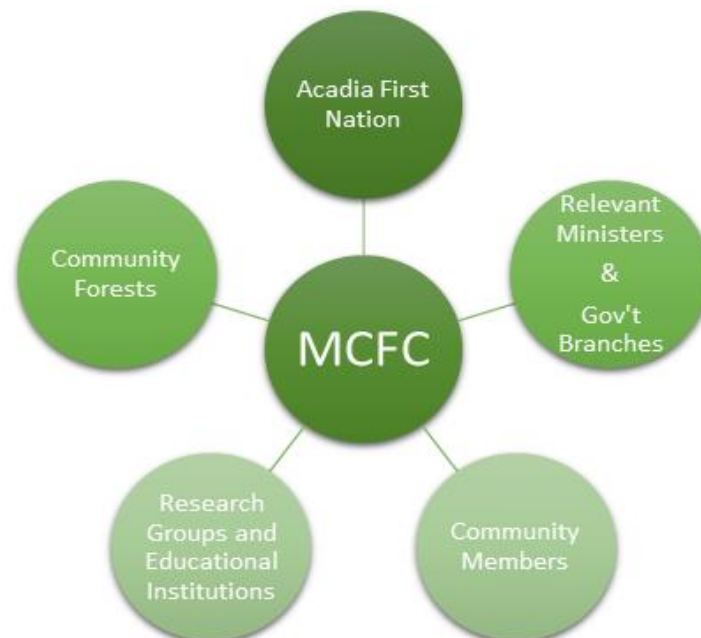
The absence of a legislative framework is the clearest barrier to the allowance of carbon credit sale from Crown land in NS. Without significant support from key stakeholders, it is unlikely that the MCFC will be able to successfully integrate an offset program. Thus, it is strongly recommended that MCFC form mutually beneficial partnerships with key

stakeholders. Based on the Jurisdictional Review and analysis of the MCFC Interim Management Plan, the primary stakeholders can be seen in Figure 3, including:

- The Acadia First Nation;
- Relevant ministers and government branch officials;
- Local community members, primarily those residing in Caledonia and other nearby rural communities (e.g. New Germany) and from larger municipalities such as, Bridgewater and Liverpool;
- Research groups and educational institutions, including but not limited to post-secondary institutions from around the province;
- Fellow community forests, most notably those in BC operating under a more innovative legislative framework than is found in NS; and
- Potential investors who would financially invest in a carbon market.

It is important to note, however, that in pursuit of these recommendations no contact was made with these groups to initiate or confirm interest in establishing partnerships with MCFC. This was due to the scope of this project excluding the collection of primary data from involved or potential stakeholders. Therefore, the possibility for the operationalization of this specific proposal will remain hypothetical without substantial investment in relationship-building by MCFC.

Figure 3: Potential partners for the MCFC



Acadia First Nation

Although the governing structure of MCFC includes two seats on its Board of Directors for “First Nations interests” (MCFC, 2016, p.7), these seats are currently empty. It is unclear whether this is the result of lack of outreach on the part of MCFC or a lack of interest in involvement by local Indigenous groups. However, the Acadia First Nation, whose traditional territory borders the land occupied by MCFC, as demonstrated by the Western Crown Land Planning Process (Government of NS, 2015b), has asserted that economic development and collaboration with outside organizations for the betterment of its communities are among its highest priorities (Acadia First Nation, n.d.a). Clearly, both parties have expressed an intention to collaborate more closely, but that intention has not materialized in a meaningful way.

The traditional territory of the Acadia First Nation spans across the southwest region of Nova Scotia from Yarmouth to Halifax and consists of five reserve communities (Acadia First Nation, n.d.b). Although the Mi’kmaq have no treaty or aboriginal rights to harvest wood commercially, as was noted earlier, they do have the right to moderately profit from the land (R. v. Marshall, 1999), which presumably could include the sale of carbon credits from IFM practices on their traditional territory. Furthermore, the NS government has recognized land rights by entering into consultation with the Mi’kmaq people regarding the establishment of Forest Operating Agreements (NSDNR, 2016b). In addition, the Crown lands management document, *Conceptual Plan for Western Nova Scotia* states that “community forests, respect for and designated use by Mi’kmaq people, sustainable employment, and stewardship of land for future generations are some of the outcomes Nova Scotians can expect [from continued planning processes]” (Government of NS, 2015a, p.2). As has been illustrated by the creation of Cheakamus Community Forest in BC, collaboration between MCFC and the Acadia First Nation stands to be mutually beneficial for both involved parties.

Relevant Ministers & Government Officials

The operationalization of policy relevant to carbon offsetting, is dependant upon the minister appointed authority by each act. Thus, the Minister of Natural Resources (*Crown Lands Act* and *Forest Act*) and the Minister of the Environment, (*Environment Act*) must be lobbied to support MCFC’s proposed project. As of 2017, Margaret Miller,

the former Minister of Environment, became the province's Minister of Natural Resources. Miller represented the province's initial reticence to the 2015 proposal of carbon pricing (Withers, 2016) and continued to be resistant until the federal ultimatum was issued. However, since carbon pricing has become an inevitability in the province, there is a greater likelihood of collaboration with the NSDNR and its Minister, especially due to the alliances MCFC has already made with lower-level officials in this department.

NS' current Minister of Environment, Iain Rankin, has played a pivotal role in the design of, and has publicly advocated for, the C&T system in NS. Yet, as shown above, the design of this system has been heavily criticized. However, in order for NS to contribute to the 30% emissions reduction target by 2030 as set by the Government of Canada through the Pan-Canadian Framework (Government of Canada, 2016), it will be necessary to advance innovation in the carbon management sector. With MCFC's licence renewal date rapidly approaching, it would be prudent to develop ties with these key political players to advance the goals of their carbon project.

Community Members

As stated above, community involvement in the MCFC is low, which is likely the combined result of ingrained resentment in rural NS against organizations harvesting timber on Crown land (Dube, 2006), and a widespread resistance to change in rural and aging communities (Ibbitson, 2015). Yet, for community projects to be successful over the long-term they must inspire community buy-in. Although easier said than done, if MCFC desires approval by the provincial government they must first garner the support of their local community. In other words, the MCFC must work towards establishing social cohesion and collaboration. There is hope that the eventual implementation of the proposed construction of a trail network through the MCF will accomplish this goal (Mary Jane Rodger, personal communication, Sept 15, 2017), as it will increase visitorship to the MCF and immersion in natural environments has been proven to contribute to feelings of connection and accountability to place (Cheng & Monroe, 2012; Nisbet, Zelenski, & Murphy 2009). Based on the same principal, community relations

may also be improved through immersive education sessions for local schools. Outreach to larger communities, such as Bridgewater and Liverpool, may increase public interest in further development of MCFCs proposed initiatives. These larger communities often present opportunities for the establishment of partnerships with like-minded organizations such as, Helping Nature Heal, a not-for-profit organization based out of Bridgewater which works to restore shorelines by planting trees and other vegetation (Rosmarie Lohnes, personal communication, Nov 7, 2017).

Research Groups & Educational Institutions

MCFC has already demonstrated a commitment to establishing relationships with educational institutions by partnering with Dalhousie on this project, and by their continuing relationship with Mersey Tobeatic Research Institute. However, as previously noted, a significant barrier to establishing carbon offset projects is measurement. Without baseline data with which to measure the carbon storage capacity of the MCF and effective monitoring plans to maintain proof of continuing sequestration, MCFC will not be approved as a carbon offset project—even if the necessary legislative framework were in place to allow for approval. Furthermore, as demonstrated by the approval of carbon offset projects elsewhere, action plans focused on the mitigation of permanence and additionality are always required. Cultivating partnerships with some of the many post-secondary institutions across the province would advance MCFC through this process while also contributing to advanced study of the feasibility and effectiveness of carbon capture projects in the NS context.

Community Forests

Although MCFC is the first community forest established in NS (MCFC, 2016), it is not the first in the country: BC alone boasts of over 50 (BC Community Forest Association, 2017). With limited human and financial resources, rather than repeat work that has already been done elsewhere, MCFC could establish relationships with some of these other projects for insight into effective pathways for innovation and development within the realm of community forestry.

Establishing the Marketability of Carbon

In BC, since the absorption of the controversial carbon brokerage, Pacific Carbon Trust, into the provincial government (Moore, 2013), the public-sector manages the carbon market. Due to the commitment set by the *Carbon Neutral Government Regulation* (BC Reg 392/2008), most credits produced by offset projects are purchased by the provincial government, although “regulated operations” are also permitted to purchase these credits, though it is unclear what qualifies an operation as regulated (Government of BC, n.d.a). Accordingly, to establish a market in NS, MCFC will need buyer(s) to whom they can sell their carbon offsets, which may require the establishment of a governing body to manage the trade. BC created this demand, and a similar option may exist for NS, though this would likely require a similar commitment to emissions reduction by the provincial government. Conversely, MCFC could reach out to industrial operations to establish interest in the private sector. It is likely, however, that as the C&T system is implemented in the province, demand for offset projects will increase, which would work in MCFC’s favour.

Key Take-Aways:

Although it is important to be familiar with the required policy framework prior to the incorporation of carbon sale in the NS economy, it is perhaps more important to build meaningful relationships with key stakeholders. Healthy forests are beneficial to everyone, both for aesthetic and recreational purposes, but also due to the ecosystem services they provide, the most vital of which is likely to become carbon sequestration as GHG emissions rise. Thus, projects like MCFC must communicate their mitigative and resilience-boosting benefits to all associated stakeholders, and highlight the mutual benefits that could arise through partnerships. They must take advantage of the currently opportune political moment, as the country is on the brink of revitalizing its emission-management policies.

4.5 External Considerations

In summary, there are three key potential future-state factors for MCFC to successfully capture and sell carbon offsets: establishment of conducive public policy, supportive partnerships, and establishment of carbon marketability. While thus far this report has explored relevant law and policy that is immediately related to development of a carbon offset program for MCFC, there are additional external forces which may influence the program. The social, economic and technological context in which MCFC operates are thus here reviewed to help develop comprehensive recommendations.

