

Asking the Big Questions:

Reflections on a Sustainable Post Oil-dependent Newfoundland and Labrador

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Introduction

In only a few short decades, Newfoundland and Labrador (NL) has become heavily dependent on oil and gas. Oil and gas-related royalties, as well as investments in research, exploration, and the development of oil and gas infrastructure, direct and indirect employment (as in other provinces such as Alberta), and related remittances of wages to the province had, by 2015, come to play a large role in government revenues and the provincial economy. Revenues from this sector have helped support public investments in health, education, and transportation. Wealth from the oil and gas sector helped fuel a housing boom and higher prices for housing in both urban and some rural regions of the province. Oil and gas dependence has also influenced priorities in research funding, education, and training at Memorial and nationally.

Dependency on oil and gas has contributed to numerous vulnerabilities here and globally. These vulnerabilities include the relationship between oil and gas production and climate change. They also include resource-based ‘boom and bust’ cycles, as evidenced by the current fiscal crisis in Newfoundland and Labrador, and deepening social inequality.

In 2016, Memorial University, with partial funding from the Royal Society Atlantic, hosted a series of events called *Asking the Big Questions*. Event participants explored the contradictions and vulnerabilities associated with oil and gas-dependence in NL. They were asked to imagine *what sustainability might look like in a post oil-dependent Newfoundland and Labrador that is socially, economically, and environmentally sustainable as well as inclusive of all groups?*

These events included, among others, two public lectures given by one Canadian, Dr. Gordon Laxer, University of Alberta and recent author of *After the Sands: Energy and Ecological Security for Canadians*, and one international speaker from Iceland, Sigurbjörg Sigurgeirsdóttir, Associate Professor, Public Policy and Governance, University of Iceland. Dr. Sigurgeirsdóttir discussed the collapse of the Icelandic economy, steps taken to rebuild it, and lessons for Newfoundland and Labrador. Dr. Laxer drew on lessons from Alberta’s oil dependence to reflect the need for Canada as a whole to get to post oil-dependence and how we might get there.

This document presents a series of reflections on what a post oil-dependent Newfoundland and Labrador that is socially, economically, and environmentally sustainable as well as inclusive of all groups might look like. Earlier drafts of these

reflections were discussed at a multi-stakeholder workshop held at Memorial in November 2016. The reflections are the product of a thought exercise inspired, in part, by Noam Chomsky's insight (as cited in David Boyd, *The Optimistic Environmentalist*) that, "[o]ptimism is a strategy for making a better future. Because unless you believe that the future can be better, you are unlikely to step up and take responsibility for making it so."

Optimism is, of course, only the beginning, not the end of a strategy for the kind of fundamental societal change that would be required for us to achieve a post oil-dependent NL. As one reader of the draft reflections noted, most call for a major reorientation of our society and culture but they don't address the question of how we get there. He asked how the reflections, "*could be developed so that [they] encompass some kind of road map or set of strategies/ideas about what it would take to get to our imagined future(s) in terms of actions, institutions, resources and capacities?*" Some of that work has been done here, in these revised versions, but we acknowledge that there is much more to be done. While there is some clear consensus across these reflections around the value and importance of trying to imagine a post oil-dependent NL, the vision of what that might look like is by no means fully developed here. Designing a roadmap for how to get there is a much bigger job than we were able to undertake given our limited resources. Many contributors to this document agree that such a roadmap and consensus need to be arrived at through a community-based, consultative and inclusive process that does not yet exist. So our ambition with the public release of these reflections is limited. We hope it will encourage those involved, *and* others, to keep working on both developing and implementing a roadmap to a post oil-dependent Newfoundland and Labrador that is consultative, socially, economically and environmentally sustainable and inclusive of all groups.

The document you are reading is a multi-disciplinary and multi-sectoral contribution to ideas about how NL can and should *move forward* in the next few decades. Core underlying themes are: 1) the urgent local and global need to address the threats and challenges associated with climate change; 2) some of the evidence for and discussion of the negative consequences of oil dependency and life in a *petroculture* for this place and for the earth globally; and, 3) the (missed) opportunities for sustainability, viability and equity we can and must make the focus of our attention as we begin to build a vibrant post oil-dependent NL.

The document is divided into four sections. Section 1: starts with the big picture. It includes contributions reflecting on: the contribution of oil dependency to climate change and its consequences locally and globally; NL as a petroculture that is 'permeated

through and through' by its oil dependency; the relationship between oil dependency, fiscal policy and social inequity; the need to embrace a commitment to building active inclusion of all types of diverse groups into the fabric of this place; and the need for a more food secure system as we move forward. The reflection on climate change, written by Memorial physicist Lev Tarasov and climatologist Joel Finnis, provides a point of departure and a key part of the rationale for our discussion of post oil-dependency here and elsewhere. The contribution by Memorial English professor Fiona Polack extends this argument by helping us see some of the deep contradictions oil dependency, and our related petroculture, have brought to NL and how and why these need to be addressed. Memorial historian Robert Sweeny and several community collaborators reflect critically on NL fiscal policy using a social equity lens. They explore ways fiscal policies have enhanced class divisions and related social exclusion. The authors argue that the elimination of poverty needs to be the cornerstone of public policy in a post oil-dependent NL. A short piece on social enterprise by Nicole Helwig of Memorial University's new Centre for Social Enterprise provides a bridge between the social equity focus of Sweeny et al. and a reflection on inclusion. Angela Loucks-Atkinson and colleagues in Memorial's Human Kinetics and Recreation Faculty have collaborated with Kathy Hawkins from Inclusion NL and members of the disability community to write a manifesto on the meaning and some ways to achieve a society that achieves and benefits from the inclusion of all of the diverse groups in NL including people with disabilities – a group that, to varying degrees, will encompass most of us at some time in our lives. The reflection on food security offers a vision for an equitable and sustainable food system for NL. It is co-authored by Grenfell economist Catherine Keske and the former Dean of Humanities and Social Sciences at Memorial, anthropologist Lynne Phillips, with input from numerous other Memorial and external food experts.

Section 2: examines some, but by no means all sectors of the NL economy through the lens of post oil-dependency. Reflections focus on doing things differently and doing more with less. Memorial Engineer Andy Fisher reflects on the place of oil and gas and mining in a post oil-dependent NL. Memorial economist Jim Feehan then reflects on renewable energy in this context. This section also includes reflections on ways to achieve more resilient fisheries and aquaculture and tourism in a post oil-dependent NL. The fisheries and aquaculture piece is co-authored by Paul Foley, a political scientist from Grenfell, and others. It draws on insights from several recent policy-related documents and reports. The reflection on tourism was developed under the leadership of Holly Everett in the Department of Folklore with input from a diverse mix of participants from the tourism sector.

Section 3: focuses on key questions related to changing institutions and enhancing cultural capacity in the media, education and in built design as we move forward. The section opens with a reflection on design (buildings and communities) assembled by Jerry Dick, Director of the Heritage Foundation of NL, with input from local architects. This is followed by a thought piece on the future of the media in NL assembled by Bojan Furst of Memorial's Harris Centre and informed by a conversation with local journalists. Also included in this section are reflections on immigration by Tony Fang, Memorial's Jarislowsky Chair, and co-editor David Brake. The reflection on the role of education in reclaiming our future was developed by members of Memorial's Faculty of Education and the International Student Advising Office under the leadership of Rhonda Joy. This reflection is followed by a short piece on the non-profit initiative called *Iron and Earth* (<http://www.ironandearth.org/>). A key objective of Iron and Earth is to harness the skills and commitment of tradespeople who have made their living from oil and gas projects to build the renewable energy infrastructure required for the future.

Section 4: consists of focused reflections on some key tactical issues and strategies including the threat Muskrat Falls poses to a sustainable future, the opportunity and need for oil and gas divestment at Memorial. Insights on achieving sustainability drawn from the *Sustainable Canada Dialogues* conclude and round out the collection. As noted in multiple places throughout the document, Muskrat Falls is essentially the 'elephant in the room' that is constraining both the resources available to fund a post-oil transition towards an inclusive, just, and sustainable society, as well as serious discussion of that transition. This section thus opens with a reflection by Memorial Sociologist Stephen Crocker that returns to some of the themes in Feehan's reflection on renewable energy, but focuses on fiscal and energy security challenges the Muskrat Falls development poses for the province and its future. This is followed by a reflection by Memorial Anthropologist Robin Whitaker and Gerard Curtis from Visual Arts at Grenfell on fossil fuel divestment at Memorial University. A thought piece by Natalie Slawinski (Memorial Faculty of Business Administration) and others brings us back to the opening piece on climate change and concludes the overall document by drawing on insights from the *Sustainable Canada Dialogues* (2015) - a pan-Canadian initiative on a similar theme - to highlight, industry by industry, some ways forward.

We (the editors) invite you to join us, and the authors of these pieces, as you read through this document, in reflecting on post oil-dependence and what it would/should look like. We invite you to challenge, criticize, embrace, build on, and improve the work that has been done, and then do more.

In our view it is long past time for the people of NL (and people everywhere) to vigorously begin the journey to post oil-dependence. Starting down that road will require us to shift our focus away from consumption and from responding to the effects of exclusion, illness, and environmental damage, towards prevention and the fulfillment that can come from creative and sustainable engagement with each other and the world around us. The journey will require focus, vision, courage, *and* commitment, because so much change is needed and because there will be and indeed is, palpable resistance to such change all around us.

The journey to post oil-dependence will require dismantling the infrastructure, mindset, and policies and practices we have built through relying on oil, gas, and hydropower megaprojects to fuel our economy and fund our social programs. It will require creating and sustaining, instead, an economy and society founded much more on the energy, opportunities and wealth that can be derived from other forms of renewable natural energy, from reliance on and stewardship of renewable resources, and from much greater social equity and a strong commitment to inclusion (of all people who live here, as well as openness to those who would like to come).

The journey from petro/hydroculture to a more equitable and sustainable place will involve the construction of a built environment that is grounded in NL culture and history and is appropriately designed for this place. It will require support from a strong and independent media and a vibrant, well-resourced arts community. As argued by the late Mary MacDonald, “[t]he arts are not a frivolous hobby, they’re a rich well of human expression, and a discussion generator for what ails society, and what brings us together.” (Pelley, 2017).

Successful completion of this journey will require less attention to growth and more to sustainability. It will require access to innovative and effective forms of education and training for young and old in all regions of the province. These new educational forms will include opportunities for tradespeople and others to retool from resource extraction and megaproject construction to green infrastructure, as envisaged by Iron and Earth. Completion will require an environment supportive of different types of businesses including social enterprise. It will require changes to the taxation system, the related redistribution of wealth, and the creation of a different kind of food system where we can all, young and old, rich and poor, gain access to, prepare, and ultimately savour and draw strength from the fruits of a healthier environment.

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Section 1:

The Big Picture

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1.1 The Climate Consequences of Oil Consumption and Some Societal Implications

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Societal impact on climate and the changing climate impact on global and local society is a necessary consideration when exploring the future of Newfoundland and Labrador. Aside from being a major motivation for a post-oil future, climate change impacts must be taken into account when envisioning collective futures.

Arguments for actively reducing our reliance on fossil fuels are many and varied, touching on areas of economics, social justice, and a range of environmental concerns. However, none have received as much critical attention, interdisciplinary research, and media coverage as climate change -- specifically, climate change driven primarily by greenhouse gas emissions, a by-product of societal consumption of fossil fuels. This is far from a contemporary concern; the core ideas were proposed 193 years ago (Fourier, 1824), and plausible (if simple) climate change calculations have been available for more than a century (Arrhenius, 1896). The issue continues to inspire ever-growing research attention, and is being approached with increasingly sophisticated tools and analyses from a range of disciplinary (and interdisciplinary) perspectives. Assessment reports from the United Nations' Intergovernmental Panel on Climate Change (IPCC) attempt to summarize the state of this research every five to ten years, and these massive, multi-volume outlines are a testament to the amount of research effort devoted to the issue. Unfortunately, climate change also inspires a seemingly endless series of political and media debates, initiated by ideologically-driven climate change deniers who stubbornly reject the overwhelming consensus among atmospheric and earth systems scientists. These debates persist despite rising observational evidence that the planet is warming at an alarming rate, and experimental evidence that human activity is the only plausible explanation. As of 2017, this willful rejection of hard-won scientific evidence has been reinvigorated by newly-elected U.S. President Trump and many of his key appointments, who are all too willing to proclaim anthropogenically-driven (human-driven) climate change a 'hoax' (BBC News, 2017; Schwartz, 2017).

In this chapter, we provide a brief overview of climate science basics, outline the impacts of climate change globally, explore direct impacts on Newfoundland and Labrador, and

emphasize that indirect global aspects of climate change will likely pose the largest challenges and risks not only to the province, but also to the rest of Canada and indeed the planet.

A Primer on Anthropogenic Climate Change

At its core, the anthropogenic climate change argument sounds relatively simple: using fossil fuels adds carbon dioxide (CO₂) to the atmosphere, which in turn warms the planet's surface. In itself, the idea that CO₂ and surface temperatures are connected isn't at all controversial; without CO₂ and a handful of other 'greenhouse' gases, the Earth would be over 30 degrees C cooler with near total surface coverage by ice. Pinning down the *sensitivity* of temperatures to changing CO₂ concentrations is, however, more difficult. To address this question, scientists look to Earth's geological past. Using air bubbles trapped in glacial ice, along with more recent direct observations, scientists have established that atmospheric CO₂ concentrations are (relative to geological time scales) rapidly increasing due to human activity. We know from ice core records that prior to the industrial era, atmospheric carbon dioxide concentrations have never exceeded 300 ppmv (parts per million, by volume) over the past 800 thousand years and were at most 280 ppmv over the past 100 thousand years. We have now exceeded 400 ppmv. 'Fingerprinting' of carbon isotopes and changing oxygen levels confirm that this increase is due to fossil fuel consumption.

For further context, glacial climates are characterized by reduced levels of atmospheric CO₂, with CO₂ approaching 180 ppmv during the last glacial maximum. Climate modelling indicates that these reduced CO₂ levels are required to get the global cooling inferred from a wide range of paleoclimatic records. The significance of present-day CO₂ concentration and rate of increase is perhaps clearest when we consider that the above numbers indicate we have now exceeded the magnitude of the change between the glacial CO₂ minimum and pre-industrial conditions. Moreover, we have done this over a one hundred times shorter time interval.

The science around anthropogenic climate change has proven to be robust: it has a grounded theoretical basis and observed trends throughout the climate system support the theory, as do modeling experiments. Other proposed causes for recent trends (e.g. variations in the sun's output or influence of cosmic rays) can't fit available data. The science is clear enough to warrant treating climate change as one of the largest threats humanity faces, joining other major threats such as biodiversity loss (including declining

fisheries and deforestation), global inequality, and declining regional per capita access to fresh water. Worse yet, climate change exacerbates all of these other threats, amplifying their impact and complicating efforts to address the core problems facing our species and the planet.

There certainly remain many open questions. The climate system is complex and varied, and encompasses a wide range of processes that are still poorly understood, difficult or impossible to observe, or as yet undiscovered (see text box on Nonlinearity, Feedbacks, and Tipping points). Some may find this uncertainty comforting, and read it as an indication that the consequences of climate change may be less severe than scientists currently expect. However, given that scientists (and the IPCC) typically offer conservative projections (Scherer, 2012), it is at least as likely that the consequences will be worse than expected. This is a major concern, given that the IPCC's projections are already very alarming. As temperatures rise, we expect to see changes in precipitation patterns (more water for some, more drought for others), an increase in the strength and/or frequency of severe storms, a rise in flood risk for many locations, massive ecosystem disruptions (especially in the Arctic), rising sea level, and increasing rates of coastal erosion. We expect that most of Canada will experience fewer direct effects than much of the rest of the world. Still, the total climate change cost to Canada is conservatively expected to reach \$21-43 billion per year by 2050; worst-case scenarios raise this to \$91 billion/year (National Round Table on the Environment and the Economy, 2011).

In an effort to avoid these consequences, world governments have made a joint commitment to limiting mean global warming to 2° C. To many, this warming threshold may seem to be small and arbitrary. It is not. Worse, we are currently unlikely to meet this limit. The scale of global mean temperature change over the next century is on trajectory to approach that of the difference between the present and the peak of the last ice age (which is estimated to have been between 4 and 5° C cooler). Then, more than twenty thousand years ago, Canada was covered with an ice sheet that was about 4 km thick at its thickest point, while the global ice sheets locked up enough freshwater to lower mean sea level more than 120 meters. Importantly, our current temperature change, in most part produced by human activity, is happening within a few hundred years: much faster than the more than ten thousand years it took to progress from the last cold glacial peak to warm interglacial climate.

What Does Climate Change Mean for Newfoundland & Labrador?

The projected impact of climate change on Newfoundland and Labrador is expected to vary considerably from one part of the province to another. Parts of the island may see only a modest increase in temperature, protected by the climate-moderating influences of the open ocean. Northern Labrador, however, can expect to see greater than global average climate change within the coming century.