Political forces are influential on the feasibility of a carbon offset initiative. The political atmosphere in Canada, both provincially and federally, reflects the intertwining of two primary themes: action against climate change and economic development. This provide the opportunity to create innovative solutions to carbon emission issues. Additionally both the federal and provincial governments are well positioned to do so as they have stable majorities which give them the ability to act decisively. The federal government has set targets and commitments regarding climate change such as investing in clean technology and reducing carbon emissions (Liberal Party of Canada, 2015). The NS provincial government has made a continued commitment to protect the environment and address climate change, including the current review of NS forestry practices (Nova Scotia Liberal Party, 2017). One specific project coming from the Provincial government is the above mentioned C&T program under the requirement of a carbon pricing mechanism (Government of NS, 2017b). Based on continued commitment to climate change initiatives by Federal and Provincial government, it seems likely that carbon offset policy is a possible development in the near future.

Regarding engagement with local community members, the social elements of the PESTEL provide insight into the feasibility of informing and connecting with the surrounding community. One major influencing factor is the general resentment in rural NS against companies that are licensed to harvest timber from Crown land instead of privately owned woodlots. This may impede MCFC's ability to connect with the local community, especially regarding forestry practices on Crown Land. This disconnect may

be exacerbated by the general resistance to change of people in rural NS (Ibbitson, 2015). These factors may make the pursuit of supportive engagement with the local community challenging. However, since there has been a decrease in global demand for Canadian forest products in recent years (Poon, 2010), and as the forest industry is a key part of the economy in rural NS, the local community may benefit from leveraging forest land for economic gains in innovative ways.

MCFC should continue to build and leverage relationships with research groups and educational institutions to support the technical knowledge necessary to establish baselines, and measure carbon sequestration. Based on the PESTEL analysis, the key technological factor affecting MCFC is the uncertainty surrounding the scientific validity of additionality. If the technology concerned with the measurement of additionality can be solidified, governments involved may be more likely to grant MCFC allowance to sell carbon offsets.

Assuming such policy is successfully implemented, the marketability of carbon is a key success factor. MCFC will need sufficient demand for carbon offsets, and productive relationships with buyers. MCFC will need demand for carbon offsets in order to find buyers. The incoming C&T system in NS will likely increase demand for carbon offsets, but could be further increased by additional commitment to emissions reduction policy by the Provincial and Federal governments. With policy in place, engagement of local industry could further push the demand for carbon offsets, and establish relationships with buyers.



5. RECOMMENDATIONS

Based on the findings of this report, it is recommended that MCFC develop a six-year pilot project that will incorporate a forest carbon offset program into their FULA. This will likely materialize as a one-year negotiation period to establish regulatory and operational changes, followed by a six-year pilot project that will allow the sale of carbon offsets from Crown land. Since NS legislation and policy expresses a specific interest in programs that could bolster the economy, with a specific focus on the rural forestry sector, it is recommended that MCFC leverage that rhetoric in negotiations. The six-year period has specifically been suggested due to its consistency with monitoring and accreditation periods used in other jurisdictions, which has been found to alleviate the risks associated with permanence.

5.1 How do we get there?

Overarching Recommendation:

During their negotiation window, MCFC should lobby the government to develop a six-year pilot project that will incorporate a forest carbon offset program into their operations agreement. This would have to include have the proper regulatory and his will likely materialize as a one-year negotiation period to establish regulatory and operational changes made.

The implementation of carbon offset markets is clearly a complex, and locally-influenced process influenced by three primary contextual forces: legalities, socio-political externalities, and financial feasibility. These three elements form the foundational pillars upon which MCFC-specific recommendations have been designed. Special emphasis had been placed on the legal pillar, however, as the development of a comprehensive regulatory framework will be necessary for the operationalization of MCFC's proposed carbon offset project.

A. Legal

Recommendation:

To successfully implement a carbon offset protocol in Nova Scotia the MCFC must lobby the provincial government to make regulatory changes to the *Crown Land Act*, *Forest Act*, and *Environment Act*.

From the successful implementation of carbon offsets on Crown land in BC, the necessity of a proper legal framework and instruments have been illustrated. In BC the *Forest Act*, *Forest and Ranges Practices Act*, *Land Act*, and *Greenhouse Gas Reduction Targets Act* combine to allow for viable carbon offset programming. This legal framework also provides a foundational structure for NS to develop and implement a similar program. To mirror this system, NS should make amendments to the corresponding provincial legislation, specifically the *Crown Lands Act*, *Forest Act*, and *Environment Act*. These changes are all regulatory in nature, and as such do not require a reframing of the legislative process. The specific legislative sections that require regulatory modifications are outlined below and can also be found in Figure 2. Words have been emboldened for emphasis.

- *Crown Lands Act (RSNS 1989, c 114, s.31(1))*: “The Minister may offer timber or **other resources** from Crown land for sale by tender, public auction or other means upon such terms as the Minister deems expedient”
- *Forest Act (RSNS 1989, c 179, s.15(1))*: “The Minister may undertake programs to support and encourage the further development of the forest products sector consistent with the capability of the forests to sustain a larger harvest” and to this end (s.15(2)b): “encourage and assist in the development of new products and new markets and in the production of higher value-added products”
- *The Environment Act (SNS, 1994-95, c 1, s.15)*: “The Minister may, in accordance with the regulations, establish programs for the research,

development and use of **economic instruments and market-based approaches** for the management of the environment and for the purpose of achieving environmental quality objectives in a cost-effective manner, including, without limiting the generality of the foregoing, (s.15(a)) tradable emission and effluent permits.

These Acts contain language and rhetoric that would support the sale of carbon offset credits but there are no regulations in place that specifically support these initiatives. As seen in other jurisdictions, provinces have developed new tenure types that target innovative forest uses, including carbon offset projects (Wyatt et al., 2013). This pairs well with s.31(1) of the *Crown Lands Act*, which allows the Minister to offer timber or 'other resources' for sale, wherein carbon rights would be deemed an 'other resource'.

The MCFC is committed to making the MCF an economically and environmentally sustainable endeavor. As section 15(1) and 15((2)b) of the *Forest Act* both support the development of new high value-added products in the forest products sector, carbon offsets provide an excellent opportunity. Carbon offsets have also proven to be financially viable given the right circumstances (Caldwell et al., 2014). The *Environment Act* (s.15) encourages the use of economic instruments and market-based approaches to forest management and for achieving environmental quality, including tradable emissions (s.15(a)). As such, the MCFC needs to advocate for regulatory changes under the stated acts to include language that would provide permission for the generation of carbon offsets from Crown land forestry operations. Changes to these acts should be modelled off the framework provided by BC to facilitate the implementation of this project.

Recommendation:

MCFC needs to have the terms “carbon rights” and “carbon offsets” added to their operational agreement with NSDNR.

The *Crown Lands Act* is the provincial legislation governing the administration and management of Crown lands. Section two of this act sets the standards for leasing and licensing agreements regarding forests and proper forest management practices, while emphasizing economic issues with references to ‘better quality forest products’ and ‘improved market access for privately produced wood’ (2b). This means the MCFC’s ventures into the regular wood-products market is at a competitiveness disadvantage. This has spurred the MCFC to pursue undertakings beyond forestry.

MCFC’s operational agreement with NSDNR is allowable under sec. 23 of the *Crown Lands Act*, which allows the Minister to enter an agreement with a third party for more effective management of Crown lands. Essentially it acts as a FULA for MCFC operations. Within the current operational agreement, the MCFC is allowed to harvest timber products as well as market non-timber forest products (NTFP). Best practice dictates that the term carbon rights and/or the ‘ability to generate carbon offsets’ be added to project proponent land-use agreements. This would address issues of credit ownership liability and the marketability of offset credits to markets outside of the province if necessary. In passing these changes the MCFC would set itself up to be assured of a successful and legally permissive carbon offset project.

B. Socio-Political

Recommendation:

MCFC must concentrate efforts on building social capital with key stakeholders to develop support for programming.

Within a community, connections are made through shared behaviours, beliefs, and objectives. Individuals build trust relationships and social cohesion through these connections. This phenomenon is called social capital (Cohen & Prusak, 2001). Strong social capital makes collective action possible and helps communities thrive, resulting in its long standing recognition as an essential factor in the effective and collaborative co-management of natural resources (Pretty, 2003).

A stated objective of MCFC is to “leverage and build local capacity” and “cultivate a broad level of community collaboration” (MCFC, 2016). To achieve that goal through the acquisition of carbon offset credits, the MCFC must have the support of the community, as well as the active participation of community members. Two factors will make this difficult for MCFC: First, there is strong cultural and political opposition to any group that profits from selling lumber off Crown land (Guderley, 2017; Smith, 2017). Second, a profile of the demographics in the region of Queens Municipality shows an aging and shrinking population who are resistant to change in their community (Ibbitson, 2015; Statistics Canada, 2016).

If MCFC wishes to build capacity and bring benefits to Caledonia and Queens Municipality, they require community buy-in (Pretty, 2003). If MCFC can invest in growing the municipality’s social capital, there will be significant benefits for both the organization and the community; however, there are currently several obstacles that will

make it difficult for MCFC to take advantage of the opportunity. As newcomers to the community, MCFC has not had much time to assimilate or build trust from residents. Without a strong relationship, MCFC may face strong social and political resistance in attempts to secure profits from carbon offsets.

Despite the current lack of social capital in the community, opportunities exist for MCFC to improve their connections. Some community members are on the Board of Directors, and others are shareholders in the project (MCFC, 2017). Their expertise should be leveraged so MCFC can integrate into the community. These representatives can act as ambassadors, bringing transparency that may close the gap between the rural population and the organization. Building better social acceptance in the community will allow for a more successful initiative.

According to Dufour (2007, p.38), an improvement initiative is “doomed to inevitable failure” without the support of an engaged citizenry, willing to rally around it. Although Dufour was explicitly referring to initiatives aimed at improving educational systems, the sentiment rings true for most community-based projects. It is unlikely for an organization or program to inspire change in a community without citizen support. More importantly, MCFC is unlikely to garner community support unless their project has visible benefits for the community in which it has been established. Since enrichment of the local economy through the engagement of community members in meaningful employment and educational opportunities, is a stated goal of MCFC, this community support is imperative to the success of the proposed offset project.

C. Financial

Recommendation:

The MCF must be managed first as a carbon offset project, and second as a forestry initiative. Diversification of economic prospects will support the achievement of this goal.

Finally, it is recommended that MCFC explore and highlight the ways in which the program will provide revenue for the government, such as through taxation or following the QC example, where the government holds 3% of carbon offset sales as collateral. *Additionally, if MCFC is to implement a forest carbon offset program they must explore new sources of revenue.* In this context, it is important to recognize the remarkable stability of the Acadian forest, with recorded fire activity or widespread windfall occurring as infrequently as once every 1000 years (Simpson, 2014). Although unchecked timber harvesting over the past century has threatened this stability (Simpson, 2014), MCFC's primary goal of restoring and enhancing the Acadian forest through IFM (MCFC, 2016), is likely to restore the historically stable forest dynamics of the region. Achieving this objective will make the MCF an ideal location for a carbon storage project, because reduced disturbance means a consequent reduction in the risks associated with carbon offsetting.

Still, if carbon offsetting is to become a realistic ambition of the forestry industry in NS, a shift in the province's interpretation of "forest products" is needed. That is, carbon sequestration must be recognized as an essential forest service. This means that timber products, such as firewood, cannot be the primary forest output as they are short-lived products (Peterson St-Laurent et al., 2017a; Peterson St-Laurent et al., 2017b). Rather the MCF must be managed first to increase its carbon carrying capacity, and second to provide conventional forest products.

Yet, according to the current licensing agreement, MCFC must maintain a timber quota as provincial governments are wary of losing revenue associated with stumpage fees (Peterson St-Laurent et al., 2017a; Peterson St-Laurent et al., 2017b). Thus it is suggested that while the production of wood products continues, focus should be on incorporating timber from MCFC land into longer lived products, rather than firewood. For example, MCFC wood could be used for framing new buildings or other high end/high quality products such as wood pellets which also serve to displace fossil fuel use (Van Kooten et al., 2015; Peterson-St Laurent et al.; 2017b). In the interest of diversifying economic prospects, another potential opportunity for MCFC is presented by NTFPs. Although the harvest of NTFP has been highlighted in the MCFC management plan as a potential undertaking, the focus was primarily on foraging edible plants (i.e. mushrooms). In BC, however, community forests have created innovative local industry around the NTFPs found among their trees. For example, in 2011 the Nuxalk Development Corporation in partnership with the Metlakatla Stewardship Society began the production of Great Bear Rainforest Essential Oils from the needles of commonly growing conifers in the area (Coastal First Nations Great Bear Initiative, 2011). Managing for carbon means being mindful in harvesting practices and employing innovative economic solutions to maintain the optimal level of long-term sequestration while creating opportunities for financial growth.

Furthermore, species composition and regeneration patterns are essential to determining the effectiveness of carbon absorption. Those species that are traditionally valuable as conventional forest products may not always be the same species that most effectively sequester carbon (Gunn et al., 2014; Peterson St. Laurent et al., 2017a). Currently, it is believed that the longer-lived the tree species the greater the service provided as a carbon off-setter (Taylor et al., 2010; White, 2013; Gunn et al., 2014). Therefore, it would be counterproductive to cut old-growth species, such as eastern hemlock, sugar maple, or yellow birch, for firewood in a carbon offset forest. Thus, like the fostering of community support is imperative to its social success, long-term outlooks are essential to the efficacy of MCFC's forest carbon credit program.



6. CONCLUSION

Establishing a carbon offsetting program on forested lands comes with many risks. With the potential for issues such as leakage, additionality, and permanence, an extensive regulatory framework must be in place to ensure that forest-based projects are effective. As shown in the Capacity Gap Analysis, while NS has the legal structure in place to support the creation of a potential carbon market, the historic attitudes of its ministers suggest that its development is likely to be resisted. Yet, the province, and truly all of Canada, are in turbulent economic times. As Canada's resource-based economy is continually destabilized by unpredictable fluctuations (MarketsNow, 2017; Isfeld, 2017), it has become increasingly clear that economic innovation is necessary. Though disputed by some as a "Band-Aid" solution to the climate change problem (White, 2011, pp. 113-114), carbon offsetting has the potential to act as a crutch in the challenging emissions reduction process. Further, in a province like NS that still maintains a significant rural population despite global trends of urbanization, the establishment of a carbon offset program may introduce renewal for otherwise economically stagnated communities. Caledonia, which houses the offices of the daily operations of MCFC, is one example of a community that could prosper in the event of a provincially approved offset program

All external forces considered, it has been recommended that MCFC propose their envisioned carbon offset project as a six-year pilot project. The recommended timeframe is short enough to reduce perceived risks, yet long enough to demonstrate the efficacy of such a project. Implementation of this program would provide an opportunity for political leaders and community members alike to get comfortable with the idea of carbon offsetting as a viable environmental initiative with economically lucrative benefits. Indeed, this program would be unique in Canada in providing tangible benefits to local communities through environmentally sustainable management, and provide a precedent that could be used to inspire change across the country. Development of this program would make NS a leader in environmental legislation, and a hero in our hearts.



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APPENDIX A: Glossary of Key Terms

- Additionality** Addresses the concern that carbon offsets may have been generated anyway, without the establishment of a formal offset project
- Leakage** A shift of forestry operations from one area to another due to implementation of a non-forestry initiative, such as a conservation project or a carbon offset program
- Netukulimk** A Mi'kmaw term for the interconnectedness of the natural and human world. It guides the way that humans interact with the natural world: "you can take the gift that the creator has given you without compromising the ecological integrity of the area... the gift has been taken from" (Marshall, 2011).
- Permanence** The potential for reversal of an offset project due to an unexpected disturbance such as fire.
- Pooling** The combination of resources between various proponents of offset projects to account for the possibility of project reversal

APPENDIX B: Key Search Terms for Literature Review

Limit publication date: 2000-2017

Carbon offset criteria	Canadian provincial criteria	International criteria
<ul style="list-style-type: none"> - Carbon credit - Carbon offset - Atmospheric benefit - Carbon sequestration 	<ul style="list-style-type: none"> - Crown land Canada - Crown land [+ province/territory] - Public land - Forestry offsets - Forest agreement Canada - Forest policy Canada 	<ul style="list-style-type: none"> - Crown land - Forest agreement - Forest policy

APPENDIX C: Other Jurisdictions

Saskatchewan

Much like neighbouring Alberta, the focus of carbon bio-sequestration in Saskatchewan (SK) has been on agricultural models. The previous NDP government first promoted the use of natural carbon sinks in a 2007 Climate Change Action Report as one of five key pillars moving forward. In SK, the *Management and Reduction of Greenhouse Gases Act* was passed in 2009 which allowed for setting of GHG emissions baseline and reduction targets, regulating emitters, and developing a compliance payment formula but the law was never proclaimed into force. While this legislation actively defined what the province considered to be an “offset” the definition made no specific mention of biological sequestration. Previously in 2002 SaskPower had partnered with others to set aside 200,000 ha of boreal forest for 50 years for the generation of carbon offsets. But there is nothing specific about forest projects for carbon offsets in Saskatchewan, but there is tangentially for Agriculture with s. 4-4(1)(d) of the *Provincial Lands Regulations* (RRS c P-31.1 Reg 1) stating the Minister may issue a license for Crown land use for studies ‘to determine suitability for carbon sequestration’ on Provincial agricultural land.

This type of license is more for underground, rather than in soil biological sequestration, as Saskatchewan has invested most of their climate technology research efforts into carbon capture and storage (CCS) associated with coal fired power plants. In other words, “Saskatchewan believes that a focus on technology is fundamentally critical [...] for a sound GHG reduction policy” (Government of Saskatchewan, 2016). In the same report the province endorsed part of the Vancouver Declaration in promoting interprovincial collaboration to enhance carbon sinks in agriculture and forestry. They also endorsed the establishment of a pan-Canadian offset protocols framework so that carbon credits could be traded internationally. This would likely require cooperation with the federal government. Interestingly, the Wall government’s white paper (Saskatchewan, 2016) included: “We endorse recent comments made by Nova Scotia calling for maximum flexibility as provinces attempt to meet federal climate change targets.” This endorsement is both encouraging and a push back to the federal government as Saskatchewan has stated their displeasure with the federal government’s current climate policy actions.

Manitoba

The current government of Manitoba has held similar views to its neighbour, as it recently questioned the federal government’s legal ability to enforce a mandatory price on carbon on provinces. The consulting lawyer concluded that the federal government has a constitutional authority to impose a carbon levy due to federal taxation power as it is non-intrusive. Manitoba may have room to act however if it implemented its own policies it may be able to avoid paying what amounted to the same price on carbon if it could reach the same emission reductions that were previously mandated by the federal government (Schwartz, 2017). Schwartz (2017) cited the concept of cooperative federalism meaning that if the federal government sets a high level policy or target, provinces have latitude to craft their own means of compliance: “The principle of the equality of the provinces has been a centrepiece of constitutional reform in the past decades.” Since, the consult Premier Pallister announced that the basis of a “Made in Manitoba” plan will include carbon pricing (albeit not at Canada’s benchmark level), and continued investments in green electricity, energy efficiency and carbon sequestration. Part of the plan

also allows for agricultural operations to develop carbon sequestration techniques which they could put forward towards participating in offset trading systems (to be established) in Manitoba as well as other provinces (CBC News, 2017). The Manitoba plan is linked to other provinces; like Saskatchewan there is a focus on offsets generated from agricultural projects and like Alberta, large emitters would have to adhere to an output-based pricing system of performance standards while being able to meet compliance via offsets and credit trading.