Although regional influences through the 1980s and 90s masked the impacts of global climate change, this has started to shift. The province has begun warming, with mean temperatures over 1998-2011 rising by $\sim 1.0^{\circ}\text{C}$ on the island (Finnis, Sarkar & Stoddart, 2015) and $\sim 1.5^{\circ}\text{C}$ on average over Labrador (Finnis & Bell, 2015). Like most other places, the warming is strongest during the winter ($\sim 2.5^{\circ}\text{C}$ in Labrador, and 2.2°C in western NL). Sea ice extent and duration has also declined, and by some measures this loss, at 17% loss per decade, is higher in the Labrador Sea than that experienced by any other region in Canada (Henry, 2011). The trends are projected to continue, and even accelerate, over the next century.

The increase in seasonal temperatures will offer a beneficial direct impact on growing season and yearly heat units for farmers and gardeners in the province. These beneficial aspects will be offset to varying degrees by the geographic and seasonal expansion of many existing and newly introduced pests and plant diseases in response to the regionally warming climate: effectively, as the province warms, climate controls on insect populations and many diseases weaken. At best, the Strait of Belle Isle will only be able to delay the spread of insect pests onto the island. The economic devastation of British Columbia's forestry sector due to fast-expanding populations of the mountain pine beetle (Logan & Powell, 2011) provides a clear, current example of how similar climate changes are affecting other parts of Canada. Ongoing climate changes will also aid the spread of imported invaders, and may lead to species introductions comparable to that of the emerald ash borer and longhorn beetle incursions into Ontario: examples that have already had a serious impact on many southern Ontario tree species. The northward expansion of insect vectors for what were previously only tropical diseases may eventually continue into Newfoundland and Labrador.

Changes in the frequency and intensity of extreme weather events are expected, but are difficult to quantify. There is some evidence (along with supporting physical arguments) that the frequency of category 4 and 5 hurricanes will increase in the tropics (Stocker et al., 2013). Increasing ocean temperatures may also better preserve the strength of those

hurricanes and tropical storms that make their way to Newfoundland. The resulting increase in the strength and frequency of storm surges would compound the coastal impacts of long term sea level rise due to both shrinking glaciers and ice sheets and the thermal expansion of warming oceans. Coastal sea level is rising on the eastern side of the province (averaging +2 mm/year around St. John's over the decade) but not yet in Northern Labrador where post-glacial uplift currently offsets increasing ocean volume. Projected increases in ocean volume indicate sea level rise across the province by 2050 will likely be least 30 cm, assuming no action, enhancing the vulnerability of some coastal ports and communities to flooding and erosion. Much larger sea level rise cannot be ruled out within this century due to possible destabilization of marine sectors of the West Antarctic and Greenland ice sheets. The likelihoods of such events within this time frame are as yet difficult to quantify. Perhaps the most confident comparison on a longer timescale is the at least six, and more likely ten -meter higher global mean sea level that has been inferred for the last ("Eemian") interglacial interval (130 to 120 thousand years ago), when global mean temperature was less than one degree C warmer than present. Such a rise is near to impossible within this century (Eemian sea level rise likely took a millennium or more), though a one-meter scale rise cannot be ruled out. Over multi-centennial time horizons, the possibility of Eemian scale sea level rise becomes significant.

Today, loss of coastal winter sea ice is already accelerating coastal erosion, as waves that would have once been buffered by coastal ice can now attack the coastline directly. As well, ocean warming is anticipated to continue and potentially accelerate the ongoing trend of northward migration of various fish stocks. This, along with ongoing depletion of many stocks, will potentially enhance conflicts between groups within Canada and internationally over fishing territories and quotas.

Increasing atmospheric CO₂ concentration also has a major impact on ocean chemistry. When CO₂ dissolves in water, it forms carbonic acid and much of the anthropogenic CO₂ is absorbed by the oceans, leading to ocean acidification. The increasing acidity makes it harder for small plankton to form their protective carbonate shells. Given that plankton form the base of the marine food chain changes in plankton communities may have large impacts on the ocean ecosystems and fisheries. Furthermore, ocean acidification (along with warming temperatures) is already contributing to die-back of coral reefs, which play a major nursery role for the world's ocean species.

While events like hurricanes often attract the most attention in climate discussions, some of the greatest costs to the province may come from less dramatic weather events. For

example, precipitation events of all types will intensify as temperatures rise, increasing the risk of flooding and consequent wear on our infrastructure. This will be exacerbated by an expected increase in freeze-thaw cycles as mean winter temperatures edge towards the freezing point, increasing both road erosion and driving hazards. The issue is even more serious in Northern Labrador, where dramatic mid-winter thaws have isolated communities for weeks in recent years as a result of deteriorating sea ice and snowmobile routes essential to northern communities.

Global Impacts of Climate Change

The above impacts and risks pale in comparison to those associated with decreasing global security resulting from increases in population displacement from sea level rise and greater regional drought exposure. If there is no compensation for those who lose their homes, livelihoods, and even countries to rising sea levels, the associated diaspora could harbour growing resentments, with possible spillover into violence and war. Bangladesh, for instance, is a poor country with over 15 million people currently living within a meter of sea level (Akter, 2009). Regionally, Southeast Asia has more than 50 million people (and potentially much more as population grows) who would be displaced by a 1-meter rise in sea level (Rowley et al., 2007). Given the difficulties that Europe (with all its wealth) has recently faced with less than ten million refugees and migrants, imagine the much stronger socio-political destabilization that fifty million people who've lost their homes will engender in much poorer southeast Asia.

There will also be regions where water stress will increase, with the potential for international conflict around major rivers that cross international boundaries. Likely regions for such conflicts include the Middle East (e.g. the Euphrates and Jordan Rivers), Northern Africa (the Nile), and Southern Asia (including the Ganges, Indus, and Mekong). Water sharing may become a source of tension between Canada and the USA, given current ground water depletion and expected increases in drought exposure for parts of the USA.

Addressing the Problem

How do we address these threats? First, we must work towards seriously reducing greenhouse gas emissions and their impacts. Ultimately, this means reducing both our consumption and production of fossil fuels, provincially, nationally, and globally. There are many "low-hanging fruit" that have yet to be tackled to facilitate this, as detailed in

other Chapters in this Background Report. However, we also need to invest in adapting to changes that are now inevitable, as a consequence of our inadequate climate action to date. Second, the world community has to take collective responsibility for the displacement of peoples and the prevention thereof.

Both among ourselves and other climate scientists that we've talked to, there is a growing mix of cynicism and frustration, given the chasm between the current state of science and the regional and global policy response to global warming (as well as other major global change issues). Current international commitments are watered-down versions of previous commitments that were broken, in spite of the increasing scientific evidence that strong action to address climate change is required. The anti-science ideology that was evident in the Harper and Bush administrations, and is now seen in the Trump administration, is grossly irresponsible. However, it is only fair to acknowledge that many other administrations provide words but little or no action or, worse yet, actions that contradict their climate mitigation rhetoric.

A further area of potential concern is our modern tendency to over-rely on technological fixes to complex problems. The issue of climate change is not immune from this as reflected in proposals for a range of 'geo-engineering' solutions to a warming planet (Shepherd, 2012; van der Pluijm & Brasseur, 2017). These range from seemingly innocuous efforts to grow thicker sea ice with mechanical pumps, to alarming calls to drop massive quantities of nutrients into the world oceans, pump aerosols into the global atmosphere, or bio-engineer rapidly growing 'carbon-eating' trees. We urge extreme caution when considering these proposals. We are already in the midst of many such (unintended) geo-engineering 'experiments', ranging from our depletion of Antarctic and Arctic ozone through to CO₂-triggered climate change itself. Our track record in anticipating the consequences of industrial activity and chemical emissions is extremely poor, and there is no reason to believe purposeful geo-engineering will prove to be different.

In summary, coastal communities in NL and elsewhere face threats from rising sea level combined with enhanced and more frequent tropical storm surges. Declining coastal sea ice will further enhance yearly coastal erosion and impact those who rely on sea ice for winter travel and hunting. The likely increase in the frequency of strong tropical storms will also impact inland communities. Warming ocean temperatures will displace fish stocks, requiring at best adaptation to new fisheries. Most importantly, though parts of Newfoundland may benefit in the short run from climate change, the potential global

geo-political destabilization is more than likely to strongly offset any potential local benefits to the province.

Some Final Questions

For governments and institutions that do not consider climate change a priority issue, one must ask what would constitute adequate evidence for making climate change a policy priority? For various sectors of the province, we offer what we believe are three of the most critical questions that need to be addressed in the climate change context:

1. What policy measures are most appropriate to ensure that a long-needed price on carbon does not exacerbate poverty and socio-economic inequality in the province?
2. How will the provincial fishery deal with climate change-related threats to fish stocks and who will pay the costs of flooding and erosion in our coastal communities?
3. How would Newfoundland handle a large refugee influx in a manner that maintains socio-economic integrity?

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Nonlinearity, feedbacks, and tipping points

The largest potential impacts of climate change (and other global changes such as loss of biodiversity) compounded with the largest uncertainties involve so-called ‘tipping points’. These are thresholds beyond which the climate system enters a new regime (falling off the metaphorical cliff) and from which a return to the previous regime is very difficult. The most likely current (albeit weak) tipping point is the loss of summer Arctic Ocean sea ice cover, with current estimates indicating this will occur by mid-century, if not within a decade. It should be noted that climate models up to now have severely underestimated the rate of sea ice loss over the past decade. Once perennial sea ice cover is lost, the resultant warmer atmospheric temperatures, expanded penetration of warm water from southern sources, and loss of thick self-stabilizing sea ice will make it much more difficult to retain sea ice cover the following summers. Winter sea ice will continue to form, but with lower maximum extent, reduced thickness, and shorter seasonal duration. This sea ice loss will have numerous impacts on both marine and terrestrial Arctic flora and fauna, as well as potentially the global climate system.

Tipping points have three critical features. First, they involve comparatively fast and large changes in the system. Second, they are very difficult to undo: for instance, once most of the Greenland ice sheet is lost, it will take much cooler temperatures than at present to permit its regrowth. Third, the proximity to a tipping point is often difficult to identify. Various possible tipping points in the earth and climate system have been identified, and include collapse of ice sheet sectors, changes in ocean currents, collapse of the Indian Monsoon, and thawing of permafrost and frozen methane hydrates in the ocean sea floor.

The paleoclimate record provides strong evidence of past tipping points, the best studied of which is the Younger Dryas cold interval that started almost 13 thousand years ago. This more than 1000-year-long cold interval interrupted a deglacial warming trend that was nearing pre-industrial temperature. At the end of this cold interval, within a span shorter than fifty years, regional temperatures around Greenland are inferred to have warmed by 10 (+/- 4) C. Associated climate changes are recorded widely across the northern hemisphere during the Younger Dryas.

Tipping points are an example of strong nonlinearity. In a linear system, if you turn the dial (say volume control) twice as far from off, you get twice the response (e.g. twice the apparent volume). Such systems are easy to analyze and predict. Therefore, it is relatively easy to formulate policy and management strategies. In a non-linear system, turning the dial twice as far may result in as little as a tenth of the response – or as much as 100 times. For certain systems, the response may

reverse once the dial is turned far enough (e.g. blowing a speaker or amplifier). Depending on the extent and type of nonlinearity, such systems can be difficult to analyze and predict, making traditional management and policy development approaches inappropriate.

Feedbacks are a primary source of nonlinearity. Most are familiar with the positive feedback that occurs when a microphone captures the sound from a speaker connected to the microphone. A small sound captured by the microphone is amplified by the speaker, which is then captured by the microphone and further amplified, resulting in run-away amplification. Positive feedbacks play a direct role in accelerating climate change. One example is methane release from thawing permafrost (much of the global permafrost is akin to frozen swamp). Methane is a hundred times more powerful than CO₂ as a greenhouse gas. Increasing temperatures increases methane release, which will in turn promote greater rates of warming. There are also negative feedbacks that tend to stabilize the climate system such as the increase of radiative heat loss from the Earth's surface with increasing surface temperatures. A key feature is that all these feedbacks arithmetically add. As their cumulative impact increases, the addition of even weak positive feedbacks can have a large impact on the system, raising the likelihood that a tipping point will be reached.

The proximity to a tipping point can have large uncertainties but this does not preclude strong policy action. Certain tipping points can have the largest potential societal and environmental impacts and therefore require strong preventive action.

1.2 Is Newfoundland and Labrador a Petroculture?

Fiona Polack, Dept. of English, Memorial University

In August 2015, 35 artists and researchers from across North America and Europe met at the University of Alberta to participate in “After Oil: Explorations and Experiments in the Future of Energy, Culture and Society.” At this three-day workshop we considered the social and cultural implications of global energy transition, and ultimately produced a short, collectively written book called *After Oil*. (Szeman et al., 2016) In what follows, I speculate about how some of the insights we arrived at in Edmonton might be useful in thinking about Newfoundland and Labrador as a post-oil society. For while energy transition poses considerable challenges – not least among them convincing people of the very real perils of remaining reliant on fossil fuels, and of the urgent need to *act* to mitigate climate change – it also presents opportunities for creating better, more just, societies than those that have arisen in conjunction with petroculture.

In the introduction to *After Oil* we explain that we use the term petroculture to:

emphasize the ways in which post-industrial society today is an oil society through and through. It is shaped by oil in physical and material ways, from the automobiles and highways we use to the plastics that permeate our food supply and built environments. Even more significantly, [although less obviously] fossil fuels have shaped our values, practices, habits, beliefs and feelings.

Predilections for autonomy, mobility, and consumerism, for instance, have flourished under petroculture in ways that we are only now beginning to fully understand. Also for instance, the titles of recent books by American geographer Matthew Huber, *Lifeblood: Oil, Freedom and the Forces of Capital* (2013), and cultural theorist Stephanie LeMenager, *Living Oil: Petroleum Culture in the American Century* (2013), posit that oil is indispensable to recently developed modes of existence in the United States. Relatedly, although extending his inquiry globally, economist Timothy Mitchell makes a compelling connection in his book *Carbon Democracy* (2011) between the contemporary obsession with economic growth and the reign of oil. Transitioning to a post-oil society, then, does not just involve implementing new technologies and energy sources; it isn’t just a matter for engineers and scientists. It also involves shifting our cultural and social values, and thus requires a truly collective effort to envision how we want to inhabit new energy regimes.

Post-industrial societies around the globe are all petrocultures to some degree. Their precise natures, though, are shaped by their specific histories and contemporary realities and it is crucial to understand them at regional, as well as national and/or transnational scales. What kind of petroculture, then, has evolved in Newfoundland and Labrador? Is it an all-encompassing one, or do other quite different forms of life exist alongside it?

For a range of reasons, Newfoundland and Labrador possesses a ‘schizoid’ petroculture. Firstly, we both produce and consume oil. However, we arguably, and somewhat ironically given that our oil is extracted offshore and out of sight, focus more on the first of these activities in our public discourse than the second. This tendency is perhaps tied to an entrenched predilection, one with its roots in the province’s British colonial history, to envision Newfoundland and Labrador as primarily a place from which to extract and export natural resources: an “energy warehouse” as recent successive provincial governments of differing political persuasions have dubbed it. Since the Smallwood era, oil has been touted as the industry destined to provide much needed employment and catapult the province from penury to wealth. What ostensibly attracts the most attention then is our success, or otherwise, at extracting and selling the commodity, rather than our own consumption of petroleum and its products. The two are, of course, related. The more money we make from our oil, the more we invest, both financially and culturally, in petroculture.

Secondly, and perhaps in further explanation of our reluctance to talk about how we devour oil and its products in this province, we are profoundly conflicted in our relationship to the consumerism and mobility petroculture facilitates. Newfoundlanders and Labradorians have quickly come to relish gas-guzzling trucks, sprawling outer-suburban homes, vacations down South, plastic Halloween decorations, and guavas and grapes in mid-winter. Such an appreciation for the established symbols of the North American, oil-enabled “good life” makes particular sense in a place in which, with only brief periods of respite, unemployment and poverty have been endemic. However, at the same time, and not only in rural parts of the province, there is still a strong attachment here to pre-petrocultural principles, ones initially born of economic necessity. These are reflected in practices such as “making do”: repurposing rather than throwing things away. They are also evident in people’s ability to live off the land, to keep vegetable gardens and root cellars, and to harvest moose and other animals for personal and community consumption. The skills such self-sufficient practices require have not yet completely disappeared, nor been relegated to only touristic or nostalgia-inflected contexts.

Blocks to Energy Transition

Schizoid or not, global warming means Newfoundland and Labrador's days as both a producer and consumer of oil are numbered. We have been told for so long, however, that oil will liberate us from economic decline and allow us to access the consumerist delights accessible to others elsewhere, that it will take time for this reality to be accepted. Both the pro-oil industry Donald Trump's election south of the border, and Justin Trudeau's recent approval of new pipeline projects in Canada, will also only add further life to what Susan Dodd (2012) calls Newfoundlander and Labradorians' belief in "the promise of oil." This promise has never been fully realized (indeed Dodd uses this phrase in her book about the catastrophic sinking of the *Ocean Ranger*) and in an era of climate change now never can, or should, be. Hence projects, such as this, which take as their starting point the notion that a post oil-dependent Newfoundland and Labrador will have to one day exist, are absolutely crucial. They can help break what we might call, borrowing Lauren Berlant's term, the "cruel optimism" of remaining devoted to oil and the petroculture it brings with it. As Berlant explains, "a relation of cruel optimism exists when something you desire is actually an obstacle to your flourishing" (2011).