Before 2016, the former Manitoba government took steps to implement a cap and trade program that would have allowed for the use of carbon offsets. Manitoba was part of the Western Climate Initiative (WCI); it signed a memorandum of understanding (MOU) with California regards carbon credit trading in 2006, and had actively discussed implementing a cap and trade in 2010/11 (Mahoney, 2017). Further, in 2015 the province signed a MOU with Ontario (ON) and Quebec (QC) around climate change actions and market-based mechanisms. Under the MOU the three provinces would harmonize emission inventory data collection methods and develop a Cap & Trade system consistent with WCI with the intent to link (applies not to QC who is already linked, ON also now linked). Regarding offsets, there would have been a prioritization for ON & MB to adopt QC's existing protocol or offset validation, followed by California's which included a Forest Project Protocol. Manitoba dropped out of the MOU however, following the change in government after the 2016 election, meaning the document is dead in the province but may still influence actions going forward.

	Description	Reduction Target	Compliance Options
BC	Offset market created to enable public service carbon neutrality + with a tax on some fuels.	33% below 2007 by 2020 80% below 2007 by 2050.	Internal reductions and/or carbon offsets.
AB	Offset market that requires large emitters (100,000 tCO ₂ e/year) to reduce emissions; coupled with a levy on certain fuels.	By end of 2020: 50% below 1990 standardized to GDP. Apply only to specified gas emissions.	Internal reductions performance credits purchase of carbon offset credits Payment into Technology Fund.
ON	WCI C&T program. Applies facilities and natural gas distributors with ems of 25,000 tCO ₂ e or more/year.	15% below 1990 by 2020 37% below 1990 by 2030 80% below 1990 by 2050	Internal reductions, purchase of carbon credits (including early reduction credits) or purchase of emission allowances
QC	WCI C&T program. Applies facilities and natural gas distributors with ems of 25,000 tCO ₂ e or more/year.	20% below 1990 levels by 2020. The cap is set to decrease annually at an average rate of 4% per yr	Internal reductions, purchase of carbon credits (including early reduction credits) or purchase of emission allowances.

APPENDIX D: PESTEL Analysis

Executive Summary

Medway Community Forest is located near the Kejimikujik National Park in Nova Scotia. It is managed by a cooperative located near-by. The co-operative hopes to fully utilize their Crown land forest by selling carbon credits to businesses looking to offset their carbon emissions. The following PESTEL analysis examines the operating environment surrounding the cooperative, and how external forces influence the organization as a whole, and their carbon offset initiative.

The first important factor identified through the analysis is the social relationship between the community forest co-operative and the surrounding environment. Rural Nova Scotia has historically been resistant to change, and may not have interest in generating income through non-traditional forest management techniques. The community forest is somewhat subject to societal buy-in, as they are proposing changes in practice on Crown land.

Economic and technological trends are also important factors in the operating environment of Medway Community Forest. The forest industry is an important part of Nova Scotia's economy, however, the Canadian forest industry as whole has seen a decrease in the global demand for their products. This provides an opportunity for the cooperative to prove its ability to generate economic, social, and environmental benefits through sustainable forest management.

The legal frameworks surrounding Medway Community Forest provide a platform for both its existence, and prescribes how it can operate. All of the cooperatives initiatives are contingent on the public policy in place to support and allow their operations.

Political Forces

Katarina Sebastian

Introduction

In order to gain a better understanding of Medway Community Forest Co-operative (MCFC) it is necessary to examine the external political forces which may affect MCFC. International, Federal, Provincial, and Municipal political forces effect MCFC, however for the purposes of this analysis international political forces will not be included due to the inherent connection international politics has on setting Federal political agendas. Another key dimension which must be noted is two basic assumptions. The first assumption is that political forces are generally heavily influenced by social forces such as public opinion. Secondly, political forces generally impact legal forces. Despite these two key assumptions, social and legal forces will be identified and analysed separately. For the purposes of this analysis, social and legal forces which impact political forces will not be considered This analysis will focus solely on the external political forces which may impact MCFC.

A top-down approach can be used to determine the political forces which affect MCFC. Generally, the assumption can be made that political forces on the federal level impact the provincial level, and the provincial level can impact the political forces present at the municipal level. As such, this analysis will first look at federal political forces, then provincial, and finally municipal.

Overall Political Context

The overall political atmosphere in Canada both provincially and federally reflects two primary themes. The first is climate change and the second is economic development and the creation of jobs. It can be seen that there is an overall movement from a natural resource driven economy which feeds political ambitions to a political atmosphere which concerns itself with environmental issues. Liberal governments are currently in power both federally, and in Nova Scotia. On both levels of government, the political parties are both relatively stable which presents little opportunity for large changes in government priorities in the near future. The next federal election will be held in 2019, and the next Nova Scotia provincial election will be held in 2021. This reflects the overall stability of both governing parties.

Federal

External political forces which may impact MCFC exist on the federal level. The Federal government, though separate from the provincial governments, tends to have an agenda setting effect on provincial governments and the parties currently in power. The liberal government ran in the Federal election on a party platform that promoted movement from Canada's natural resource driven economy to that of promoting climate change amongst many other political irritants (Real Change: A New Plan for Canada's Environment and Economy, 2015).

The current governing party in Canada has laid out stringent targets and commitments regarding climate change such as investing in clean technology and reducing carbon emissions (Real Change: A New Plan for Canada's Environment and Economy, 2015). As a component of this commitment, the federal government has created a \$2 billion Low Carbon Economy Trust that is meant to provide funding for projects that aim to reduce carbon emissions (Real Change: A New Plan for Canada's Environment and Economy, 2015). This fund further reiterates the political forces which are in favour of projects that aim to reduce Canada's carbon footprint while also promoting climate change and subsequently, job creation.

The federal government has also taken a collaborative approach which provinces and territories to ensure that these values are being promoted not only on the federal level but also on the provincial and territorial level. This collaborative approach has led to the mandatory introduction of carbon pricing mechanisms in provinces and territories in order to reduce carbon emissions (Real Change: A New Plan for Canada's Environment and Economy, 2015).

Provincial

Political Context

The Liberal party, headed by Stephen McNeil was re-elected in May 2017 as a majority government. The Liberal Party platform amongst other commitments, has made a continued commitment to protect the environment and address climate change (Nova Scotia Liberal Party, n.d.). The Liberals pledged that their re-elected government would ensure that an independent review of Nova Scotia forestry practices would be undertaken (Nova Scotia Liberal Party, n.d.). As such, one component of this pledge is that no further long term agreements will be made for harvesting on Crown Land until completion of the review (Nova Scotia Liberal Party, n.d.). In addition, the liberal party pledged for further protection of biodiversity in Nova Scotia. As an effect of this, the liberals pledged to pass a Biodiversity Act which will improve protection and will entail the establishment of the Nova Scotia Biodiversity Council (Nova Scotia Liberal Party, n.d.).

Cap and Trade Program

Due to the mandatory requirement of implementing a carbon pricing mechanism, the Nova Scotia provincial government has announced their intent to introduce a Cap and Trade program (What We Heard Report, 2017).

Commitment to job creation

The liberal government in Nova Scotia has also committed to increasing Nova Scotia's economic situation by increasing GDP and creating more jobs. Due to the high economic impact the forestry industry currently has on Nova Scotia's GDP (\$800 million), and the approximately 11,500 jobs the industry creates, it is clear that this is a political force as well (Pinfold, 2016).

Natural Resource Strategy

In 2011 the Government of Nova Scotia released *The Path We Share* (2011), the Natural Resource Strategy. Forestry was one of the primary areas of focus in the strategy. *The Path We Share* (2011), outlined that "collaborative research and shared stewardship in the forestry sector" was one of the primary objectives regarding forest management practices (MacLellan & Duinker, 2012). In addition, the strategy also outlined a willingness to explore the implementation of community forests on Crown Land (MacLellan & Duinker, 2012).

Municipal

The political forces on the municipal level which may affect MCFC includes the Queens County Municipal Climate Change Action Plan. However, the action plan does not address forest conservation, or community forests. As such, it is not included in the municipal political priorities (Municipal Climate Change Action Plan, 2014).

Assessment of Forces

Overall the political forces on the federal and provincial level regarding their overarching priorities, and subsequent strategies are general in favour and present opportunities for MCFC. The strategies outlined in the government's priorities and the political atmosphere follow three key themes which present opportunities to the organization. The key themes are as follows:

- Collaborative approaches to climate change and forestry management;
- Reducing carbon emissions; and
- Introducing carbon pricing frameworks.

Opportunities for MCFC due to these political forces in this regard mean the potential legislative, regulatory, and legal framework changes which may occur due to these forces.

It is likely that the proposed Cap and Trade program will yield opportunities for programming for MCFC.

However, there are some potential risks which the organization should be aware of. Primarily, regarding the provincial government's commitment to job creation and economic improvement. Due to the significant affect the Forestry Industry has on Nova Scotia's economy, one can infer that there are competing political forces regarding which objectives to pursue more readily.

In addition, the municipal government does not have any specific measures or actions regarding community forests or promoting sustainable forestry practice. This may signify that the political environment for MCFC on the municipal level is unwilling or unsupportive of MCFC.

Conclusion

The current political environment has broadened and created opportunities for MCFC. Both Federally, and provincially, the governments in power have expressed explicit interest in actions against climate change. Further, the provincial governments Natural Resources Strategic Plan, *The Path We Share (2011)*, has stated that it is a priority to take a collaborative approach to the forestry industry. In addition, *The Path We Share (2011)*, explicitly states the goal to explore how to create community forests on Crown Land. Despite the risks presented from the political forces regarding job creation, overall the political forces present opportunities for MCFC.

Object: Medway Community Forest Co-operative			
Political Forces:		Risks (MCFC) :	Opportunities (MCFC) :
Federal	-Commitment to addressing climate change through investments in clean tech and reducing carbon emissions. -\$2 billion Low Carbon Economy Trust -Implementation of carbon pricing mechanisms a mandatory requirement for provinces/territories		-Overall, reflects opportunities for MCFC. -Willing political actors. -Presents potential opportunities for MCFC re: access to funding.
Provincial	-Commitment to addressing climate change -Implementation of a Cap and Trade Program -Job creation -Natural Resource Strategy: expressed interest in exploring community forests	-conflicting objectives regarding climate change and job creation due to this high impact the forestry industry has on NS economy and jobs.	-Overall, reflects opportunities for MCFC. -Willing political actors and attitudes towards climate change and community forest projects.
Municipal	-Queens County Municipal Climate Change Action Plan	-Forest conservation and sustainable forestry practices are not included. May reflect unwilling political actors.	

Economic Forces

Jackson Gibson

Introduction

This external analysis examines the most important economic factors affecting the operating environment of Medway Community Forest Cooperative. The scope of this analysis is primarily contained within Nova Scotia, especially rural Nova Scotia. There are four main economic

factors explored in this analysis, that can be broadly categorized into two groupings. The first is regarding labour in the surrounding environment. This is broken into the labour supply, and the expertise of the labour itself. The second area explored is the industry effects on the Medway Community Forest Co-operative. This is broken into the economic impacts the forestry industry has in Nova Scotia, and the potential industry push-back on Medway Community Forest Co-operative's initiatives.

Labour Supply

The labour supply in Nova Scotia is an important economic factor in the operating environment of Medway Community Forest Co-operative. This organization is located in rural Nova Scotia, and therefore is largely subject to the labour conditions of the surrounding area, not able to draw much from the Halifax area. As of June 2017, the provincial unemployment rate is 8.8 percent (Province of Nova Scotia, 2017). Regional numbers from 2014 indicate that the unemployment rate in the surrounding area of Medway are higher than the provincial averages. As measured in 2014, the unemployment rates of the Annapolis Valley, and the Southern Nova Scotia region, are 8.9 percent and 12.0 percent, respectively (Province of Nova Scotia, 2017). Higher unemployment rates in these areas may indicate an abundance of available labour, however, much of this labour force may be unskilled or unmotivated to maintain available employment. From speaking with a representative of Medway Community Forest Co-operative, availability of labour, especially skilled and motivated labour, is a key challenge of operating in their location.

Location Supply

The location of the operating environment is an important consideration, but coupled with the industry of Medway, creates a key challenge for the Co-operative. According to Nova Scotia Careers, the industry group of forestry, fishing, mining, quarrying, oil and gas has the highest unemployment rate of any industry group in Nova Scotia (Province of Nova Scotia, 2017). This industry had an unemployment rate of 22.8 percent as of 2014, much higher than the provincial average of roughly 9 percent at the time (Province of Nova Scotia, 2017). This data may suggest that a large portion of unemployed people in Nova Scotia do not have the proper training or skillsets needed for the jobs available. Another important factor impacting the labour environment, is social welfare, and the economic concept of reservation wage. Many unemployed people in cyclical and seasonal industries collect employment insurance from the government. This can sometimes instill complacency amongst those receiving benefits, and reduce motivation to actively seek employment. Reservation wage is the minimum wage at which someone is willing to accept a certain job. With employment insurance benefits available, many people in rural Nova Scotia may be unmotivated to accept a lower paying job, and wait for another opportunity to arise.

Forest Industry

A very important factor for this analysis is the economic impact of the forest industry in Nova Scotia, and how the initiatives of Medway Community Forest Co-operative may influence, or be influenced by, the economic environment. General industry information was gathered with the purpose of gaining an understanding of the industry, and how Medway Community Forest Co-operative may fit into the larger picture. According to a 2016 report, the forest industry in Nova Scotia is made up of four main components: wood product manufacturing (44 percent), pulp and paper product manufacturing (36 percent), forestry and logging (20 percent), and specialty products (< 1 percent) (Gardner Pinfold, 2016). This may give an indication about which industry practices may be most influenced by the initiatives of Medway Community Forest Co-operative. The surrounding counties of the community forest play an important role in the

forestry industry. Queens County, Lunenburg County, and Annapolis represent four percent, six percent, and six percent, respectively, of the annual average provincial wood harvest (Gardner Pinfold, 2016). The direct and the spinoff economic impacts of the forestry industry in Nova Scotia for 2015 were summarized in the report. Total direct output was \$1.2 billion, while spinoff (or indirect) output was \$923 million. Direct impact on Gross Domestic Product for the province was \$410 million, plus an additional \$390 million of gross product indirectly from the forestry industry. The jobs within the industry in Nova Scotia for 2015 was 6,100, with an additional 5,400 of spinoff jobs related to industry. The direct and spinoff income associated with those jobs were \$275 million, and \$226 million, respectively. The key related industries that are impacted by the forest industry include: forestry support and technical services, transportation, utilities, technical services, business services, and construction services (Gardner Pinfold, 2016). Given this economic information, Medway Community Forest Co-operative may gain an understanding of the surrounding operating environment, and how their initiatives may impact the industry.

Forest Products

The Forest Products industry has a very important economic impact on the province of Nova Scotia. The industry ranks fifth in terms of contribution to Gross Domestic Product in the Goods Producing Sector of Nova Scotia. In terms of number of jobs, the industry ranks second in Nova Scotia in the Goods Producing Sector. The forest product industry ranks third in Nova Scotia exporters in the Goods Producing Sector (Forest Nova Scotia, 2017). This shows the importance of the Forest Products industry in Nova Scotia, especially the rural parts of the province. Medway Community Forest Co-operative should be cognisant of how their initiatives impact the economics of the industry, and if any industry players may oppose their management techniques. The ownership model of the forest land in Nova Scotia is another factor that may impact the economic environment around Medway Community Forest Co-operative. Only 35 percent of forest land in Nova Scotia is Federal or Provincial crown land. 55 percent is owned by small private woodlots, and the remaining 10 percent is owned by industrial private woodlands (Forest Nova Scotia, 2017). This means there are many owners of forest land in Nova Scotia, not just a few main ones to consider in the economic environment. Another economic factor that will influence the industry, is the price of commodities harvested in the forest industry. According to a Nova Scotia forest industry report, these commodity prices have seen an increase between 2012 and 2016. Lumber, pulp, and newsprint have seen price increases of 26 percent, 41 percent, and 13 percent, respectively, in this time frame (Gardner Pinfold, 2016). This may incentivise lumber companies to harvest more aggressively. An additional economic factor affecting Medway Community Forest Co-operative is a reduction in overall demand for Canadian forest products. This is shown in Figure 1 below:

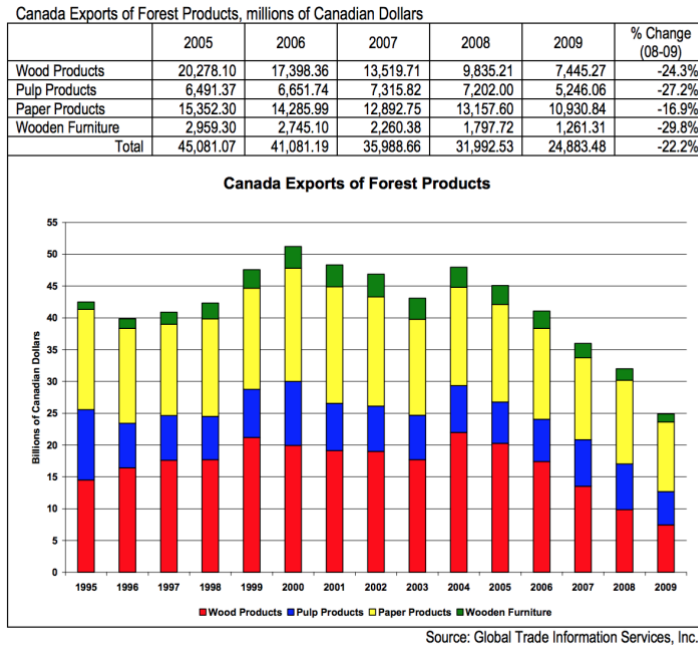


Figure 1: Canadian Forest Product Exports
Source: (Poon, 2010).

The decline in Canadian exports of forest products may present an opportunity to Medway Community Forest Co-operative to gain support in utilizing forest land for more diverse purposes than just lumber harvesting. This may result in economic gains from sustainable forest management, as well as social and environmental gains.

Conclusion

In closing, the two main economic factors to be considered are the labour environment, and the industry dynamics. The location and the industry of Medway Community Forest Co-operative creates a key challenge in securing reliable and adequately skilled labour. Canadian exports of forest products have been decreasing, but the industry is still an important part of the Nova Scotia economy. Medway Community Forest Co-operative should consider how their initiatives may be received by the economic community around them.

Social Forces

Rachael Cadman

Social Capital and the Medway Community Forest Co-operative

This section of the PESTE(L) analysis will explore the social and cultural forces that may affect Medway Community Forest Co-operative's (MCFC) success in sustainable forest management in rural Nova Scotia. The implementation of a new forest management technique in rural Nova Scotia will require careful attention to the social dynamics and attitudes of the community that surround the forest. In order to understand this context, this section analyzes the social forces that affect current public opinion on Crown land forestry initiatives in central Nova Scotia. The central question is: does MCFC have adequate social capital within the community of Queens Municipality and surrounding rural communities to generate acceptance and support for the community forest?

Resentment of Crown Land Forestry

One barrier that MCFC will face is the fact that there is a great deal of resentment in rural Nova Scotia against companies that are licensed to harvest timber from Crown Land instead of privately owned woodlots.

This is in part because the lumber industry has been embedded in the life and culture of Nova Scotia's rural areas for centuries (Dube, 2006; Haley, 2016). Forestry has been an important economic driver in the region since the municipality was founded in 1759 (Region of Queens, 2017). The importance of the industry can be seen in the many enterprises that have dominated life in Queens for hundreds of years: sawmills, lumberyards, and more recently, pulp and paper production (Region of Queens, 2017).

Forestry remains an important aspect of rural Nova Scotian life today (Dube, 2006). Unfortunately, there has been a steady decline in demand for Nova Scotia wood products over the last 15 years, which has led to significant loss for investors and a decline in labour in the forestry industry (Nova Scotia Department of Natural Resources (NSDNR), 2017). As employment declines, people are forced to leave their traditional occupations, and sometimes move away to find work.