But What Next?

Because of the fiscally irresponsible and undemocratic way in which the Muskrat Falls project, a project motivated once again by "energy warehouse" thinking, has been implemented, our choices about what a post-oil Newfoundland and Labrador might look like have already been circumscribed. That said, recent Indigenous- and settler-culture resistance (particularly in Labrador) to the Government's plans for flooding at Muskrat Falls highlight that those living in the province do possess a strong desire to influence decision-making about our province's energy future, decision-making that also affects our cultural and social futures. In that more optimistic vein, it is worth canvassing the six principles of intentional energy transition we advocate in *After Oil*. These principles highlight values that have tended to be suppressed in petrocultures, but might provide more viable, and indeed attractive, alternatives as premises for organizing collective life.

First - agency, and mobilization:

"An intentional transition is premised on the agency, and on the conscious participation and mobilization of peoples and communities...conscious participation cannot be reduced to the meagre practice of constituencies

being brought into a discussion after the terms of the debate have been set.”

Second - collective stewardship:

“An intentional transition is premised on collective stewardship, on the avowed right of people and their communities to own, manage, and develop the energy resources that conform to their desires and needs, and that support their ideals for reproducing and producing the health of their communities and the values they hold.”

Third – equality:

“All peoples and communities [have a right] to adequate energy resources for survival.”

Fourth - ethics of use:

“Intentional transition means collectively sorting out the moral differences between the use of energy for the more elementary needs we all have for food, water, and the basic essentials of life, and the surplus material and immaterial desires that energy quite literally feeds and fuels.”

Fifth –sustainability:

“Renewable alternatives [must be assigned] a central place in the transition away from those dependencies that have produced climate change and the current culture of risk.”

Sixth - redefinition of growth:

“An intentional transition is premised on growth and development. But, importantly, it does not take these terms as self-evident...In the after-oil economy, growth and development are tied to social values articulated above and joined to a new ethics of resilience and sustainability. Growth and development are...given back to the people.” (Szeman et al., 2016, pp. 25-27)

Before any of these principles can be put into action in Newfoundland and Labrador, the need to move away from oil and the cultures it facilitates must be fully accepted, and people’s excitement about alternative modes of existence ignited. As a first step, then, the reality of climate change must be insisted upon incessantly whenever politicians, business leaders and others hold out “the promise of oil” to those living in the province. It is only when this promise is finally revealed to be the empty one it always is that we can all properly focus on actively claiming a stake in our energy future. Concomitantly, it is important to preserve and revere elements of Newfoundland and Labrador’s culture that

are not rooted in petroculture, since they offer us a head start in making change. Newfoundlanders and Labradorians, particularly in the province's Indigenous communities, have, for instance, long been committed stewards of the environments they inhabit, and lived in a sustainable way. However, such practices have tended to be suppressed rather than celebrated, especially when potentially large-scale profits from large-scale developments have been at stake.

As the Muskrat Falls fiasco exemplifies (and as discussed elsewhere in this document), while switching from non-renewable to renewable resources may help mitigate global warming -- although this is questionable in the case of hydroelectricity, because of methane emissions from reservoirs -- it does not inevitably prompt other kinds of positive change. Indeed, "hydroculture" might not end up looking that different from "petroculture" in terms of the "values, practices, habits, beliefs and feelings" it prioritizes. In short, it is easy to squander the one-time-only opportunities that energy transition offers. In Newfoundland and Labrador, where the tenets of petroculture are still only part of the story, it is time to seize what positive possibilities do remain before it is too late.

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1.3 The Challenges of an Equitable Fiscal Policy

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with the collaboration of
Jill Allison, Allan Goulding, Kathleen Parewick, and Marilyn Reid

This reflection critiques recent fiscal policy through a fairness prism that considers the elimination of poverty to be the cornerstone of public policy in a post oil-dependent Newfoundland and Labrador (NL). Questions of equity and fiscal policy are not usually examined together. Normally poverty reduction, rather than eradication, is but one of a number of policy objectives and, in difficult economic times, usually defined by the size of the anticipated deficit, it is rarely accorded priority. Furthermore, we have a complex fiscal regime. Instead of government developing appropriate programs and services to meet diverse socio-economic policy objectives, we tend to address such objectives through fiscal measures. In this chapter, we argue that the resultant complexity is a key part of the problem rather than any part of the solution.

We address three questions: How did the provincial government's fiscal policy change during the extraordinary boom we experienced? How has the boom and subsequent bust changed the political environment with regard to fiscal policy and equity? Where are we in the struggle to eradicate poverty? A possible way forward is offered in lieu of a conclusion.

A word about sources and their limitations

We have detailed statistics on individual tax returns by income level prepared by the Canada Revenue Agency (CRA), but these are always several years out of date. The most recent ones available were produced in 2016 but are called the 2015 Final Tables, and they provide information on 2013. Based on individual tax returns, these tables do not take into account that people live in households, nor do they allow us to assess accurately the income of people not solely dependent on wages, salaries, or pensions.* The CRA also produces a limited number of other tables, most notably a gender-based analysis of their data, but it is not by income level. This matters, because the wage gap by gender in NL is the largest in the country.

Statistics Canada generates a variety of tables on incomes and poverty levels. These are largely based on survey data and are frequently presented in both current and constant dollar terms, so one can see the effect of inflation over time. Due to

our widely dispersed population and the smallness of the sample sizes, the reliability of much of their data outside the Census Metropolitan Area of St John's is questionable, but the provincial statistical agency has done a remarkable job with their Community Accounts to contextualize this data. The Statistics Canada data, particularly on poverty-related issues, were not collected systematically during the Harper years, and the highly problematic nature of the National Household Survey that they substituted for the long-form census return in 2011 further complicated the situation. Although Statistics Canada generates voluminous data on consumption patterns and lifestyles in Canada, it is at best spotty on poverty-related issues, and sheds almost no light whatsoever on profits or capital gains and even less on corporate control or governance.

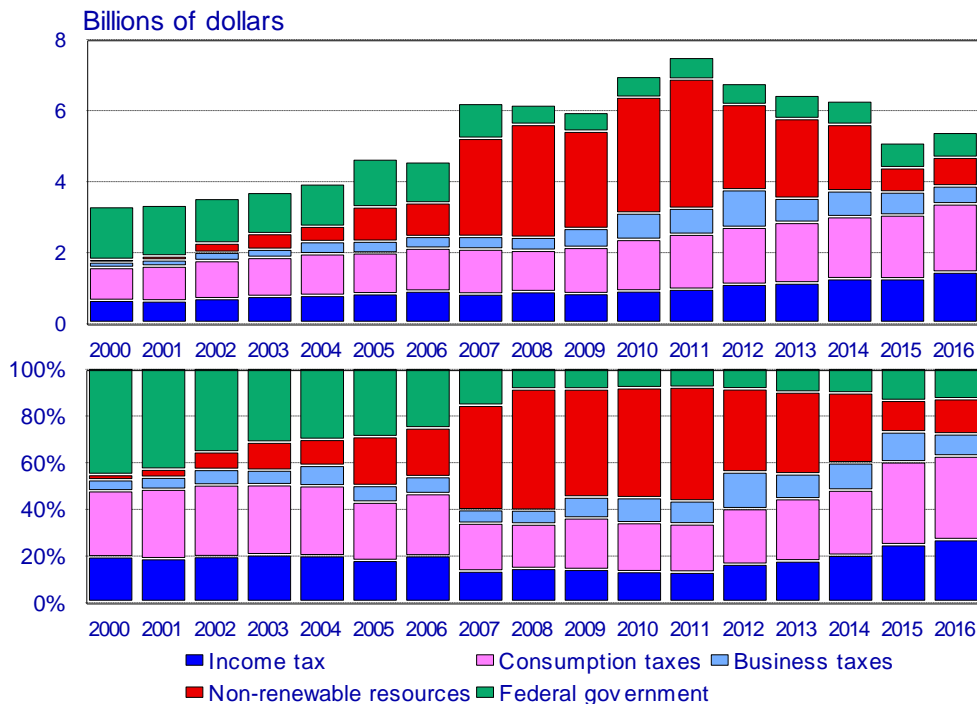
Our analysis relies heavily on the estimates and reports of the provincial Finance Department, particularly its budget documents. These are often forecasts or estimates, and as the economic boom came to an end, the scale of overly optimistic forecasts grew. For years past, we have generally used the revised figures rather than those announced in the budget, but not always and for good reason. The province produces, as part of the budgetary process, an overview of the province's economic outlook. These estimates influenced government decision-making and so where appropriate we have compared tax revenues from specific sources with what the government at the time said would be the situation.

* The potential scale of this problem in 2013 is suggested by the average for the 7,540 men declaring a net business income being \$15,289, compared with that of the 6,850 fishermen at \$21,181 or the 1,030 salesmen declaring average commissions of \$35,500. Only 1,410 of the 32,640 people declaring an income in excess of \$100,000 in 2013 declared any net business income at all, a measly \$61.6m of the \$5.28 billion shared by these the fortunate ones.

Fiscal Policy and the Boom

The history is so recent, and everyone was affected, so understandably we think we know what happened. Indeed, the tale of Danny Williams's governance has already entered the realm of folklore. A more dispassionate assessment of the past fifteen years suggests, however, a somewhat different story. The graph of evolution in provincial revenues in current dollars (below) highlights major increases in total revenues in 2007, 2010, and 2011. Also evident is the shift away from a heavy dependence on federal equalization payments to an even greater dependency on resource revenues. That these did not happen simultaneously is important to understand.

The evolution in provincial revenues, 2000-2016.



Sources: NL Public Accounts 2001-2012 & Budgets 2013-2016.

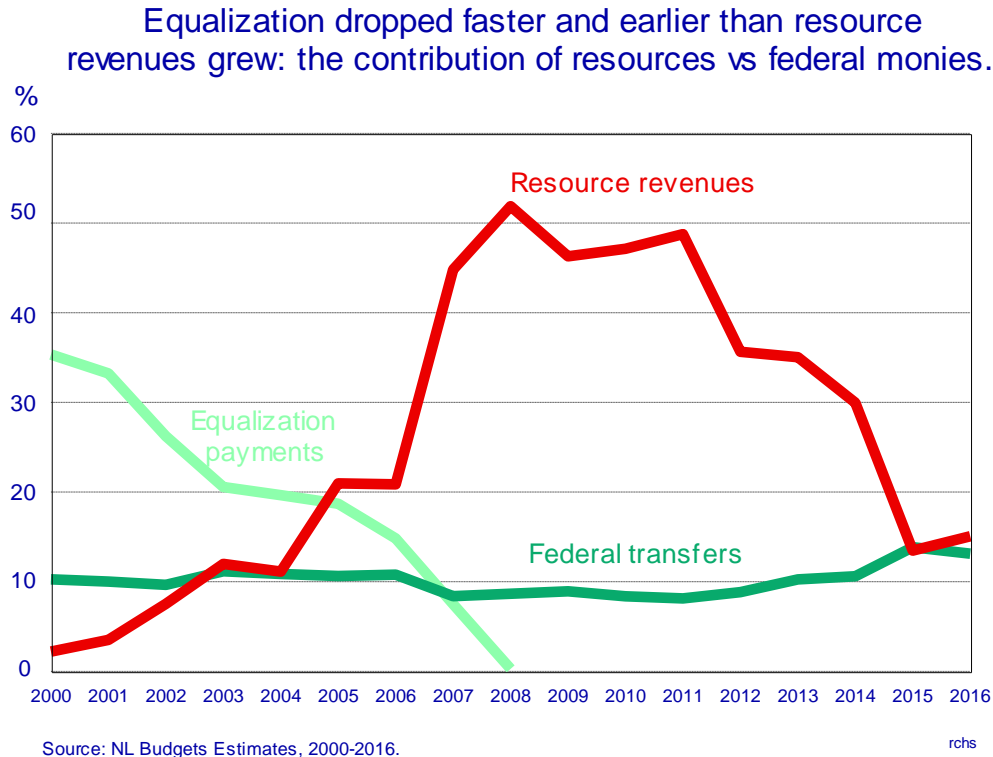
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As indicated in the figure below, equalization payments did not decline because of the dramatic increase in resource revenues, for the decline largely preceded that increase. The equalization cuts were the result of the potential tax base of the province having increased. The calculations are arcane, but equalization payments are not made by the federal government because a particular province is poor, but because that province's potential tax base - what is known as its fiscal capacity - is less than the Canadian average.¹ The calculated fiscal capacity of NL grew rapidly throughout the 2000s, finally surpassing the provincial average in 2009, allowing us to become a "have" province.

The principal factor driving this change in our fiscal capacity was the extraordinary profitability of off-shore oil production. In most advanced capitalist countries, there is a structural, relatively stable relationship between wages and salaries, on the one hand, and corporate profits, on the other. In Canada, combined wages and salaries fluctuate at

¹ By any reasonable measure, Ontario is a wealthier province than Newfoundland and Labrador, but since 2009 it has been a "have-not" province, while we have been a "have" province. By the time it returns to a "have" status in 2019, Ontario will have received \$19 billion in federal equalization payments, while Newfoundland and Labrador will have paid into this federal fund some \$318 million.

around three times the value of net profits, except for crisis years, as in 2009 when profits fell faster than wages and salaries, pushing up the ratio.

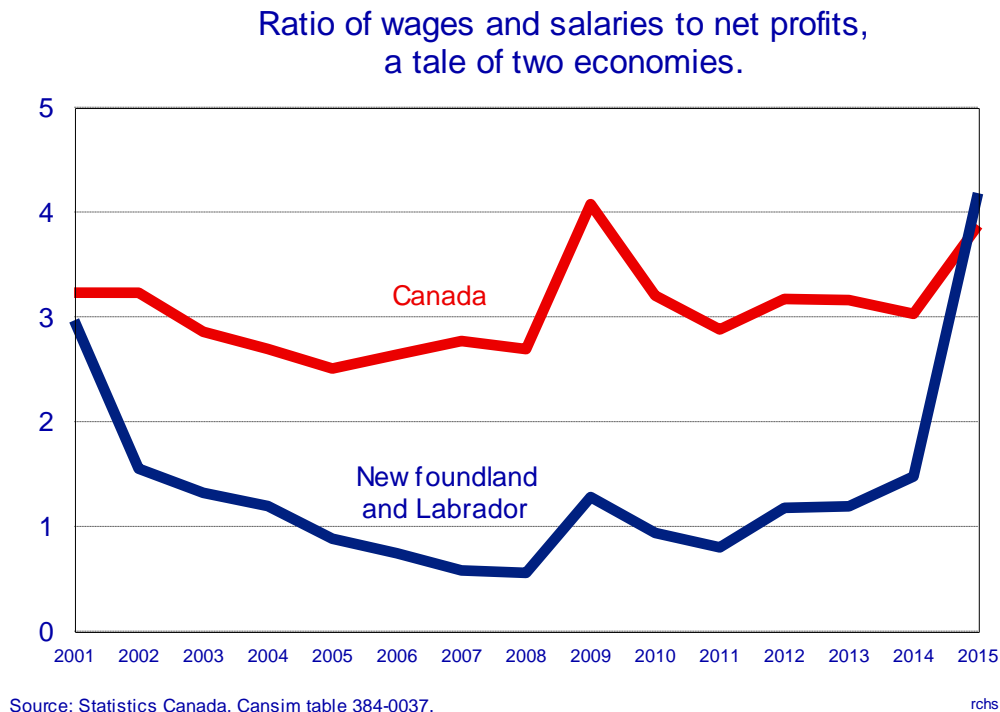


Historically, NL had followed a similar pattern, but once the offshore started to produce prodigious amounts of oil, the situation changed dramatically. As indicated in the figure below, for most of the past 15 years, net profits generated in the province were close to or actually exceeded the total wages and salaries paid out in the province. By 2015, the collapse in oil prices had put an end to these excessive rates of profit and the provincial ratio shot up to rejoin the historic Canadian pattern, itself affected by the slump in the profitability of the Athabasca tar sands.

Thus, the province with the highest poverty and lowest literacy rates in the country became ineligible for equalization payments intended to address precisely those types of inequity, because the net profits of transnational resource companies were so high.² As the term ‘fiscal capacity’ suggests, the province had the ability to tax these extraordinary

² Indeed, so much of the profits went literally off-shore to non-Canadian destinations that from 2004 onwards the government routinely “adjusted” our Gross Domestic Product to exclude “production income from major projects accruing to non-residents.” NL Finance, *The Economy* 2004, p. 6.

profits. Yet, ignoring the exceptional nature of the developing boom, our government chose instead to cut income tax and increase taxes on consumption, against a backdrop of low, relatively stable, business taxes.