Many people also own private woodlots. Private land holdings account for 53% of all the land in the province, compared to only 6% nationally (NSDNR, 2017). Individual citizens have invested time and money into their private woodlots, maintaining a forest in order to one day harvest the trees and make a profit. The median income in the region of Queens Municipality was just over \$25,000 in 2015 (Statistics Canada, 2016), suggesting that private woodlots are an important alternate source of income. For some, this is an investment opportunity; for others, it is a retirement plan (Mary Jane Roger, personal communication 2017 September 22).

These small forest holdings are meant to provide significant returns for independent owners, and so for many small woodlot owners, the fact that big companies and organizations can harvest off of Crown land without needing to own it has stirred up resentment (Guderley, 2017 February 14; Smith, 2017 June 29). Companies who sell wood off Crown lands are accused of flooding the market and driving down prices, making private woodlots worth less (Smith, 2017 June 28). In central Nova Scotia private woodlot owners tend to feel antagonistic towards the companies who profit off Crown land leases (Dube, 2006). As a license holder for one of the largest Crown land holdings in the province (NSDNR, 2017), MCFC risks being portrayed as taking money away from the community, rather than reinvesting in it.

Resistance to Change

It is widely recognized that rural communities in Atlantic Canada are resistant to change (Savoie, 2006; Ibbitson, 2015 March 20). It is a culture that does not like to see development, especially when it changes traditional ways of living. The project that MCFC is suggesting for the community, namely, the sale of carbon credits for sustainably managed forest lands on crown land, is unprecedented in Nova Scotia (Roger, personal communication 2017 September 22). To promote this as a possible innovative economic enterprise in Queens Municipality requires a trust relationship between the organization and the community, as well as a general willingness for innovation. Based on the current cultural situation in Queens Municipality, MCFC will struggle to achieve the kind of social cohesion and support they require to make progress.

This cultural characteristic is exacerbated by the fact that the population is aging: 22% of Nova Scotians are over the age of 65, and that number jumps to 31% in Queens Municipality (Statistics Canada, 2016). Older populations are less likely to welcome change (Talukder, 2014), especially from an outside organization like MCFC, which only recently entered the community. Part of the reason that rural communities are aging is that many youth find it difficult to get work, and must therefore leave – a phenomenon commonly referred to as “going down the road” (Ibbitson, 2015 March 20). According to the 2016 census, the population of Queen’s Municipality has fallen by 609 people since 2011, a drop of 5.6% (Statistics Canada, 2016). Economic pressure has been hard on rural communities in Nova Scotia, and has severed many of the social bonds that created vibrant communities and encouraged investment in social capital. As the population shrinks, those who remain are older residents who are less likely to invest time in creating new economic opportunities, and may have less interest in opportunities that do arise.

One recent incident demonstrates the lack of social capital that MCFC has within the community. Some members of MCFC believe that a forest fire that damaged 400 hectares of forest in 2016 was started by arsonists (Wentzel, 2017 July 19). In a recent interview, MCFC general manager Mary Jane Roger pointed out that MCFC “had a contract with Northern Pulp to cut wood exactly where the fire was started, so we had spent about \$13,000 building a road to that exact fire site” (Wentzel, 2017 July 19). While the cause of the fire has not officially been determined, it is clear that the relationship does not contain a lot of trust.

Additionally, the cultural resistance to change in the area is amplified by the fact that MCFC is relatively unknown and unintegrated into local life. On a recent trip to Caledonia, our team mentioned MCFC to the proprietor at the local coffee stop. They had never heard of the organization or the work it intends to do for the community, nor did they know where the head office was located, even though it was only 500 metres away.

Analysis

Within a community, connections are made through shared behaviours, beliefs, and objectives. Individuals build trust relationships and social cohesion through these connections. This phenomenon is called social capital (Cohen & Prusak, 2001). Strong social capital makes collective action possible, and helps communities to thrive. It has long been recognized as an important factor in effective collaborative co-management of natural resources (Pretty, 2003).

The stated objective of MCFC is to “leverage and build local capacity” and “cultivate a broad level of community collaboration”. To achieve that goal through the acquisition of carbon offset credits, the MCFC must have the support of the community, as well as the active participation of community members. Two factors will make this difficult for MCFC. First, there is strong cultural and political opposition to any group that profits from selling lumber off Crown land. Second, a profile of the demographics in the region of Queens Municipality shows an aging and shrinking population who are resistant to change in their community.

If MCFC wishes to build capacity and bring benefits to Caledonia and Queens Municipality, they will need community buy-in. If MCFC can invest in growing the municipality’s social capital, there will be significant benefits for both the organization and the community; however, there are currently several obstacles that will make it difficult for MCFC to take advantage of the opportunity. As newcomers to the community, MCFC has not had much time to assimilate or

build trust with the residents. Without a strong relationship of trust and support, MCFC may face strong social and political resistance in their attempt to secure profits from carbon offsets.

Technological Forces

David Lanteigne

The main technological factor that could affect the development of a carbon-offset program at MCFC is the uncertainty surrounding the scientific validity of additionality. Additionality is the measure of the excess carbon that can be stored in forests through improved forest management (IFM) (Gillenwater, (2012). It is the amount of carbon that is stored above what would be stored without IFM. The amount of additional carbon removed from the atmosphere will determine the number of carbon credits allocated to MCFC if the NS government accepts the project. If the technology surrounding the measurement of additionality can be solidified, the Nova Scotia government will be much more likely to grant MCFC the ability to sell carbon offset credits.

Measuring additionality is difficult because it entails comparing actual carbon stored with an unobserved scenario. It is impossible to quantify this with accuracy. Along with this uncertainty, there is asymmetric information between forest cooperatives and the government. Companies proposing improved forest management initiatives to acquire carbon offset credits have an incentive to provide information that favors their position. The carbon market is also slightly different than other markets in the sense that both sellers and buyers benefit from carbon offset credits, and so it is necessary to have an arbitrator. Governments are currently looking for the most cost effective way to offset carbon, and improved forest management techniques are relatively easy to implement, but there is a high risk of false additionality predictions. It is understandable that governments are cautious when allocating carbon offset credits to forest cooperatives, given the current amount of subjectivity associated with the initiatives. Once governments are more confident in the science of measuring additionality, initiatives like the one proposed in *Project 7* will find broader acceptance.

The lack of technological advancement in this area also puts an added cost on government to approve the legislation. As noted earlier, both the seller and the buyer benefit from allowing forest cooperatives to take part in the “cap and trade” system. This means government has to measure and verify the total amount of carbon sequestration. The tests necessary to establish accurate additionality measurements are currently expensive. The government is responsible for monitoring the progress of the forests, and do any necessary investigations to ensure expected amounts of carbon sequestration are accurate over the full length of the project. These types of carbon sequestration ventures take place over many years. The cost of the analysis is also borne by the landowners looking to join the carbon market. Whether it's voluntary credits or otherwise, there is a rigorous certification associated with the sale of carbon credits (Gillenwater, (2012). Technological advancements that reduce costs for such initiatives would benefit all parties.

The uncertainty surrounding the concept of additionality is one of the main barriers to entry for companies attempting to take part in the carbon offset market through IMF. Despite the many

difficulties, several landowners in Canada have managed to persuade their respective governments to allow them to sell credits for the amount of additional atmospheric carbon they offset. One example of how some actors are pushing for the advancement of this technology is the “National Forest Carbon Monitoring, Accounting, and Reporting System” (NFCMARS).

This system was developed to address requirements outlined in the Kyoto protocol. Essentially, this requirement makes it necessary for Canada to obtain better data on land use and improved forest management activities across the country. The purpose of the system is to estimate past changes in carbon capture and attempt to predict changes over the next two to three decades. The NFCMARS currently tracks the dynamics of carbon pools above and below ground. Although the system isn’t extensive enough to provide data on the MFCF’s land, it does provide data on over 50,000 sample plots across Canada (nrncan, 2016). More importantly, the greater demand for effective technology to measure relevant data has already led to some significant advances.

Along with a reduction in the usage of fossil fuels, a large amount of the carbon that is already in the atmosphere must be removed in order to maintain healthy economic growth while reducing carbon levels in the atmosphere to sustainable levels. There are many different methods and theories for how carbon can be removed from the atmosphere. It is likely that a combination of methods will be most effective. Technological changes, however, could lead to one method being more cost effective than the others. If this happens, it may be more beneficial for government to invest their resources in methods other than improved forest management. It is currently economically viable to use improved forest management to remove carbon from the atmosphere, despite the challenges mentioned above. Described below are the main approaches in use today and their potential, given the possibility of technological advances. The two main areas where technology can affect change are storage quantity, and storage lifespan.

One of the most prominent forms of carbon sequestration, and perhaps the method that has been in use for the longest time, is carbon capture and underground storage. Many of the larger plants around the world are already outfitted to capture carbon that it produces and store it underground. The main benefit with this method is that it is a proven technology that has been in practice for years. Although it is the most widespread method, there are still many issues (Lackner, 2003).

Carbon capture and storage is only effective when the source of carbon is highly concentrated. It is not very efficient at removing carbon that is diluted into the atmosphere. Once the concentrated carbon is captured from the plant, it is injected into reservoirs or caverns underground that previously contained oil or other liquids/ gases. There are two major issues that arise from this method. The first is that plants are starting to run out of places to store the carbon. The second is that there are a lot of uncertainties regarding the long-term integrity of the reservoirs and storage lifespan. It is possible that the carbon stored could slowly find its way back into the atmosphere (Lackner, 2003). Companies operating large plants are now investigating chemical processes to neutralize the carbonic acid, however this process is currently very costly (Lackner, 2003). These uncertainties have compelled scientists to research better ways of sequestering carbon, which could open a larger gap in the market for improved forest management.

Ocean-related carbon sequestration is not very widely used, but recent technological advancement is making the concept more feasible. One form of ocean related carbon sequestration is iron fertilization. Iron is already present in the ocean and helps absorb carbon.