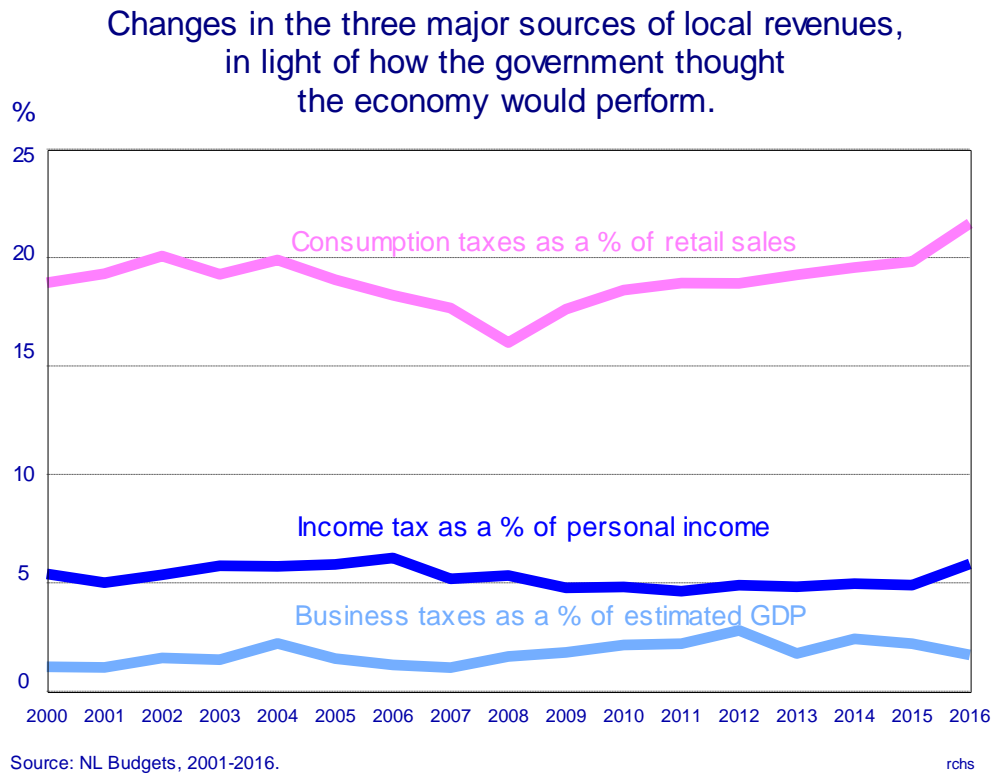


Fiscal policies reflect how the government thinks the economy is working. In the graph below, we see that when expressed as a percentage of government's estimates for the relevant economic indicator, the principal policy change affected consumption taxes. The overall stability stems in part from the scale of the figures involved. It would take a quite remarkable change in policy to affect dramatically these proportions. The cuts to income tax in 2007, 2008 and 2010, which had reduced annual revenues \$437 million by 2011, appear on this graph as only a slight, gradual decline: this underlines the importance of our increasing reliance on consumption taxes.

Income tax is our only progressive form of taxation.³ Shifting the burden to consumption taxes necessarily means a more regressive tax regime that generates greater inequality. This policy shift stemmed from a conscious choice to reject the socially redistributive

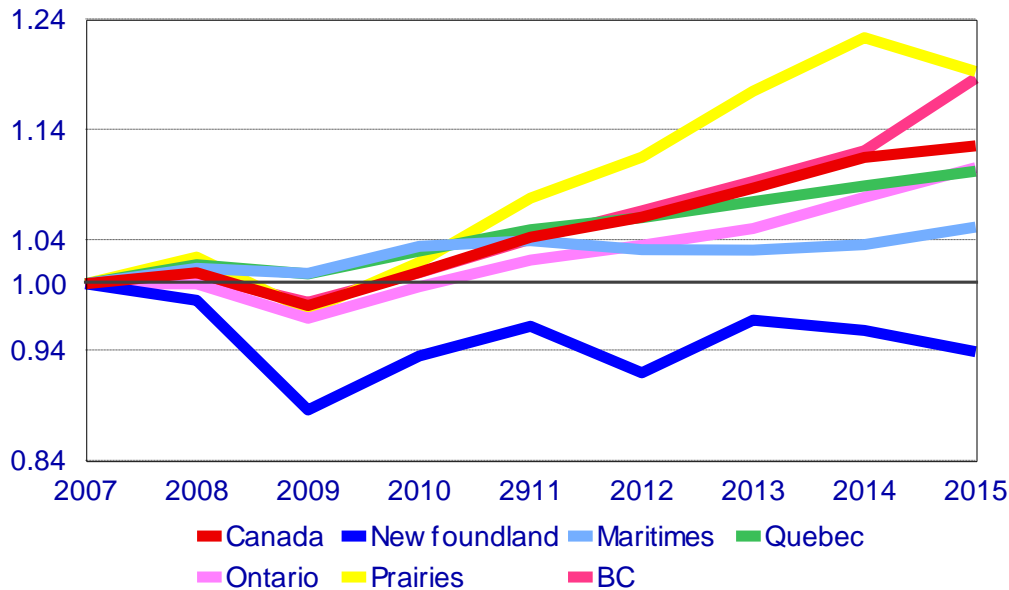
³ Tax regimes that take into account one's ability to pay are called progressive, while those that treat all taxpayers the same are called regressive. The harmonized sales tax of 15% is a lot harder to pay for the person living on minimum wage than it is for someone earning in excess of \$100,000.

function of fiscal policy. The stated intention of the 2007 Budget was to “leave more money in the pockets of those who earned it.”



Now for those *not* viewing fiscal policy from an equitable perspective, this policy change might appear justified, as long as the new policy delivered sustained economic growth. This did not prove to be the case. Indeed, if we take the peak year for oil production as our base, then 2007 marked not only a major policy change, but also the beginning of a divergence in the economic fortunes of NL from those of the rest of Canada. As the graph below shows, it is only our economy that has failed since 2009 to return to sustained economic growth.

Newfoundland became the odd one out:
GDP growth in constant dollars
(chained dollars, 2007 = 1)



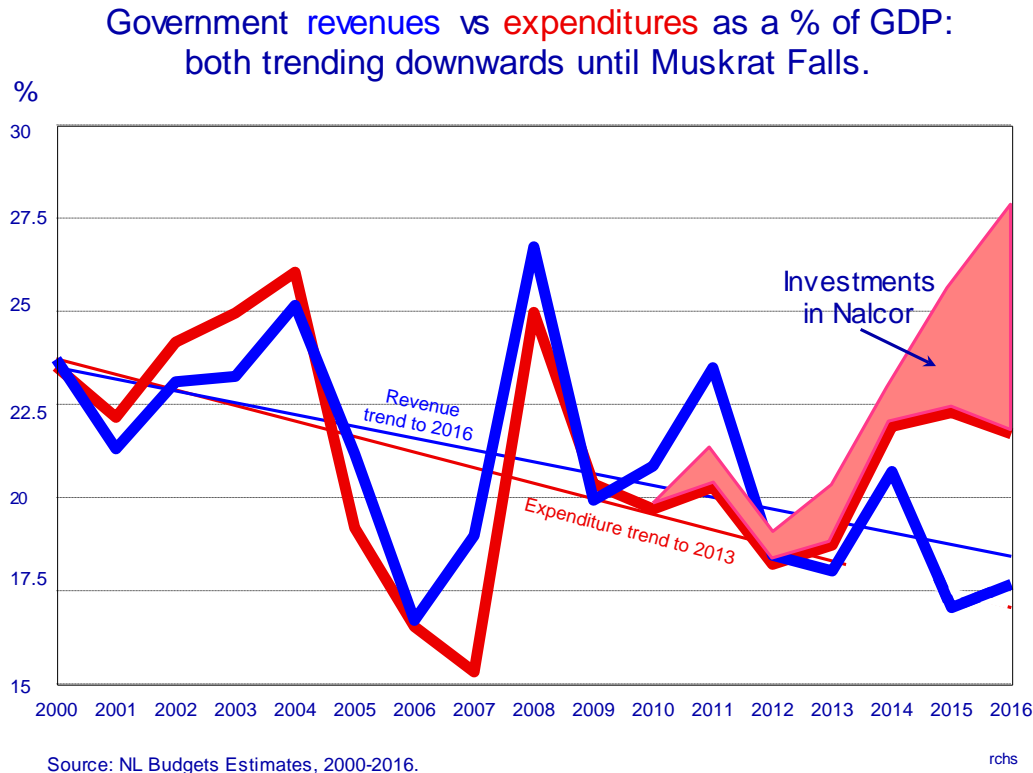
Source: Statistics Canada, Cansim Table, 384-0038

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Now this is not the story we have been telling ourselves. Contrary to popular belief, we have not just lived through an oil boom. The financial bonanza NL received was the result of a dramatic increase in royalties and oil-related revenues accruing to the province; it was not because of increased oil production. Oil production had, of course, increased, but that had happened earlier and when it did, it largely benefited transnational corporations. Peak oil production did *not* coincide with peak royalties from oil. From 2002 until 2008, the offshore averaged 117 million barrels of oil a year. Production has been considerably lower ever since; in 2016, it totaled 76 million barrels. The provincial royalty regime ensures no substantial revenues flow to provincial coffers until the transnational oil companies have recuperated the entire cost of the development. Hibernia reached 'pay-out' in 2007, and as a result provincial resource revenues skyrocketed, remained at record levels until 2011, and were substantial through to 2014. It was this manna that primarily fed the NL boom.

Despite these exceptional revenues, the relative size of the provincial government shrank. As shown in the graph below, in the early 2000s government revenues and expenditures approached a quarter of the GDP. Then, with the dramatic increase in the GDP due to the record production figures for oil in 2006 and 2007, both revenues and expenditures

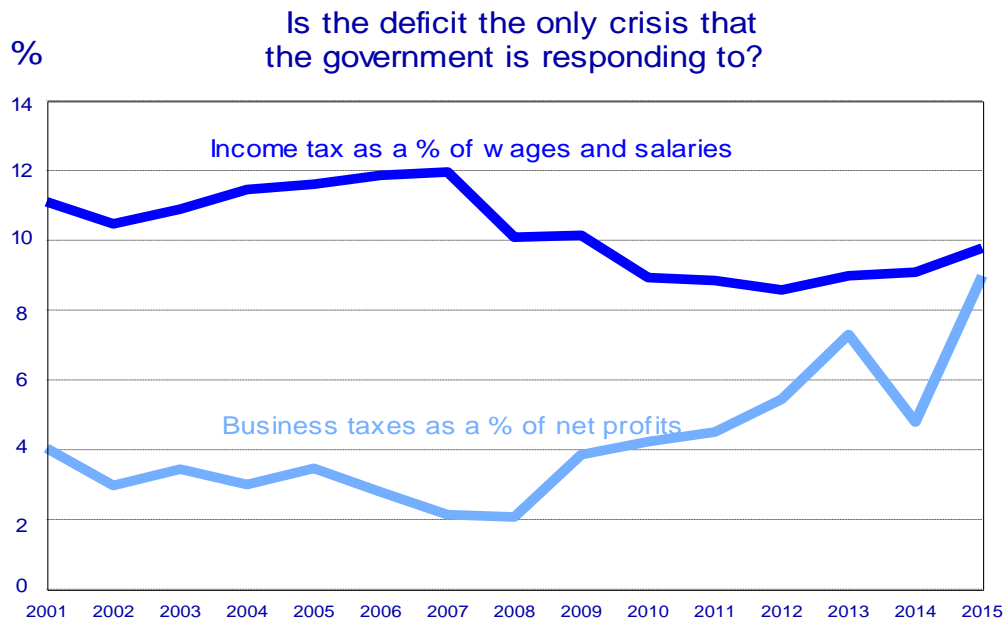
dropped to a sixth of the GDP. In 2008, the greater revenues were used to finance a spurt in expenditures as both revenues and expenditures approached a quarter of the GDP. In the wake of the crisis in the fall of that year, however, expenditures began once more to decline until the completely unprecedented divergence associated with, but not wholly the result of, investments in Nalcor's Muskrat Falls development. The \$1.2 billion drop in resource revenues in 2015 accounts for the rest of the shortfall.



Understandably, the government has chosen to frame this particular fiscal situation as a crisis in government spending. Indeed, this is the common sense of our times, for as Gramsci long ago observed, common sense is how those in power make acceptable to us the unacceptable.

This Liberal policy choice to downsize government is consistent with the previous Conservative governments' policies that shifted the tax burden away from progressive income taxes toward regressive consumption taxes, while keeping business taxes low. Both are neo-liberal nostrums that the OECD has been recommending since the 1980s. There is, however, a particularly NL component to this choice.

Our next graph shows that after decades of low business taxes the provincial share of net profits has been increasing.⁴ This can be seen as simply the corollary of the collapse in corporate profits from the offshore. As the profitability of the offshore declined, the relative share of business taxes assumed by local firms increased and that is precisely why it is important politically.



Sources: NL Budgets, 2001-2015 and Statistics Canada, Cansim Table 384-0037.

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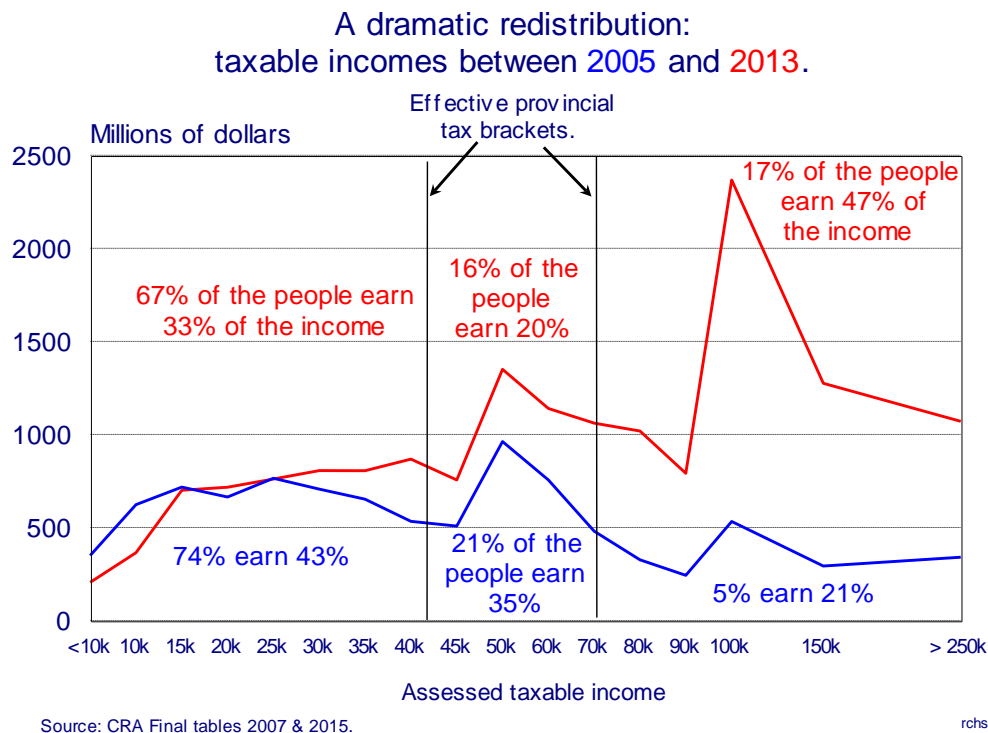
Although the cost overruns at Muskrat Falls and the drop in resource revenues are clearly the cause of our current fiscal imbalance, these are not the targets of government actions. Instead, the problem is to be resolved by further cuts to public services. Smaller government does not just mean new austerity measures. It creates opportunities for the private sector. If government cannot or will not meet essential needs, then those who can afford it will turn elsewhere to fulfill those needs. It is important to understand this dynamic. Cuts to public services don't just affect those in need; they can and frequently do improve the relative position of those who are doing well. Privatization, the inevitable result of down-sizing government, creates new opportunities for local businesses by increasing inequality. In a democracy, public policies that create inequality cannot be

⁴ Wages and salaries account for approximately 60% of the total personal income used earlier. Here, we opted for this smaller figure because wages and salaries are the form of revenue most directly affected by changes in income tax brackets.

successfully marketed as such, hence the need to frame the current fiscal situation as a particularly stark, indeed hopeless, crisis. How else are we to understand a government economic plan that, if successful, would see unemployment rising from one in eight to one in five by 2019? Thus, framing the current fiscal situation as a spending crisis, caused by an inefficient and bloated public sector that we can no longer afford, kills two birds with one stone.

How has the Political Environment Been Changed?

As this analysis of the logic of the current government's fiscal policy might suggest, the political environment was dramatically transformed by the economic boom. This should not surprise us, for NL has just experienced the most rapid changes in the economic history of the country. Against a backdrop of slow growth,⁵ median incomes of all tax filers, so this includes the 140,600 people who did not earn enough to pay income taxes in 2013, increased by 36% between 2005 and 2013.



⁵ The World Economic Forum (2017) estimates that median income declined 2.3% in 26 advanced capitalist countries between 2008 and 2013.

As the above graph illustrates, it was not a tide that raised all boats. Approximately one in six people saw no improvement. But, thanks to the increases in minimum wage between 2006 and 2010, major capital spending projects, long-distance commutes to the Athabasca tar sands, a significant increase in public service wages and a generally improving job market that drew tens of thousands back into the workforce, most people in NL did see significant improvements in their economic wellbeing (Sweeny, 2017). This improvement was not, however, shared equally.

Two-thirds of working people remained in the bottom tax bracket, and their relative share of a much larger pie shrank. In contrast, the boom saw very significant upward mobility for an important minority. The number of people in the top tax bracket more than tripled, and they garnered the lion's share of the increased income. The middle tax bracket, which had been home to most of the middle class in 2005, witnessed complex changes. Perhaps as many as two-thirds of these people rose into the top bracket by 2013, but they were replaced by considerably fewer from the bottom bracket.

Polarization might be too strong a term for what we are seeing here, but certainly for the people who saw no improvement and probably for most working families, the good life still remained at the end of the boom a long way off. By contrast, not only did the economic position of those in the top tax bracket improve dramatically, but so too did their political weight. Or put another way, while things improved for most people, there was a widening of the gap between those living well and everyone else.

The hollowing out of the middle class has been a problem throughout the advanced capitalist world, but here it appears to have happened with remarkable rapidity. This matters because tax fairness requires a shared sense of collective identity. Unequal societies do not support equitable fiscal regimes. Arguably, in 2005, when those in the bottom brackets accounted for 19 out of 20 tax payers, there would have been little popular support for individualist or elitist policy solutions. By 2013, with almost half the income going to the sixth of the people in the top tax bracket, we were dealing with a different political economy of taxation.

Tax Credits: The Rise of “Anti-social” Transfers

Since Confederation with Canada in 1949, the tax regime in NL has had important redistributive functions. Social transfers are key to how this works, but in recent decades anti-social transfers have also begun to play an important role (Sweeny, 2017). If social transfers are directed to those in need, anti-social transfers go to those who are already

well off. Our complex system of tax deductions and tax credits has proven fertile ground for the growth of anti-social transfers.

It is a principle of neo-liberalism that tax credits to meet social, cultural, and educational or health needs of the population are better than government programs, because tax credits trim government resources, while providing individuals with the funds to finance a market-based solution to the need in question. Now, there is ample evidence to show how inefficient and inadequate this way of addressing widespread inequities is, but unquestioned assumptions are rarely over-turned by evidence-based proof.

Governments in Canada have been following a neo-liberal agenda for more than 30 years, so it is not surprising that our tax regime now includes a wide and continually growing variety of tax credits. A recent Canadian Centre for Policy Alternatives (CCPA) study of 64 federal tax deductions assessed their cost in 2011 at \$103 billion. (Macdonald, 2016) That year, the federal government only collected a total of \$121 billion in income taxes, or put another way, our government gave away in tax credits four times that year's federal deficit. Eighty-three cents on the dollar of the five most costly of these programs went to the top 10% of income earners (Trew, 2017).

The more money you make the more likely you are to benefit from this complex system of tax deductions. This is for two reasons. First, the more money you make, the more likely you will have diversified sources of income, and each differing source of income provides its own tax advantages.⁶ Second, tax deductions generally come in the form of tax credits, and these are only redeemable if you have taxes to pay. People at the low end of the income scale generally cannot take advantage of all of the credits for which they are eligible, because they do not owe the taxes against which these credits can be charged.

The personal benefit tax deductions, which we all claim, illustrate this rather well. According to the CCPA study, it is only when people reach the fifth decile, earning between \$22k and \$30k, that they fully redeem the federal credit. Furthermore, distribution of this the most apparently fair and 'universal' credit favours quite disproportionately higher income males. If your spouse has little or no net taxable

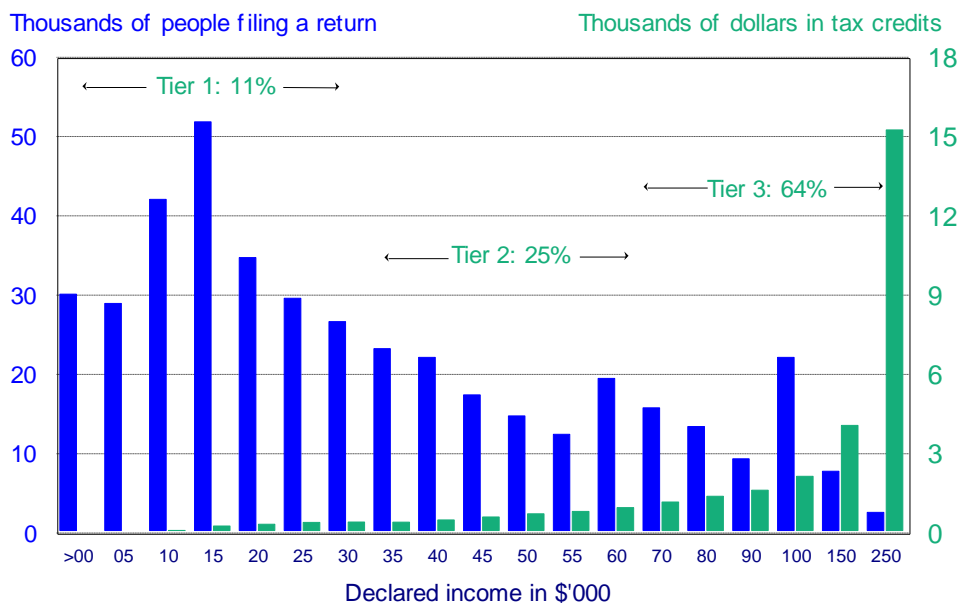
⁶ Pension policy provides a good example. CPP contributions are credited at the lowest tax rate, while private pensions contributions and registered retirement savings are credited at the highest applicable tax rate: the greater your income the greater the credit. Furthermore, private pension income is eligible for spousal income splitting, but public pension income from CPP or QPP is not.

income, then the ‘personal benefit’ is transferred to the higher-paid member of the couple, most frequently the husband. In 2011, the federal personal benefit cost the public purse \$29 billion, more than that year’s deficit. The CRA Final Tables do not allow an assessment of how equitably the provincial personal tax deduction is shared amongst taxpayers in NL. There is no reason, however, to assume it differs markedly from the federal pattern.

The following graph shows who benefited the most from the complexity of our current tax regime. In 2013, the two systemic inequities of our current tax regime - its taxing various sources of revenue differently⁷ and its myriad individual tax credits - cost the provincial treasury \$275 million, excluding the provincial personal deduction. That year, the province collected \$1.15 billion in income tax. Taxpayers did not share equally in this provincial largesse. On average, those in the top tax bracket pocketed twenty-four times the credits that those in the bottom bracket did.

Who benefited from the \$275m in provincial tax breaks?

The average value per individual by income in 2013.



Source: CRA Final Tables 2015.

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⁷ Here we have accounted for the two most egregious: the treatment of capital gains as being worth only 50 cents on the dollar and the exceptionally generous treatment of dividend income on the completely spurious grounds that the company paying out the dividends pays taxes.

Thus, we are facing a qualitatively different political economy of taxation in NL as a result of the way government responded to the boom. Their policy choices led to greater inequality, and so we now have a significant and influential group who benefit greatly from the current complexity of our tax system. They make any systemic reform extremely unlikely within the parameters of NL's ruling parties. Given how our political parties are financed, neither the Conservatives nor the Liberals stand to gain from introducing equitable taxation. In fairness, it should be said that the New Democrats, when in power provincially, have not addressed either of the systemic problems highlighted here; they did, however, in both Nova Scotia and British Columbia introduce more progressive income tax brackets.

A key element of the structural inequity of our income tax stems from our dependence on the federal tax system. NL does have different tax brackets from those used by the federal government, and there are some relatively minor programs proper to the province, but basically we piggy-back on the federal system.

In Canada, only Quebec has chosen to develop its own qualitatively different tax regime. There, a combination of significantly higher tax rates⁸ and much more extensive social services – including subsidized daycare, rent control, no-fault car insurance, extensive support for expectant mothers, extended family support, pharmacare, free college and low university tuition fees –substantially reduce the costs working families face. In terms of equity, the top 1% in Quebec has been held down to half the share they enjoy in English Canada. While this system is under attack, as the Couillard government imposes its own austerity measures, the important lesson for us is that a different approach is possible.

This qualitatively different relationship between citizens and their government can be seen as a by-product of Quebec's strong sense of identity. The debates, movements, and campaigns that created, expanded, and defended their social contract took place largely within the majority francophone community. (Nadeau-Dubois, 2015 & Aussant, 2017) Both parts of Newfoundland and Labrador have strong, albeit differing senses of collective identity in which community still matters. These can be strengths to draw on as we debate our future.

⁸ The base rate is 16%, rising to 20% at \$42k, 24% at \$85k and 25.75% above \$103k. These are much higher rates than those introduced for 2017 by Cathy Bennett's 2016 budget: 8.7% to \$35k; 14.5% to \$70k; 15.8% to \$125k; 17.3% to \$175k and 18.3% on anything above that.

The current fiscal challenges we face cannot be resolved by simply raising income tax rates. Even were we to move to a Quebec-style system, we would not be addressing the fundamental inequities of our current regime. We have become far more dependent on non-renewable resource revenue than any other Canadian jurisdiction and, as we have seen, in NL it has given rise to a fundamentally different relationship between capital and labour. Capital in its myriad forms is treated not just differently but better than labour and that is at the root of many of our most pressing social, gender, and environmental problems. A sustainable, equitable future for a post oil-dependent Newfoundland will require that we collectively engage in the very demanding debates and politics to change this relationship.

Where are we in the Struggle to Eradicate Poverty?

In 2015, the Davis government celebrated the fulfillment of a remarkable political promise. Back in 2003, the Williams government promised that the province with the highest poverty rates in the country would have the lowest within a decade. To that end, \$1.2 billion was invested in a poverty-reduction strategy. By 2013, 38,000 fewer people were living in poverty than in 2003 and the province boasted the lowest poverty rate in the country. There were no press releases the next year, however, when NL fell back to the middle of the pack.

As this cautionary tale suggests, measuring poverty is a complicated business. There are basically two approaches. The first, pioneered by General Booth and other social reformers of the late nineteenth century, considers poverty to be an objective condition. Someone is poor if they cannot afford to purchase a basket of necessary goods and services. This method was developed to distinguish between the deserving and undeserving poor. It remains a highly problematic approach, because it assumes to know what people need and so inevitably involves the imposition of values, frequently those of middle-class social workers and statisticians, upon the poor. It also does not easily take into account local variations in customs or prices. This is, however, the method favoured throughout North America, and used by both Statistics Canada and the Newfoundland Statistical Agency.

The second method, favoured in Europe, considers poverty to be social and, therefore, a relative condition. Someone is poor in relationship to other people in the society. The government in the UK defines someone as living in poverty if their income is below 60% of the median. This approach has the merit of recognizing that poverty is a form of social

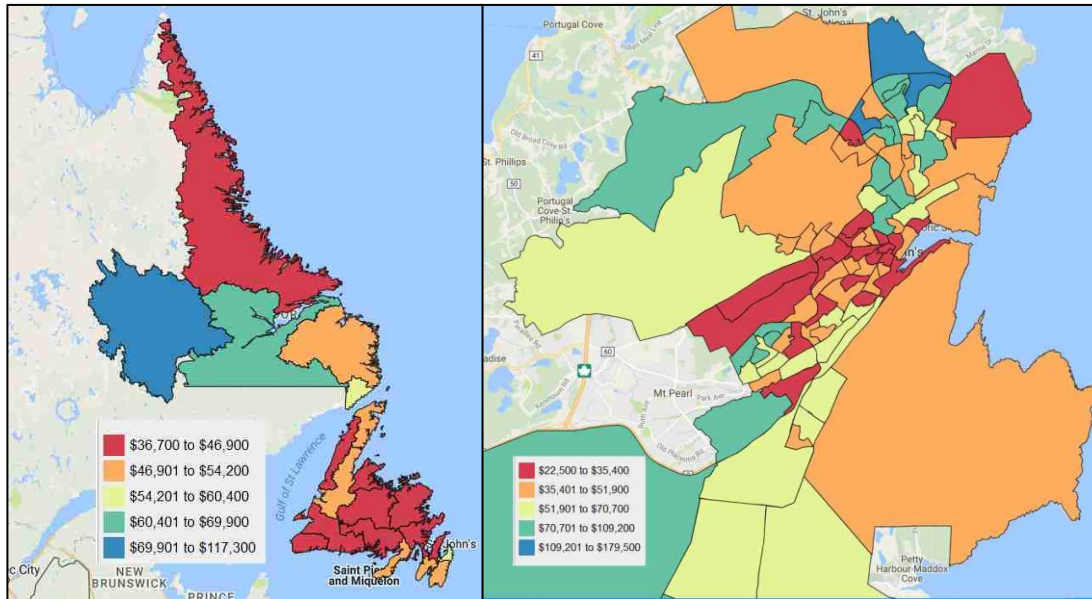
exclusion, like racism or sexism, and, as with those forms, the appropriate policy response is zero tolerance. We should not be trying to reduce poverty but to eradicate it. In the following quick survey, this second definition of poverty is the one being used.

In 2014, for the first time in the statistical record, Newfoundlanders and Labradorians earned more from work than the national average. The pay cheques of residents of our province averaged a thousand dollars more a year than did those living in the rest of the country. This is a remarkable achievement and, unlike the arcane methods used to calculate federal equalization payments, it really did mean that NL was, at least in that year, a “have” province.

When we look at the distribution of that income, however, it is equally clear that many were still living “have-not” lives. In only six communities did most people’s income even equal the national average: two in Labrador (Labrador City and Churchill Falls) and four on the Avalon (Long Harbour, Logy Bay-Middle Cove-Outer Cove, Paradise, and Torbay). Thus, the skewed nature of our income distribution is in part geographic: the “have” communities are all either linked to very specific resources or are fast-growing suburbs of St John’s. All of rural Newfoundland, including most of the Avalon, as well as coastal Labrador remain firmly in the “have-not” category. Focusing in on families, because that is where children are living in poverty, gives us a better idea of the scale of the challenges we still face.

As the following maps illustrate, there is an important geographic variation in the distribution of poverty within the province and within our communities. This highlights the fundamental importance of municipalities in any serious attempt to deal with poverty in NL. Municipalities are our least well financed level of government, dependent as they are on an outmoded and inequitable property tax regime, supplemented by undependable transfers from the higher levels of government. Clearly municipal governments must become key players in addressing the problem. This will require a complete rethinking of how we finance this vital, but neglected level of government.

In 8 of the 20 economic zones of the province and 43 of the 94 neighbourhoods in St John's, the majority of families fell below the poverty line of \$42,600, defined as 60% of the provincial median family income in 2013. Source: Community Accounts, SANL, based on Cansim Table 111-0009.



As we have already seen, there is a novel social dimension to our unequal distribution of income. Many think these recent changes are simply the province ‘catching up’ with the mainland, but such is not the case. In 2013, 2,610 people declared a taxable income in excess of a quarter of a million dollars, a threefold increase in only eight years. While 32,640 people pocketing 30% of total income would have been eligible for inclusion on a “sunshine list” as they earned at least a \$100,000 that year. A disproportionate four out of five of these highly-paid individuals worked in the private sector. At 10.9% of the active workforce, in 2013 our province had a third more people basking in the sunshine than the rest of the country.⁹ While our minimum wage was precisely that: the lowest in the country.

In addition to these better known regional and social inequalities, family structure and the economics of gender are key factors. Overall, couples in Newfoundland are doing better economically than many in the rest of the country. Between 2010 and 2014, their income

⁹ These high incomes speak to a limitation of both definitions of poverty. Only income is considered, but wealth and its counterpart of indebtedness are both central to understanding growing inequality. This is perhaps most visible when we consider the distorting effects of inherited wealth. One in seven people born in Canada since 1990 will inherit more than the average Canadian earns in their lifetime (Piketty, 2014).

levels moved from second worst to fourth best of all the provinces. This improvement did not match the headline grabbing “have” figures celebrated by Premier Davis because of the dramatic difference in median wages by gender. Despite significantly higher educational levels all across the board, including graduate degrees, the median income for women in 2013 stood at 58¢ for every dollar of a man’s income, the highest gender imbalance in the country.

Single-parent families, most of which were headed by females, saw no improvement during the boom. Their incomes remained the third worst in the country while they were caring for the majority of our children living in poverty. In what was undoubtedly an underestimate, the 2011 National Household Survey found that 29% of the children born since the promise to make poverty reduction a government priority were living in poverty. Gender also mattered for single adults, whose incomes are the worst in Canada: \$100 a week less than the Canadian average. A quarter of those singles of working age are poor, but half of the elderly, quite disproportionately female, live in poverty.

This quick survey of the situation highlights the severity of the ongoing problem. There were no grounds for complacency in October 2015 when the Davis government congratulated itself on its achievements. Nor are there grounds, given the worsening economic situation for thinking that the improvement achieved by those who did raise themselves out of poverty during the boom is likely to continue. The struggle for an equitable fiscal policy remains as important as ever.

Thoughts on a Way Forward

A decade ago, the Religious Social Action Coalition coined the slogan “poverty is a failure of community.” Equitable and sustainable public policies are also questions of community. Neither can be justified by reference to individual rights or to the market. Fortunately, fiscal policies are inherently social. They define both how we are to pay for public goods and to what extent we want to redistribute wealth within our society.