Scientists are currently unsure how the ecosystem will react to the additional iron, but this could be a legitimate option in the future (Monastersky, (1995). The main form of ocean sequestration that could rival improved forest management for funding is seaweed farming. Seaweed grows quickly and can be used as a replacement for natural gas. Large corporations have attempted seaweed farming, but the technology has not evolved sufficiently to prove economically feasible (Flannery, (2015).

Technology that affects the supply and demand for wood products can also affect the industry, given that it is currently MCFC's main source of revenue. If demand for wood softens, MCFC will have to look towards other sources of income. This could be beneficial as profit from the sale of wood is not their main focus. As a company operating on crown land, the government has a certain amount of influence in their operations. They would like to see economic gain for the region surrounding the forest, while MCFC has a more focused environmental mandate. If demand for wood decreased, the NS government may be more accepting of MCFC pursuing other forms of financial benefit, such as the sale of carbon credits. One example of technology moving the market in this direction is plantations supplying a larger share of the world's needs for forest products (Sampson, (2014). Another example is concrete, metal, and other more durable materials becoming more commonplace in house construction.

Lastly, technological progress could move jobs away from the forestry industry in rural Nova Scotia. Some examples of this are tidal power and wind farms. Without the pressure from government to use their land to create jobs and economic gain for the region, MCFC could focus their resources on other goals, such as improved forest management.

Potential advances in technology will have a significant impact on MCFC successfully completing their project - some technological breakthroughs may enhance and support IMF plans, different innovations may make other processes much more advantageous than IMF - but the main factor is the accurate measurement of additionality. This is the largest barrier to MCFC's success and should be monitored closely.

Environmental Forces

Shauna Doll

Introduction

Often described as a "transitional zone" between the northerly Boreal Forest, and the more southerly Great Lakes-St. Lawrence Forest, the Acadian Forest Region is generally characterized by its mid-to-late successional, shade tolerant species, such as red spruce, eastern hemlock, white pine, sugar maple, yellow birch, and American beech (Halliday, 1937; MCFC, 2016; Natural Resources Canada, 2017). Thirty-two characteristic species in this region, and an average of one thousand years between *natural* disturbance events (i.e. windstorms and fires), distinguishes the Acadian Forest as one of the most diverse and stable temperate forests in the world (Simpson, 2014). However, due to over a century of intensive harvesting and land clearing, the natural successional patterns of the Nova Scotian Acadian Forest have been severely altered, reducing the old growth (OG) population from 50% to 1% (Simpson, 2014). This has resulted in the proliferation of early-successional species such as eastern larch, balsam fir, trembling and large-tooth aspen, and white birch, over the longer-lived, characteristic

Acadian species (Simpson, 2014). Although human damage to forests is typically done in an effort to enhance the economy, a dire consequence (in addition to the loss of habitat, disturbance of natural forest dynamics, and the removal of older growth species) is the release of large amounts of carbon into the atmosphere (Gunn, Ducey, & Whitman, 2014; Lacroix, Petrenko, & Friedland, 2016). In response, the Medway Community Forest Cooperative (MCFC) has proposed an initiative to use integrated forest management (IFM) to enhance and restore the Acadian forest, while also fostering the local economy (MCFC, 2016), thereby increasing the amount of carbon sequestered, and establishing a precedent for the sale of carbon credits in Nova Scotia (MCFC, 2017). To examine the feasibility of this project, the environmental opportunities and threats must be considered.

Carbon Storage in Forests

According to National Resources Canada (NRCAN), over the past forty years managed forests have sequestered approximately a quarter of anthropogenically produced carbon (NRCAN, 2016). Although there is some debate surrounding the validity of the association between stand age and carbon storage capacity (Taylor, Wang, & Chen, 2010), studies have shown that OG and late successional (LS) forest stands can store as much as two times more above ground carbon than stands in earlier successional stages (Luyssaert et al., 2008; Gunn et al., 2014). This means that extensively harvested areas, forested mostly by early-successional species likely sequester a significantly reduced amount of carbon in their lifetime. This presents both opportunities and threats to the development of a carbon credit program for the Medway Community Forest (MCF). For example, since the 15,064 hectares of land on which the MCF grows are technically owned by the Nova Scotia Department of Natural Resources (NSDNR), the short-term licensing agreement between MCFC and the NSDNR (MCFC, 2016) creates uncertainty about the amount of time that trees on said land will be allowed to grow and absorb carbon without anthropogenic disturbance. Conversely, if provincial licensing is extended long-term, and integrated, ecosystem-based management practices are employed, thus restoring the species and age distribution characteristic of the Acadian Forest, trees will absorb increasing amounts of carbon as they grow.

Uncertainty of Biotic Carbon Storage

Although it is important to note that forest regeneration patterns are largely stochastic, which can hinder the creation of predictive regeneration models (Bataineh, Kenefic, Weiskittel, Wagner, & Brissette, 2013), many studies have shown that longer-lived species with high carbon capacity such as red spruce and white pine tend to replace shorter-lived pioneer species, such as balsam fir, in previously disturbed Acadian stands (Taylor et al., 2010; White, 2013; Gunn et al., 2014). As MCFC is a for-profit organization, using selective harvesting of timber for firewood sales and foraging of other forest products, such as mushrooms, to generate income (MCFC, 2016), it is fortunate that the species that sequester the most carbon (i.e. OG and LS species) are likewise the most commercially viable (White, 2013). Although historic patterns suggest that the long-term species composition of the Acadian forest align with the goals of MCFC, as climate change impacts become more prolific in the northern hemisphere, it may be difficult for MCFC managers to ensure the growth of a healthy and productive forest stand.

According to Steenberg, Duinker, and Bush (2011), the uncertainty surrounding the potential impacts of climate change on forest structure, dynamics, and productivity, will mean that conventional forest management practices will have to be adapted (Steenberg et al.). However, it is currently unclear whether anthropogenic intervention will be more beneficial to forests'

ability to adapt to changing climates, than allowing them to adapt independent of human intervention (Steenberg et al., 2011). Ultimately, experts expect to observe significant changes in forested ecosystems, though there is little certainty about what those changes might look like, as is illustrated in Figure 1



Figure 1: An illustration of the uncertainties surrounding forest dynamics in the climate change era

Considering these uncertainties, a major threat to the capacity of the MCF—and any forest, for that matter—to function as a carbon *sink*, is the risk of instead becoming a carbon *source* due to ecosystem disturbance (Goetz et al., 2012; Gunn et al., 2014). It is hypothesized that the more intensive and long-lasting a forest disturbance, the greater the impact on its carbon cycle (Goetz et al., 2012). For example, intensive harvest and land cultivation practices tend to have some of the largest impacts on net ecosystem carbon balance, whereas natural disturbances, such as fire, often have lesser implications (Goetz et al., 2012). As the prediction and prevention of major forest disturbances is virtually impossible, safeguarding sequestered carbon becomes precarious. Even in the case of expected pests such as the Hemlock Woolly Adelgid (*Adelges tsugae*), which typically becomes fatal to LS eastern hemlock stands within four years (Canadian Food Inspection Agency, 2016), there is little action that can be taken to protect the hemlocks of Nova Scotia (personal communication, Mary Jane Rodger, 2017, Sept 22). Likewise, despite over a century of management experience in North America, Beech Bark Disease has continued to flourish in the Acadian Forest (Canadian Council of Forest Ministers, 2012; Cale, 2014). The intensity and frequency of these disturbances are likely to be exacerbated by climate change.

Conclusion

In sum, resource management is a field dominated by uncertainty, and as unknown impacts of climate change begin to influence natural ecological cycles this uncertainty grows. However, according to Noss (2001), low-intensity forestry and ecosystem-based management are likely to be the most effective methods of promoting forest resilience. As outlined above, there are many risks associated with using forests as carbon sinks; however, recognizing the ecosystem services provided by natural landscapes will become increasingly important as the effects of climate change worsen. Likewise, the ability of the MCFC to contribute to the mitigation of climate change will improve as the MCFC continues to practice responsible forest management to restore and enhance their stand of Acadian forest.

Legal Forces

Stuart J. Edwards

Introduction

The Medway Community Forest Cooperative (MCFC) was founded after the closure of the Bowater Mersey Paper plant as there was a regional call for more community input on the management of public lands. MCFC was eventually awarded 37,000 acres and a three-year pilot period (CP, 2012; Saltscapes Magazine, 2015) after signing a land-lease agreement with the Department of Natural Resources in January, 2015 (NSDNR, 2015), herein referred to as the “Agreement”. As the pilot period comes to an end the continued operation of the MCFC will be dictated through the negotiations of a long term land-lease agreement with NSDNR. This section looks at the legislative and regulatory forces surrounding the MCFC’s existence and operation; as well as other risks and liabilities that may affect how the MCFC proceeds.

The Agreement

The Agreement was signed to test the viability of alternative forest management as carried out by community forests in Nova Scotia (NSDNR, 2015). The Agreement, signed under the *Crown Lands Act* (RSNS 1989, c.144), designates both what the MCFC is responsible for and describes the types of activities the MCFC can pursue. The *Crown Lands Act* (CLA) is the provincial legislation that governs the administration and management of Crown lands; and sets the standards for leasing and licencing agreements regarding forests and proper forest management practices (sec. 2). The description of the CLA emphasizes economic issues with references to ‘better quality forest products’ (2a), and ‘improved market access for privately produced wood’ (2b). This means the MCFC’s ventures in the wood-products market is at a competitiveness disadvantage regarding wood-products coming from private lots. This spurs the MCFC’s to pursue other undertakings beyond forestry.

The Agreement is the MCFC’s version of a Forest Utilization Licence Agreement (FULA) (Nova Scotia Legislature, 2015). However, there is a key difference between the Agreement and an actual FULA. FULAs, such as that of Port Hawkesbury Paper (PHP) (NSDNR, 2012) are signed under sec. 32 of the *Crown Lands Act* whereas the Agreement was signed under section 23. Section 23 of the CLA allows the Minister to enter an agreement with a third party for more effective management of Crown lands. Section 32 applies specifically to FULAs with parties that own or operate a wood-processing facility and makes specific mention of the use of timber from the forests of the province. Sec. 32 is more focused in scope while sec. 23 allows for a broader

interpretation. This is reflected in the PHP and MCFC contracts. Though wording and content is similar, PHP's FULA addresses only timber and forestry products (NSDNR, 2012) while the MCFC's agreement allows for additional ventures outside of wood products (NSDNR, 2015). As such, the Agreement, as signed under the *CLA*, is a legal instrument that acts as a pseudo-FULA while giving the MCFC more flexibility or freedom to carry out its own operations so long as it meets the requirements under *CLA*.