When we agree to tax capital gains at only half the rate that we tax labour’s wages we are making a social choice. When we sanction golden parachutes for top executives at Nalcor, while closing libraries and taxing books, we redefine the values that constitute our sense of community. These are quintessentially social and collective choices; they determine the nature and quality of our lives. If the former speaks to long-standing inequities, the latter reminds us that it is in our routine administrative procedures that we reproduce and entrench those very inequities.

Almost forty years after the election of the first neo-liberal government, that of Margaret Thatcher in the UK, those values that once appeared so shocking have become commonplace. Is it even possible now to conceive of an equitable and sustainable future?

This reflection has been long on analysis and short on solutions, for it is not in the realm of political economy that we are likely to find firm ground. The Report as a whole does offer insights into where we could go post-oil. What this chapter shows is that we need to engage in the difficult conversations necessary to establish a qualitatively different culture.

In building such an alternative culture, we can fruitfully learn from the struggles for racial and gender equity of the last half century. Both racism and sexism continue to exist in our society, but they are no longer either socially or politically acceptable. Across the board the position is zero tolerance. This is a truly remarkable achievement.

To address the continuing problems of inequality in NL we need to think of it as a failure of community. This is why the relative definition of poverty, which considers it a form of social exclusion rather than individual failure, is so important. Defining the problem we face as one of exclusion underscores its collective nature. When we exclude people we do not just do them an injustice, we necessarily privilege all of us who benefit from being included. As we have shown, in NL those who have benefited most from the recent transformation of our economy and society have become a significant and influential minority. They are not the majority, far from it. By reconceptualizing our struggle to eradicate poverty as a key part of a larger strategy of inclusion (discussed in Section 1.4

Vision for an Inclusive Newfoundland and Labrador) we underscore our majority status. And that, in a democracy, matters.

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Social Enterprise: Building a More Equitable and Inclusive Post Oil-Dependent Newfoundland and Labrador

Nicole Helwig, Centre for Social Enterprise, Memorial University

Social Enterprise is on the rise – there's no doubt about it. At its most basic level, a social enterprise simply makes and sells products and services while achieving two key objectives:

1. addressing social, cultural, or environmental issues in order to positively impact communities; and,
2. generating revenue that is then reinvested into the business/community for the purpose of achieving the desired social outcome or goal.

Given the broad range of traditional business opportunities and social outcomes that can use this approach, it is exciting that in 2016 the Government of Canada provided a definition of social enterprise that includes both for- and not-for-profit models (Directory of Canadian Social Enterprises, 2017). This speaks clearly to the power of social enterprise to creatively build stronger communities, solve social and environmental challenges, and generate economic activity.

Here in NL, there are numerous examples of social enterprises. From cafes to construction companies, from custodial services to print shops, such businesses are flourishing and helping lead discussions on how social enterprise offers a sustainable and viable approach to pairing business and community development. The evidence of, and energy around, it has resulted in the provincial government committing to the development of a Social Enterprise Action Plan. While there is yet no broadly-accepted definition of 'social enterprise' and no legal definition of 'social enterprise' in the province (Canadian CED Network, 2015), this has not hindered numerous socially-conscious entrepreneurs and organizations from actively pursuing the creation of social enterprises for the betterment of communities across the province.

Increasing Economic Activity, Diversity & Labour Market Participation

Social enterprise offers a viable path for a whole new type of entrepreneur to contribute to the economic diversity and activity in the province, while integrating

social bottom lines and increasing labour market participation. Impact Construction, operated by Choices for Youth in St. John's, is a good example of social enterprise in practice. It provides sustainable training and employment opportunities in the construction industry for youth with limited skills and experience. The organization offers a range of supports and services to at-risk and homeless youth on a continuum from housing through employment, to training and education. These youth are also selected based on their need for support because of personal barriers and challenges such as traumatic experiences in childhood, issues with their mental health, addictions, homelessness, housing instability, and involvement with the criminal justice system. At the core of Impact Construction's services are models of intensive support related to childhood trauma, mental health issues, addictions, poverty, and family breakdown. The combination of intensive supports with social enterprise means that youth who are often thought of as unable or unwilling to participate in the labour market become meaningful contributors to the enterprise's bottom lines for being "on time, on code, on budget".

Three areas of specialization for Impact Construction are: the construction of affordable housing, carrying out energy retrofits on occupied social housing units, and asbestos abatement work. In the case of energy retrofits, the enterprise has reduced energy bills for approximately 300 low-income households, dramatically improving the overall affordability of this housing. Impact Construction is COR Certified (Certification of Recognition) and a member of the Newfoundland & Labrador Construction Safety Association. The enterprise has completed over \$4 million in contracts and maintains a 70% success rate with the youth employed – meaning that 70% of the young people working for Impact Construction move on to post-secondary education and/or full time employment with other firms within 18 months of their start date.

Impact Construction is changing the trajectory of the lives of vulnerable youth and reinvesting profits to create more sustainable and supportive employment options. It is an example of a broader development in Canada through which social enterprise is developed to act as a pathway for poverty reduction and social inclusion. It is modelled on Building Urban Industries for Local Development (BUILD), a social enterprise non-profit contractor and a training program designed to help those who face barriers to employment in Manitoba. BUILD's programming has many community impacts including lowering utility bills, employing neighbourhood people, cutting crime, and decreasing greenhouse gas emissions. Lowering utility bills offers a "Pay as You Save" method, meaning individuals can pay back with the savings they have made from this. By so doing, they don't have to pay directly from their own pocket and will therefore not be out money. BUILD's impact has also been significant in lowering incarceration rates in the province. Probation and parole officers are encouraging their clients to sign

up with the organization which in turn helps individuals with criminal records gain experience over time while making a fair income.

Impact Construction and BUILD are illustrations of how social enterprise can address complex issues through innovation. As social enterprise becomes more known and better understood through such initiatives, a social values marketplace emerges that contributes to economic diversification, development of a more inclusive workforce and community-led sustainable action. These examples provide a window into the potential impact of social enterprise. Shaun Loney, a leader in this endeavour, describes in his new book *An Army of Problem Solvers* that these types of businesses "...are not social services. They are not taking government handouts. They make significant contributions to shrinking government budgets, increasing the efficiency of the economy, and increasing the productivity of the workforce" (2016).

As we look ahead at the future of Atlantic Canada, the challenges we face are complex and multi-faceted. They involve climate change, social exclusion, unemployment, slowing or shrinking GDPs and out migration, to name just a few. Social enterprise offers a mechanism to help address many of these challenges through creativity, responsible business, and social consciousness. The returns on investments in social enterprises are immense and include contributing to vibrant, inclusive, and healthy communities that are more attractive to live in. They nurture culture, attract business, create jobs, and build resilience. That's what we need in Newfoundland & Labrador, and across the Atlantic region. Interest? Find out more through Memorial University's new Centre for Social Enterprise (<https://www.mun.ca/socialenterprise/>).

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1.4 Vision for an Inclusive Newfoundland and Labrador

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“Speak with us: NL has yet to realize that fixing inclusion case by case is much more stressful and costly than ‘doing it right the first time’ ”
(Anonymous, Person with a Disability).

Introduction

Making Newfoundland and Labrador an inclusive province will maximize the social and creative capacity available for shared investment in the design, construction and maintenance of a post oil-dependent province by all of its citizens. An inclusive province is one where everyone has access to resources, quality community necessities and amenities, equal opportunities to take part in all aspects of community life, and can experience a sense of belonging, dignity and respect in the community (Richmond & Saloojee, 2005). All forms of discrimination in such a province will be responded to quickly, work will be done to eliminate them, all citizens will be interdependent and engaged in decision-making processes that affect their lives, and diversity will be valued and embraced.

The Dimensions of Diversity

The dimensions of diversity include age, gender/sexual orientation, ethnicity, race and culture, dis/ability, and socioeconomic status. In Newfoundland and Labrador (NL), the median age is 44 years and 16% of the population is 65 or older (and expected to

¹ We have sought input from the following individuals and organizations to inform this report: Don Connolly, Person with a Disability; Christopher K. Dedde, Autism Society, NL; Ukeme Eka, New Canadian; Empower – the Disability Resource Centre, NL; Todd Hickey, A Parent of a Child with a Physical Disability; Brandon Snow, Person with a Disability & Recent Graduate of Memorial (BSc (Kin), 2016); and The Coalition of Persons with Disabilities – NL.

increase). The population is 49% female, and a mix of European and/or North American origins, with English being the dominant mother tongue. Only 7% of the population is Aboriginal and 1% are visible minorities. Median income was \$35,400 in 2013 and 14.1% people > 15 years of age identified themselves as having a disability.

Traditionally provincial and community planning, social structures, and programs were created by and for the dominant race, class and sex/gender. In the 21st Century, awareness of diversity and the rights of inclusion for “all” is more widely accepted and should ideally form the foundation for looking at communities (whether a province, community or neighbourhood). In our quest for inclusion, we need to include all dimensions of diversity: what is unseen as well as what is seen. For example, we may consider physical mobility disabilities--a more visible disability--in neighbourhood/community planning by providing ramps up to street curbs, but may not consider loss of vision, hearing or mental health. Different kinds of diversity often interact: barriers to inclusion experienced within gender, for example, interact with those experienced within ethnicity, thus creating complex individual experiences.

Diversity is indeed complex and multifaceted, but overlapping experiences need not make it difficult to create strategies that help to reduce or eliminate barriers to inclusion. A good public transportation system within and between major cities, for example, not only increases city access for lower income families, but also improves the quality of life of people with disabilities and with some medical conditions, as well as many new Canadians, seniors, youth, and post-secondary students.

Pathways to Inclusion

NL has come a long way, but still needs to do much more to ensure awareness and acceptance of diversity. Exclusionary and marginalizing practices in our communities are associated with ‘othering’: the process of marginalization that occurs when those thought to be different from taken-for-granted notions about ourselves are devalued, and individual differences are rejected. Promoting positive societal attitudes on inclusion is thus as important as ensuring inclusive built environments and policies. Public education and campaigns should be provided to different groups in multiple environments (e.g., school, work force, and community) throughout the province to increase awareness and acceptance of diversity and dignified inclusion. As one person has put it: “A vision of inclusion can only be implemented once everyone begins to understand a person, one

must understand what that person understands” (Christopher K. Dedde, Autism Society, NL).

Community-based Planning and Collaboration

Communities are the key stakeholders *in* and beneficiaries *of* inclusive practices. We have a tendency to adopt an “expert” rather than a more facilitative approach to planning.

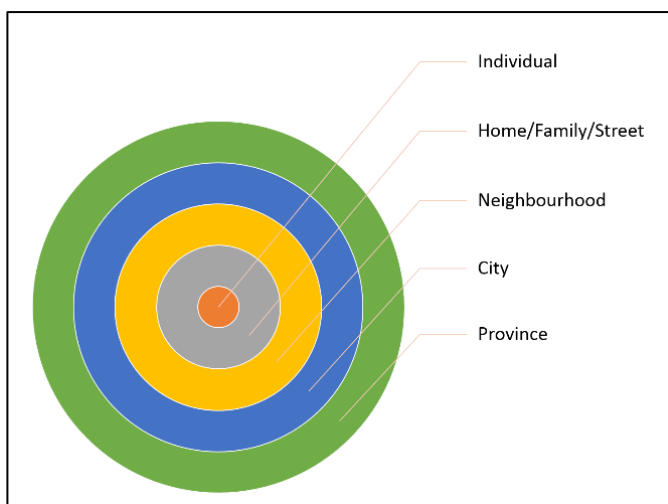
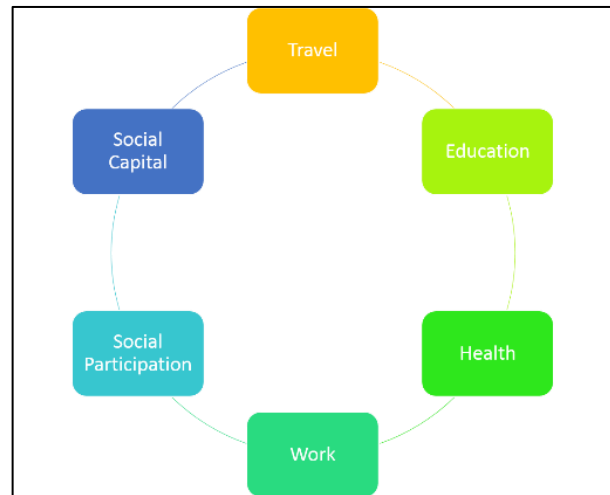
However, *expert/practitioner-driven* approaches are often perceived as paternalistic, irrelevant, manipulative, and even invasive. A bottom-up, rather than top-down, approach works best, is more sustainable, and can contribute to a happier and healthier provincial community. A community-based approach founded on the perspectives of individuals, groups and communities in NL will provide more meaningful, socially/culturally-appropriate, and sustainable strategies to reach our vision of an inclusive NL (Checkoway, 2013). Knowledge exchange -- an iterative process of joint decision-making and problem-solving between expert/practitioner and communities -- should occur during the entire process of planning, implementing, evaluating, and maintaining inclusive practices in NL.

We cannot achieve a vision of an inclusive, healthy and liveable province unless we learn about each other and our different perspectives, communicate with each other, and work

together. Partnerships and collaboration are essential to success – and remember that partners include individuals and local citizens.

Inclusion across the Whole System

To achieve our vision for an inclusive NL an ecological approach - also called a systems



approach (McLeroy et al., 1988) - is required as individual Newfoundlanders and Labradorians are a part of a larger system of influence.

We need to consider the whole person including their travel, education, health, work, social participation and social capital, and the built and natural environments within which they operate. Community development and planning often focuses on one aspect of the system; however, we need to address them all and understand how they are interconnected and related to each other. For example, providing affordable day care options to a single-mother so that she can seek employment is not effective if she cannot access transportation to the day care or her place of employment.

The next section identifies goals, priorities and recommendations for achieving a more inclusive NL including through improved dialogue and consultation and specific initiatives related to infrastructure design (including transportation infrastructure and outdoor environments), education and health care.

Goals, Priorities, and Recommendations for an Inclusive NL

As noted at the beginning of this reflection, addressing inclusion in bits and pieces is costly and often ineffective. Inclusion must be a core principle and goal within the roadmap we are developing for a sustainable and equitable post oil-dependent NL. Government at all levels, including those working in social and health services, education, building design, and transportation, and employers, can learn about issues of inclusion by speaking with organizations that work with and represent under-represented groups (e.g., Empower, Coalition for Persons with Disabilities – NL, St. John's Pride, LBGTQ Society at Memorial, Association for New Canadians). Therefore, we recommend that:

1. government build networks and partnerships with not-for-profit organizations to involve them in decision-making processes.

We also need accessible infrastructure in the built environment. Accessible buildings are only the first step; accessibility infrastructure to move to, from and between buildings and spaces, as well as within them is just as important. The implementation of universal design practices is a key way to achieve this. These would be more common here if planners and architects would communicate with people from the disability and minority communities in order to better understand what is needed to meet universal design goals

(Centre for Research on Work Disability Policy, 2015). Thus government and others need to work together to:

2. provide education in universal design to employers and public administrators, city planners, and architects;
3. revise building codes to make accessibility guidelines mandatory instead of optional;
4. ensure members of the disabled community are invited to provide input into the revised building codes;
5. apply universal design to all future construction, as well as major renovations, beginning with all government-funded constructions;
6. establish a sub-committee within government to evaluate public building accessibility compliance and budget for remedial actions to achieve full compliance;
7. implement universal design legislation or regulations to provide incentives to encourage its use (e.g., tax rebates for universal design construction/expenses).

Unfortunately, the transportation system in Newfoundland and Labrador is often designed for cars and does not provide fast reliable service for all ages. It can be difficult for grandparents to take their grandkids to the park, for those with limited sight to follow signage, for people to feel safe walking at night, or for people who use wheelchairs to get to work. Building an inclusive transportation system must be a priority as we move forward.

Our transportation system - our roads, public transportation, sidewalks, and bike lanes - connects us. It connects us to family, friends, jobs, recreation, medical, and social services. An inclusive transportation system gives people of all ages, abilities, and from all communities whether urban or rural, the chance to fully participate in all aspects of public life. It starts with pedestrians at the center of design. The details of how a city is designed for pedestrians of all ages and abilities are crucially important; these details are the building blocks of an inclusive transportation system. In an inclusive transportation system all people can afford public transportation and there is a system in place to ensure transit affordability is sustainable over time. An inclusive system also means having great signage for people walking, riding bikes, or using public transportation. This lets people know where they are and means they can easily identify landmarks and transit stops.

Inclusive Natural and Outdoor Environments

The benefits of inclusive outdoor and nature settings include, but are not limited to, increased experiences of and appreciation of nature, enhanced opportunities for satisfying and enjoyable leisure in outdoor settings, enhanced health and well-being, increased physical activity levels, enhanced independence in the outdoor environment, increased cognitive, social, and creative abilities, increased friendships and support networks, augmented outdoor skill development and increased understanding of requirements for outdoor inclusivity and accessibility. To achieve these benefits we need, at the very least to:

1. design surfaces, slopes, and lighting on trail networks so they may be safely used by all;
2. allow wheelchairs (manual or power) and manually powered mobility aids, like crutches, anywhere foot traffic is allowed on trails and paths;
3. provide frequent rest, shelter, and return options on trail networks;
4. provide signage/information in a variety of accessible formats/technologies;
5. provide a lending library of outdoor clothing and outdoor accessibility aids/devices that users may access conveniently and affordably;
6. ensure that user fees are kept affordable and are not a barrier to participation;
7. hire a diverse and inclusive staff to work in outdoor and nature settings;
8. use diverse and inclusive marketing images of outdoor and nature settings;
9. offer integrated and inclusive community outdoor programming.

Inclusive Education

The province has made progress towards inclusive education over the past several decades. There are further improvements to be made, however, in terms of creating an accessible and affordable education system throughout the entire province. Achieving inclusive education requires that we:

1. review key performance indicators for the system, to determine if the goals ‘for all students’ have achieved the intended outcomes;
2. create support systems for teachers, students and families;

3. revise curricula for pre-service teacher education programs;
4. provide professional development opportunities for in-service teachers;
5. incorporate inclusive sport and recreation programs into the school curriculum (i.e. not leave it to the “best efforts/teacher discretion” approach as is the case today);
6. conduct a needs assessment and evaluation of inclusive practices within post-secondary institutions in the province.

Inclusive Employment and Workplaces

An inclusive employment culture involves the full and successful integration of diverse people into a workplace or industry. Forecasts indicate that NL will have almost 64,000 job openings by 2025 yet the population from which most of our labour force will come will decrease by more than 30,000. As a result, migration and other labour supply responses such as higher participation rates will be required to balance demand and supply. A key way to increase the supply of workers and to make workplaces more productive is through making employment and workplaces inclusive so that all working age Newfoundlanders and Labradorians can participate in and benefit from employment.

While an inclusive employment culture certainly encompasses a commitment to diversity, it goes beyond basic representation to create a workplace environment in which respect, equity and positive recognition of differences are all cultivated, and where the social and institutional response to differences (e.g., sex, gender, or disability) poses no barrier to a positive employment experience. An inclusive employment culture includes:

- a) an articulated goal;
- b) an outline of objectives and annual targets to be met;
- c) identification of the industry sectors that would be targeted to increase the employment of minorities and persons with disabilities; and,
- d) an outline of an engagement strategy involving employers and their representative organizations.

In addition,

- e) a widespread public awareness campaign is needed to promote the multiple business benefits of inclusive hiring in partnership with other inclusive

employment programs. Such a campaign can be built around a theme of successful employer/employee matches that highlight the success businesses achieve through inclusive recruitment.

- f) It is also necessary to educate employers about the economic and business benefits of multicultural and inclusive hiring to the labour market. This will require increased financial supports to businesses to increase workplace modifications and employee adjustment; more inclusive hiring practices including the creation of websites and electronic recruitment processes that are accessible to all candidates seeking employment; and professional training to build disability confidence and integrate employees with disabilities in the workplace.
- g) The workplace itself will have to have: physical accessibility, single-person and non-gendered bathrooms, communication accessibility, alternate formats for work materials (Braille, Audio, Large Print), adaptive technology, website/mobile app accessibility, equal Access to Work Activities and emergency preparedness.

There is a real opportunity for individuals from diverse communities, including people with disabilities, to be more actively engaged in the labour market and contribute to the business success of the province. Increasing the labour market participation of candidates from diverse backgrounds in Newfoundland & Labrador is key to not only further advancing full inclusion but is also essential in meeting the labour market needs of the province today and in future years.

Inclusive Health and Healthcare

Health has long been considered the responsibility of the individual and lifestyle choices have been a major focus for health campaigns. We are now recognizing that individuals' lifestyle behaviours have a much smaller impact on health than the social and economic conditions that people are facing. These social determinants of health must be better understood if we are to improve the health of all those living in our province. All of the dimensions of diversity outlined in this report are in fact social determinants of health and those who experience one or more of these factors are more likely to experience poor health.

Health policies must be built on equity so that even the most vulnerable and marginalized groups have access to needed healthcare. The majority of health services in NL are located in St. John's; residents living outside of the metro area have to travel to access specialised care. Further, many smaller communities in the province have difficulties

recruiting and retaining medical professionals. It is also important to note that within St. John's there are a number of barriers to healthcare. For example, it is challenging to identify family physicians taking new patients so many people are forced to rely on an already overburdened emergency care system.

Specific recommendations to improve inclusive health and health care include:

1. improving the health literacy of all citizens so they may be better equipped to manage their health and the health of their dependents;
2. utilizing all possible technologies to improve access to healthcare services and reduce the barriers related to transportation;
3. developing public policy that addresses the social determinants of health;
4. implementation of health promotion and prevention strategies (e.g., a fall prevention strategy to reduce the complications and associated costs stemming from falls in older adults);
5. medical professionals who are educated about social determinants of health so they may be more sensitive to the experiences of those who are vulnerable and marginalized; and,
6. we must ensure that we give a voice to marginalized groups and include them in decisions regarding healthcare services.

Access to quality health care is a right for all Newfoundlanders and Labradorians. However, due to the distribution of health resources in NL, we see that not all citizens in fact have adequate access to health care. It is crucial that we address these issues to ensure all residents have equitable access. All too often those who most need access face the most difficulties achieving it.

The kinds of initiatives and strategies outlined here must be central to any blueprint for building a post oil-dependent NL that is socially, economically and environmentally sustainable *and* inclusive. Worldwide there are a number of different inclusive city initiatives including the *8 to 80 movement*, and World Health Organization *Age-friendly cities* (WHO, 2007) that can provide important insights on how to move forward on inclusion.

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1.5 An Equitable, Sustainable Food System Vision for Newfoundland and Labrador

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Oil and the Current Global Food System

The prospect of a less oil-dependent Newfoundland and Labrador provides an opportunity for residents and governments alike to rethink how food is produced, distributed, and consumed. Despite the notable socio-economic downsides to oil and gas dependent economies (Haggerty et al., 2014), oil and gas development did increase provincial income and wealth. However, high government program expenditures, Atlantic Accord revenue management, and exchange rate volatility contributed to concerning levels of public debt (Locke, 2016) that have been exacerbated by inevitable declines in oil prices.

Compared to volatile industries like energy, agriculture can be viewed as a stabilizing economic sector. Long-term economic benefits accrue to the tenure of farm families and encourage the propensity to infuse revenues into other economic sectors like retail grocers and transportation. Agriculture facilitates domestic production and thus has the potential to reduce import reliance, provide “green” employment (Common Front NL, 2016), and offer healthier food options.

Political decisions about food systems are shaped by global forces and, related to this, the intensive agricultural production and distribution model that underpins the province’s food supply is disproportionately reliant on fossil energy. Petroleum products fuel farm machinery and are key ingredients in fertilizers and pesticides. Without oil, food processing, packaging, transportation, and preparation cannot be sustained in their present form. As a result, oil fuels our diets. This system has resulted in huge per acre global production increases for certain crops, and an expansion of agricultural markets and trade. However, food insecurity remains a pressing concern.

Food insecurity is experienced unevenly, as are healthy food choices. Corporate consolidation in the form of supermarkets and agri-food corporations means that fewer and fewer actors are mediating food access. There are also implications for workers -- from farm labourers to those who serve our food -- who may experience job insecurity and poor working conditions. Food additives, food processing, and genetic modifications present health concerns. Highly processed foods contain little or no whole food ingredients and are known to be low in dietary fibre, micronutrients, and phytochemicals— all of which can subsequently impact human health. Moreover, the current industrial agro-food system is associated with significant environmental problems including soil degradation, biodiversity loss, climate change, water depletion, and pollution.

In light of these highly problematic circumstances, we propose a new vision for NL's food system that is independent, healthy, socially and economically just, and environmentally sustainable.

Challenges and Strengths

Challenges

Drawing on the research data provided by Food First NL (2015), we identify the following as key challenges to achieving food security in NL:

Only 10% of the fresh vegetables available through major wholesalers are produced in the province. Meanwhile, the fishery, our largest food industry, exports over 80% of the province's seafood products. Together, these make us highly dependent on outside food sources.

Communities face high cost, poor quality, and inconsistent availability of healthy foods, as a result of being dependent on food that is transported long distances. In 2014, only 25.7% of Newfoundlanders and Labradorians consumed fruit and vegetables five or more times per day, compared to the national average of 39.5%.

A mere 2-3 day supply of fresh vegetables is available in the event of food supply disruptions, such as environmental events, labour strikes, snow and ice conditions, or vessel issues.

An aging farmer population. In 2011, the average age of farmers in the province was 55 as compared to 46 in 1991.

New entrants face numerous barriers. These include access to land, start-up capital, and labour.

There is proportionately higher access to processed, less healthy food – high in sugar, fat, and salt – than to healthy food options through retailers. For every 10,000 Newfoundlanders and Labradorians, there are 14 fast food outlets, eight corner stores, four gas stations with stores, and three grocery stores.

Many Newfoundlanders & Labradorians face economic barriers to accessing enough food, with 13.4% of households experiencing some level of Household Food Insecurity in 2012. In 2014, over 26,000 individuals used a food bank, with 40% of them being children.

Northern communities face barriers to accessing wild foods. Wild food provides a nutrient-rich diet as well as mental, cultural, and physical health benefits that are attained through hunting, foraging, and sharing food within communities.

Like the North, ***remote outport communities face challenges*** that are due, at least in part, to a diffuse population base that lacks financial resources, purchasing power, and incentives to retail distributors to facilitate the flow of healthy food into the region.

The province has the ***highest rate of food bank usage*** (at 1 in 20 households) and the ***highest obesity and diabetes rates*** in the country.

Strengths

The province has an incredibly rich and celebrated food heritage. Both Indigenous and settler populations have food knowledge and skills in food procurement and preservation through:

- fishing (inland and offshore)
- gardening (kitchen and home gardens)
- hunting (caribou, seal, moose, rabbit)
- foraging (berry picking, wild green and mushroom harvesting)
- use of natural local fertilizers (kelp and capelin)
- canning and bottling, freezing, salting, smoking, pickling
- root cellar storage

- unique cuisine which is part of the culture and is from locally produced or harvested foods (e.g. Jiggs dinner; fish and brewis)
- industrially-based cultural traditions (e.g., Purity foods)

There has been a recent growth in dialogue, interest, and action that addresses food insecurity in NL. For example, the need to provide food security is recognized in the recent provincial government's *The Way Forward* report (2016), making the present a good time to act on building a sustainable food system in the province.

There is demonstrated resilience in the small-scale farming sector. Large-scale agricultural systems have been largely unsuccessful in the province (topography, soil and climate are constraints), but small-scale farming and gardening have persisted. In many ways, agriculture in this form has been more stable than oil production.

The Vision

An economy less dependent on oil would be:

- ***food secure***: that is, "...all people, at all times, [would] have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life," and
- ***food sovereign***: the province and its residents would control their own food systems.

Our vision of a food secure and food sovereign NL suggests the creation of:

1. ***Food Hubs throughout the province.*** Food banks and community gardens would become food hubs in which neighbourhoods and other groups organize themselves around producing, exchanging, and learning about local, fresh, tasty food (and the seeds used to grow it). These hubs would be infused with inter-generational knowledge-sharing, skill-building, and mutual support about environmentally sustainable gardening and farming, foraging, hunting, preserving, cooking, and waste management. The work that people already do and the skills they already have for achieving food sustainably would be recognized and honoured.
2. ***Healthy corner and retail stores.*** Neighbourhood stores would sell healthy, affordable, and fresh *food*.

3. ***Community food security facilities and expertise.*** Community freezers, pantries, and kitchens would be a normal part of the community and could provide significant employment opportunities. *Researchers*, restaurant owners, chefs, teachers, nurses, and others would form a ready pool of expertise to support community food practices.
4. ***Fair trade and sustainable energy opportunities.*** There would be extensive and sustainable fair trade arrangements and sustainable transport systems to facilitate access to food not grown locally. There would be in place a regional/provincial sustainable energy system (e.g. wind- and solar-based) to *produce* food.
5. ***Culturally inclusive institutional and government support and collaboration.*** Encouraging the production and consumption of ethnically diverse foods ensures an inclusive food system and may encourage *immigration*. The concept of the kitchen garden is important for many – in NL and beyond – and could be drawn upon to design a cohesive framework for a new food system for the province.

Central to our vision is a provincial platform that addresses food needs *throughout the life cycle* of residents. Food security starts in infancy, and breast milk is the first local and sustainable food that people have the opportunity to consume. In this sense, it is the first building block of food sovereignty in the life cycle. Consequently, a vision for a food-secure future province must include a variety of supports for the breastfeeding dyad. These supports may include: normalizing and familiarizing breastfeeding by including it in children's primary health education; comprehensive breastfeeding education for parents during third trimester of pregnancy; local human milk depots as alternative to formula; and community-based physical and moral support of mothers, in recognition of the overwhelming and often isolating experience of infant-care.

Children and teenagers should ideally gain an appreciation for local food, and an understanding of the food system and their own responsibilities through formal education as well as family and community socialization. This can occur through: the expansion of school gardens and greenhouses; school lunch programs throughout the province that incorporate healthy and local food; imparting knowledge of foraging, hunting, urban gardening, preserving, and other traditional foodways as part of primary education; support for groups such as the 4-H program that encourage future farmers and urban agricultural awareness; and expanded support to existing outreach programs to youth living in precarious circumstances to ensure their access to a healthy, varied diet.

Throughout the various phases of **adulthood**, individuals take on the primary responsibility for ensuring the food security of young children and others who may require assistance. It is important to recognize that they also need support in their own lives. To strengthen their leadership on food security:

- Flex time would be available to employees, including the possibility for them to be let out of work early in the day, in recognition of the need to attend to food activities as part of their workday.
- There would be excellent, affordable, and accessible public transportation that links rural communities and urban neighbourhoods to sources of healthy, local food
- A living wage would be paid to workers in food services, processing and manufacturing, and currently unpaid workers
- At a bare minimum, the minimum wage would keep pace with the cost of living
- Local food would be accessible to people with barriers to mobility through ‘traveling’ farmers markets that meet in different urban neighbourhoods and rural communities in rotation
- In addition to expanded home care, there would be mobile, healthy, affordable food services to meet the needs of seniors or others who may require assistance with groceries or prepared meals.

How Do We Get There?

1. Significant government investment in the expansion of agriculture and local food systems

We are pleased that the provincial government recognizes the importance of food security issues for the province (Government of NL 2016, Actions 1.12, 2.14), and is prepared to make more land accessible for agricultural development, set targets to increase food self-sufficiency and breastfeeding awareness, and to reduce obesity rates. But it is essential for the government to recognize that a food secure province requires a *restructuring* of the food system and not simply the expansion of the current system. Our vision requires particular *incentives* for local food security activities and reorients public works and budgets around food security initiatives. For example, tax credits or tax holidays should be provided for: initiatives that address lower emissions and climate change (e.g., purchasing local food involves less transport); platforms that build food

security infrastructure and equipment (e.g., community gardens, greenhouses, community freezers and pantries, etc.); the small-scale manufacturing of healthy food products; new educational opportunities (e.g., schools could be rewarded for integrating school gardens into the curriculum); and retraining the health professions to move ill health solutions away from pharmaceuticals and towards healthy diets.

2. A research focus on developing sustainable food systems

In order to facilitate these benefits and to increase resilience, there is a need for additional, sustained research to investigate potential opportunities and challenges for agriculture, fisheries, and aquaculture as society becomes less oil-dependent. This would include piloting and adoption of new techniques (e.g., vertical growing and aquaponics) and crops that can withstand extreme temperature fluctuations. The fishing industry's adaptation to ocean ecosystem changes should be evaluated. Research should also address adaptation to, and mitigation of, the impacts of climate change in the province. Food First NL recommends, for example, the continued inclusion of a Climate Change Adaptation Strategy for Northern Labrador in the new provincial Climate Change Strategy in order to assess vulnerability and resiliency strategies for northern Labrador communities in response to climate change.

The province's history as a food-producing region should be highlighted as we work to strengthen our capacity. An approach similar to that used in the International Institute for Sustainable Development's Comprehensive Wealth study could measure the province's environmental and social capital, including food security and food sovereignty.

Overall, research should be conducted in partnership with existing research institutions in the province. For example, applied research collaboration should be encouraged between the province's colleges, universities, and other research organizations.

3. A significant role for educational and health-based institutions

To create a new food system, we need to restructure how residents are educated about nutritious food choices. All large institutions, including hospitals, seniors' residences, schools, and universities, have a responsibility to develop, disseminate, and practice good food knowledge to inform the current and next generation about how to maintain healthy food systems. They also must adjust their food procurement practices to include a larger percentage of fresh, local food. The College of the North Atlantic should integrate sustainable and equitable food awareness into its occupational training such as for day care operators and chefs. Memorial University should be an institutional leader providing

appropriate education, training, and awareness about the food system to health professionals such as doctors, nurses, social workers, and teachers. This approach includes demonstrating good food production practices and offering good food to students in order to showcase the practices that link together the production and consumption cycle in a sustainable way – community gardens, residence food waste, and composting. Citizen-based science would also extend the scope and impact of data collection and implementation of results in these institutions.