Legal Liabilities

Under the land-lease agreement signed with NSDNR, the MCFC is solely responsible for liabilities as landholder. As stated in section 33.2 of the Agreement (2015) states: "The MCFC is not in any way the agent of NSDNR" meaning the MCFC does not represent and is not acting on behalf of NSDNR. To act with agency means to act on behalf of, or represent, another entity wherein the agent's actions are considered to be the represented actions. Under tort law, agency brings liability (Ramussen, 2001). Therefore, under section 33.2 of the Agreement (2015), as NSDNR withdraws itself wholly from liability, the MCFC acts fully independently and assumes full liability for any actions occurring on MCFC lands.

Liabilities are discussed in various parts of the Agreement including any and all liability connected to: the conduct of contractors (25.5), visitor safety (33.5), trespassing and vandalism (35), the condition of access roads (24.7), and more. These sections reflect similar wording in various parts of the *Crown Lands Act*. These liabilities demonstrate, like any business, MCFC is taking on risks associated with day-to-day operations; they are necessary to allow for the MCFC's independent function. So long as proper permitting, and health and safety protocols are undertaken, all this can be considered as general operating procedure as with any other business.

Realized Risks

There are, notably, some risks to be considered that are not fully explored in the Agreement. After the closure of the Bowater plant, the provincial government hired consultants to assess the value of the Bowater Mersey Lands. In their report the consultants noted risks involved with buying the lands; highlighted by risks associated with unmonitored public access management leading to property or environmental damage (Cortex Consultants Inc., 2012). Regarding trespassing: "NSDNR shall not be liable for the loss of or damage to any property of the MCFC by trespass, theft or otherwise [...] expenses incurred to control trespass, theft or damage shall be the responsibility of the MCFC" (sec. 35, the Agreement). This means that like any company, the MCFC is responsible for the cost and fallout of actions that occur on its property including: illegal dumping related to environmental policies (Schedule 5 of Agreement); the economic costs of replacement or cleanup associated with vandalism/theft; and environmental, economic and social risks of fires from people using old camp grounds.

Some of these risks have already been realized. Three fires raged simultaneously in Annapolis County in August, 2016 – collectively burning more than 400 acres (100 ha) (Walsh, 2016) and burned up a section of the MCF that was set to be logged (Ward, 2016). Although the summer of 2016 was a hot, dry summer and burn bans were in effect (Ward, 2016) and 97% of fires in Nova Scotia are human-caused (Whitman et al., 2015) the fire chief of Annapolis County stated that the fires affecting the MCFC operation were deliberately set (Latour, 2016) – i.e. arson. There is no economic recourse for MCFC to take. MCFC taking full liability excuses NSDNR from having to reimburse MCFC for any damage or lost profit despite MCFC operating on Crown land.

Lack of Legal Definition

Like other natural resources, management of public forests falls under provincial jurisdiction per sec. 92A of the *Constitution Act, 1982* (1982, c 11). While there are more than a hundred community forests on public lands across the country; most are located in Ontario, Quebec or British Columbia (Teitelbaum et al., 2006). The MCFC is somewhat of an anomaly as it is the first and only community forest in the province of Nova Scotia (MCFC, 2016). But what is a community forest, legally speaking? The FAO (1978) put forward a generic description of “any situation which intimately involves local people in a forestry activity”. As the concept of a ‘community forest’ is new to NS, it is not no legal define anywhere in provincial legislation or regulation. That being said, the government did adopt British Columbia’s definition in a 2011 report. This definition being that the forestry activity must be managed by a local government, community group, or First Nations group for the benefit of the entire community (NSDNR, 2011). Even though there is no legal or even academically set definition of a community forest in Canada (Teitelbaum et al., 2006) there are four expected outcomes of community forestry – local control, local benefit, multiple use management, and sustainability (MacLellan, 2013). While these are not legally sanctioned, these have become the social norms for how a proper community forest function. Provinces (including most recently Nova Scotia) are changing their policies to include these expected outcomes and increase local and indigenous involvement in forestry (Bullock & Lawler, 2015). By placing these goals in their management plan (MCFC, 2016), the MCFC has more social and political credibility that it can use to leverage into a legal framework. While the lack of a legal definition, and thus legal entitlement, of what a community forest is would seem to be detrimental for the MCFC there are other expectations that act as precedence that gives the MCFC both legal credibility and leverage as an entity. So long as the MCFC can continue to meet the four expected outcomes of a community forest, they can show that they are acting with integrity and can leverage that in negotiations for an extension of the Agreement with DNR.

Last Word

In this section, a lot of attention was placed on the land-lease agreement that the MCFC signed with NSDNR in 2015. This is because without the Agreement the MCFC would cease to exist. The agreement is the legal platform upon which the MCFC’s entire existence and operations depend. While other legal and regulatory considerations are important, the Agreement expires at the start of 2018, giving the MCFC a year after its expiration to complete a long-term contract with DNR. In the Agreement MCFC took on the risks and liabilities, and have already been burnt once, literally. Legally speaking the MCFC is an anomaly. It is the first, and only community forest project in the province. Although community forests exist elsewhere in Canada, only one province (BC) has a legal definition. There are accepted norms of community forests that the MCFC should adhere to. Despite some uncertainty, the lack of a strict legal definition combined with the flexibility allowed by the Agreement to pursue economic opportunities beyond timber production means the legal forces in Nova Scotia give MCFC leverage to work against other forces. Adopting standard community forest outcomes gives MCFC leverage when it comes to their operations assuming they can sign a long-term land-lease agreement. But this must be accomplished soon because, as stated in section 45.1 of the Agreement (2015), “time is of the essence.”

PESTE(L) Synthesis

There are many contextual factors which influence the successful implementation of a carbon offset initiative on MCFC land. However, some predominant forces have the potential to determine the future success of the MCFC's future operations and programming. This synthesis explores threats and opportunities that will be influential on the future for MCFC.

Social Capital and Resistance

As a community forest, MCFC's objective is to bring benefits to the community (MCFC, 2016) that are in line with those of previous projects (Teitelbaum et al., 2006; MacLellan, 2013). However, MCFC needs to prove they are bringing economic and environmental benefits to the local community to gain the support of community members. However, the rural, aging, and economically depressed have historically been resistant to change (Savoie, 2006) which affects the feasibility of potential MCFC programming.

Many rural Nova Scotians own private woodlots that they cultivate to supplement their incomes (NSDNR, 2017). These small woodlot owners are politically opposed to companies that sell wood through a lease agreement, and are often quite politically vocal about it (Smith, 2017 June 29). Based on this strong opposition, the provincial government might be averse to supporting policy that is required for MCFC's desired programming, such as implementing carbon offsets.

Despite the current lack of social capital in the area, opportunities exist for MCFC to improve their connections. Some community members are on the board of directors, and others are shareholders in the project (MCFC, 2017). Their expertise should be leveraged so that MCFC can integrate better into the community. These representatives can act as ambassadors, bringing transparency that may close the gap between the rural population and the organization. Building better social acceptance in the community will allow for a more successful initiative in the long run.

Market Demand for Access to Natural Resources

Within the Goods Producing Sector of Nova Scotia, the Forest Products Industry ranks in the top five for GDP, jobs, and exports (Forest Nova Scotia, 2017), showing the importance of forestry to rural areas of Nova Scotia. While the sale of forest products is the main source of revenue for MCFC, there are economic and technological forces threatening this business model. Plantations are beginning to supply a higher portion of the world's wood consumption, and buildings are becoming more reliant on more durable materials such as concrete and steel. These technological forces, along with political trade barriers, are causing a decline in the national export of forest products. These changes in market demands create risks for MCFC's financial well-being in the short-term, but they also force MCFC to expand services - potentially bringing social, environmental, and economic benefits to the community as part of their mandate of driving social and environmental progress in rural Nova Scotia.

Starting as a pilot project for testing the viability of sustainable forest management, MCFC represents change and a new way of performing forestry. Allowing the organization to financially benefit from the land while providing a variety of social benefits, such as more leisure activities. Historical Intensive harvesting techniques not only threaten local species, but also degrades the forest's ability to provide ecosystem benefits such as carbon sequestration. The external forces described in this paper give MCFC the opportunity to benefit all stakeholders while restoring and enhancing the health of forests.

The Legal Foundation

MCFC's operations and programming are allowed under a land-lease agreement signed with NSDNR under section 23 of the *Crown Lands Act* (RSNS 1989, c.144). The agreement (NSDNR, 2015) provides MCFC with their economic leverage as the agreement acts as both a forestry utilization license and allows for other business ventures to occur on the Crown land. As the economic forces push MCFC to develop new opportunities beyond wood-products, the broad scope of the Agreement facilitates this legally.

The legal frameworks around the MCFC provides a platform that allows for both its existence and prescribes how it can operate. There is a direct necessity for the legal platform to continue to support MCFC initiatives that will bring benefits the community. The Agreement is set to expire at the start of 2018 and requires immediate re-negotiation; without such, MCFC operations will cease. MCFC needs to develop solid social and political support from the surrounding community to use as leverage for successful re-negotiation this is however challenging given the current situation. This may be challenging given the anti-change stance of rural Nova Scotia.

Conclusion

The legal forces around MCFC provide a platform and support for their operations and service. However, these forces are time sensitive as MCFC must start re-negotiations of their land-lease agreement by the end of the year. In the face of the change-resistant nature of rural Nova Scotia and changing market and technological conditions, MCFC faces the challenge of building political support for the negotiations. Despite these challenges MCFC has a base of support and previous examples to build off of and provides an opportunity to generate economic, social, and environmental benefits for the local community.

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