4. Recognition of the unique challenges of northern food security

Northern communities face unique food security challenges, including social, environmental, and economic factors impacting access to traditional, wild foods, as well as high cost, limited availability, and poor quality of store-bought food. Advancing food security and food sovereignty in the North requires allocation of meaningful resources to support community food security initiatives that build resilience and improve safe, culturally appropriate, and healthy access to food and food skills.

Conclusion

An interdisciplinary, community-citizen/government/university stakeholder board is critical to repositioning how the food system is approached in this province. Interestingly, was reached at both the Provincial AgriFoods conference and the Atlantic Royal Society event held the same week in November 2016. Such a board could be similar in spirit to Food First NL and the NL Federation of Agriculture, but different in the sense that the range of stakeholders would be more comprehensive and it would implement policy to keep food, fish, and agriculture local/provincial.

It takes time to transition an economy based on petroleum-intensive extraction and food importation into a system that promotes food security and food sovereignty objectives and that provides incentives to shape the economy around these goals. However, the value of doing so is well recognized in other places within Canada and across the world (Desmarais, Wiebe, and Whitmann, 2011; Friedman, 2009). In light of the assertive local food production movement we are optimistic that the provincial government has its compass pointed in a direction that would facilitate such changes. Acting on the vision we outline here will enable the residents of Newfoundland and Labrador to control their own food systems and to live a healthier life in a healthy and just environment.

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Section 2: Doing Things Differently, Industry by Industry

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2.1 Non-renewable Resource Industries in a Post Oil-Dependent Newfoundland and Labrador

Andy Fisher

The Challenge

The challenge that I address here is to imagine a post oil-dependent NL and explore what the non-renewable resource sectors of oil & gas and mining might look like as part of that future. This reflection is a somewhat provocative view of potential scenarios, to ensure wider discussion and thoughtful input into policies and strategies as we work to enhance our future potential.

My Assumptions

I start from a set of six assumptions:

1. The rate of change of technology will continue to accelerate. Artificial Intelligence (AI), the Internet of Things (IoT), and Virtual Reality (VR) become mainstream and commonplace. Because of the advances in AI, “Big Data” starts to deliver on its promise.
2. Climate change and energy policy are no longer treated as separate categories and the whispers of integrated policies (e.g. Trudeau’s carbon tax) become a roar that is broadly supported by the electorate.
3. Canada maintains its focus on diversification from a resource export-based economy and NL adopts a similar policy viewpoint.
4. A limited number of regional centres are the nexus of nearly all non-tourism economic development outside of specific resource extraction activities.
5. There is no overwhelming influx of immigrants and/or refugees and the population is relatively stable (notwithstanding redistribution through urbanization).

6. This list is not intended to be exhaustive; instead it is to encourage making explicit the assumptions that underpin our view of a future NL. What, therefore, isn't being said here that might be crucial?

The Oil & Gas Sector

It is tempting to imagine that NL will go through another period of skyrocketing oil revenues and is astute enough to build a large war chest in order to better face the post oil-dependent era. This is highly unlikely. What is more likely is that a period of relatively stable oil prices well below \$100/barrel provide a context for 'leaned out' oil and service companies to make a profit and provide a decent revenue stream to the province. Leveraging this revenue stream to create the most positive contribution to the long-term health of the province won't be an easy task.

Rapid technological advances related to the extraction of oil & gas from shale formations, relatively stable geopolitics and enhanced oil recovery (EOR) techniques are already keeping prices low and are likely to limit the power of OPEC and/or any other cartel to artificially create shortages and drive prices up as in the past. Perhaps even more critical for the future is the political pressure to respond to the climate change challenge. Past downturns in oil prices have impeded the development of energy-saving technology and practices. The current downturn is unique in that projects focused on energy efficiency and alternative energy have not slowed down as they did in the past. It's possible that we are nearing a tipping point at which the energy, enthusiasm, and resources that went into oil discovery and production will be redirected into demand reduction and alternative energy generation. At any rate, and much like the coal industry, at some point it will no longer be feasible to exploit the remainder of the untapped supplies of oil & gas. It is already possible to see how decreasing prices will limit the exploitation of the various oil & gas resources, given their dependence on the high cost of exploration and development.

While many who understand the impacts of releasing all of the trapped carbon reserves into the atmosphere will argue that we should cease extraction immediately, it will most likely ultimately be economics that brings the oil and gas era to an end. Carbon taxes and other ways of pricing the 'negative externalities' of a petroleum based economy will slowly but surely turn this large ship (the global economy) in a new direction. The challenge for the oil & gas sector is to not only stay ahead of the curve but also stay relevant and profitable.

Already some oil companies are reaching out into other opportunities, rebranding themselves as “energy” companies, and/or adding other business lines to diversify their portfolios and limit their exposure. There are interesting parallels in these strategies with the tobacco industry and with the shift to electric vehicles. In the case of the latter, one can clearly see the increasing competition between the traditional industry and upstarts that aren’t burdened with the inertia of years of incrementalism! It can be expected that major industrial corporations in oil & gas, with their deep pockets, will play both sides of the energy game and position themselves for success regardless of shifts in energy policies. Given this all-but-inevitable evolution, what follows is some reflection on the more traditional oil & gas sector and then a brief look at alternative energy in the NL context.

Exploration

It can be anticipated that exploration will be the “canary in the coal mine” with respect to the direction of the oil & gas industry. All untapped potential oil possibilities will be assessed on the basis of cost of production, access to markets and risk. In general, the potential for further oil developments in NL have become less attractive on all three of these counts. Moving further offshore, into deeper water and/or into the fragile arctic environment, will all be significant loads for the industry to carry as we look forward into a time when the world is less oil-dependent. At some point, further exploration will become uneconomical in this region and at that point the clock will clearly be ticking towards an inevitable end.

Notwithstanding that there will be an end, we will not reach a post oil-dependent world overnight, and exploration will continue in the meantime. Sophisticated approaches to exploration and data analysis will continue to be important and these will generate opportunities in earth sciences, engineering and computer science. The push north will present many technical and social challenges but the potential exists to leverage investments in the oil & gas sector to develop expertise related to harsh and arctic environments and collaboration with indigenous peoples. Efforts to transfer this expertise, including particularly those strategies that are most applicable to a post-oil & gas world, could help ease the transition.

Production

Once a reservoir is tapped and begins producing, much of the uncertainty is taken away and the challenges are focused around minimizing the cost of production and maximizing the yield of the field. From this it is clear that enhanced oil recovery (EOR), asset

integrity, and integrated operational efficiency will be areas of focus for many years to come. The synergies between developing expertise in these areas, and their applications to other sectors, should be carefully considered. With the possible exception of EOR, it should be possible to leverage investments made in developing capabilities for the production sector so that they play a significant role in the post oil-dependent era. An aspect of the current production operation is the transshipment terminal at Whiffen Head: this can be expected to continue to play a role as long as crude is being extracted, but is unclear how it would play a significant role in a post oil-dependent future.

While it may seem paradoxical, it is anticipated that there will be serious efforts to reduce the energy intensiveness and carbon footprint of the production process. This will be largely driven by economic factors but also to a degree by political and social pressures that will require corporations to be able to demonstrate that appropriate concern is being given to environmental impact. The technologies and approaches taken to achieve these objectives are likely to be quite transferrable to other sectors and industries: there is for example a close connection to the development of “green ships,” and environmental monitoring and assessment present a rich opportunity to develop companies that are not reliant on only oil & gas related activities.

Refining

NL has a single refinery that has traditionally been refining crude from elsewhere in the world. To some extent this is an interesting artifact of previous economic development policy and not tightly linked to the current NL oil & gas industry. We can assume that there will still be a significant role for refineries well into the future, as the prohibitive cost of new refineries makes existing capacity particularly valuable if it is maintained and can operate at reasonable cost. In the refining world, there is likely to be significant innovation around both products and processes, and there will be strong motivations for minimizing the carbon footprint of the refining process, as well as examining and considering efficiencies that lower the cost of production. There is also some potential for this sector to consider transitioning to other processes that may become more important in the future, such as biofuels and blends. This presents opportunities for chemistry, process/chemical engineering, and sensor development, all of which are likely to be highly transferrable.

Alternative energy

The “demise” of the dominance of oil & gas can really only come once the development of alternative energy sources is assured. This is not to downplay the importance of

demand-side management, but it is clear that our world isn't moving towards a zero energy future. While I cannot begin to enter a full discussion of what is a very complex topic, the tight link between current energy sources and future potential makes it worth introducing.

NL should be carefully considering its role in the future energy equation as it will take a long-term and coherent strategy if the province is to become a significant player in that world. One of the main challenges NL faces is the long-standing issue of access to markets. While it is tempting to be "angry" with Quebec for a bad deal that was made a long time ago, it is not at all constructive. Indeed, one could argue that our inability to get over it is a significant factor in the reason for the Churchill River development (Muskrat Falls) to have gone the way that it has. Certainly something has to be done prior to 2041 when the current agreement ends. There is perhaps no bigger issue to be sorted out soon, then, than access to markets; only this can enable the economic potential of alternative energy to be tested and achieved. The province's own energy needs should easily be met by (soon to be) existing capacity, and post 2041 NL will be looking at stranded (unable to reach the market) excess power without some negotiations with Quebec taking place.

If we achieve the capacity to get excess energy to markets, then NL has a wealth of alternative energy sources that could be tapped into (see Section 2.2 Renewable Energy in a Sustainable Post oil-Dependent Newfoundland and Labrador below). Typically regions will exploit hydro first and then look at the other available resources. There are certainly significant underutilized hydro resources both on the Island and in Labrador that can be explored. In addition, the wind, wave, and tidal resources in and around NL are truly world class. There are also some unique challenges surrounding the isolated, off-grid communities in the province: these present a rich challenge and dealing successfully with that could lead to the development of expertise and technology that could be applied elsewhere in the world. Having said this, NL has a very conservative, centralized approach to power generation, and there are many policy and regulatory changes that the province will have to make to turn itself into a hotbed of alternative energy R&D and applications.

The Mining Sector

Given that the mining sector in NL is largely powered by electricity, and that such power in the future will be predominately generated through hydro and wind sources, forecasting the future of post-oil sustainability is not straightforward for this sector. On

the bright side, there should be plenty of electricity to power any new endeavour or potential expansion. The down side is that the promise of inexpensive electricity appears to be fading quickly, at least until 2041.

Iron ore and nickel

The large volume exports of iron ore and nickel are commodities that will always be tied to global commodity prices and economic conditions outside of Canada, and thus there are no grounds for expecting the historical boom and bust cycles to disappear from these industries. While prices and demand are high, the industry will distort the proximal labour and housing markets, and fuel expectations for the future. Then, when the inevitable downturns arrive, they will leave local communities challenged and individuals struggling. The challenges of single industry towns are not unique to NL or even to Canada, and it seems reasonable that we explore best practices from around the world. It also makes sense to harness the “energy” of the boom portion of the cycle to moderate the impact of the downturns: a not-dissimilar concept to the strategy employed in successful Norwegian approach to the oil & gas industry, with its investment in education and in saving a portion of the royalties.

Nickel smelting is another aspect of this sector that deserves special mention and consideration. The new (and novel) smelting facility in Long Harbour represents an attempt to leverage NL natural resources for a commitment to value-added upgrading in the province. Provided that the hydromet process can deliver on its potential for low cost output, this strategic policy implementation may continue to pay off throughout future economic cycles. As such, it is an encouraging example of longer-term thinking that has the potential to pay back to the province for a long time to come. This is not to say that it comes without challenge or controversy. In this example, we have pushed the industry to leave a larger economic footprint in the province, so in the future we will also have to consider the environmental impact of this initiative, and ensure that it is carefully considered and managed. Another significant concern is that the benefits of the processing plant (i.e. the production end of the enterprise) are accruing to a different part of the province than that where the extraction is occurring (i.e. the benefits will be felt outside of Labrador). Thus, without reciprocal benefits to Labrador, the likelihood of internal provincial tensions is considerable.

Precious metals

Advances in technology and data processing will make enhanced prospecting possible, and it is highly probable that commercially-viable deposits of precious metals will be

discovered. Prospecting and development are both highly dependent on policies, regulations, and royalty regimes. Such further exploitation of natural resources could be considered as a diversification from oil & gas but it will still be non-renewable resource based. Careful consideration of the policies, regulations and royalty regimes, as well as the desirable long-term outcomes and principles of resource development, should be clearly captured before this sector is to be encouraged. It is important to note that the advancing electronics industry is creating a host of new “precious” materials beyond the more traditional gold/silver/etc. Keeping an eye on developing markets for minerals may foster some interesting opportunities.

Uranium

The significant uranium potential in Labrador in a post oil-dependent world is complicated, not least because the jury is still out on the contribution of nuclear energy to the mix for the next 100 years. In some scenarios, it becomes a critical element of the power generation infrastructure, and in such a case safe and environmentally benign ways to extract, process and handle uranium will need to be found. It will be very challenging to gain the community trust and social license required to exploit this resource, but it may be worth the effort if the global benefits of nuclear power are sufficient to propel technology development to support broad adoption of nuclear generation.

Conclusion

From the preceding discussion it can be seen that the oil and gas industry could be the engine for much of the development that NL needs if the province is to be prepared for success in the post oil-dependent world of the future. The challenge is largely around the creation of a long-term, coherent strategy for the province that balances economic, social, and environmental concerns. It will be important to pick a limited number of the most promising directions to pursue, and then to bring all of the necessary elements (e.g. policy, education, regulations, etc.) to making such initiatives successful. Open discussion and critical reflection on these directions are essential to achieve the social license and buy-in for moving forward.

2.2 Renewable Energy in a Sustainable Post oil-Dependent Newfoundland and Labrador

James P. Feehan¹

Introduction

Since the topic of this essay is renewable energy in a sustainable post oil-dependent Newfoundland and Labrador (NL), some initial clarifying background remarks about post oil-dependency and about sustainability are in order.

First, regarding oil-dependency, in the unprecedented few years (roughly from 2011 to 2014) during which the price of crude oil was generally more than US\$100 a barrel, Newfoundland and Labrador had a great run. Driven mostly by fiscal stimulus supported by high oil royalties, there was an economic boom. Provincial government policies seem to have been built on the assumption that oil would endlessly provide easy money. The subsequent oil price decline illustrates how high oil revenues had masked very poor fiscal policy and demonstrates how volatile the oil sector can be. That said, oil as an important contributor to this province's economic future cannot be dismissed. It is an industry that provides significant employment and even in the lower price environment of 2015 and 2016 yielded hundreds of millions of dollars in royalties annually. With the proven and probable reserves in the operating offshore fields and other known fields and with the start of production at Hebron by 2018, offshore oil production will remain substantial for decades. Even though oil is not a renewable resource, maximizing the royalties from its exploitation and, crucially, using that revenue wisely will play a vital role in this province's government's financial position for a very long time. How that can be achieved is not the subject matter of this essay but the point is that some dependency on oil will be in play and important for NL during its transition to a more sustainable future.

Secondly, what about sustainability? While there are many ways to interpret that notion, most people accept that sustainability refers to the use of resources and the environment in a manner such that they remain available for future generations to use. In that light, renewable energy appears very attractive: its sources (wisely managed) are non-

¹ I am grateful to Melvin Baker and Alex Marland for helpful comments.

depletable and do not have the adverse environmental effects that come from burning fossil fuels to generate energy. Nevertheless, in and of itself, a renewable energy project may be more costly than the economic benefits it generates. In NL, as elsewhere, the challenge will be to develop only those renewable energy projects that lead to positive net benefits. This essay elaborates on that proposition and concludes that this province's public policy regarding renewable energy needs a substantial overhaul.

Sustainability and Renewable Energy in NL

At the outset, it should be emphasized that the following discussion deals with energy produced within the province. It does not encompass offshore crude oil production, which is not used as an input to any energy creation in the province, but is a raw material that is exported and transformed into energy elsewhere for consumption elsewhere. The province's energy consumption needs are met by a mix of domestic renewable sources and from the burning of fossil fuels. The renewable sources are largely water-generated electricity although there is a small amount of wind-generated electricity. Fossil fuels are also used to produce electricity (mostly at the large Holyrood thermal generation station) and also to run small diesel fueled electricity generators for remote communities that are not connected to the island or Labrador transmission grids; the majority of those are on the Labrador coast. Fossil fuels are also used to run space-heating systems in many residential, commercial and institutional buildings; almost all transportation as well as construction equipment and machinery are based on combustion turbine engines that use gasoline or diesel fuel. It is technologically feasible for electricity from renewable sources to replace fossil fuels in most of those activities.

Greater reliance on renewable energy and less burning of fossil fuels are generally recognized as crucial to dealing effectively with climate change brought on by greenhouse gases (GHG). There have been some positive movements by a number of provincial governments to do their part in the global campaign to reduce GHG emissions, although some have been slower than others and there is considerable scope for further reductions. Recently a group of Canadian academics, Sustainable Canada Dialogues (2015), published a report that suggested that an 80 percent reduction in Canada's GHG emissions could be achieved by 2035. In October 2016, the federal government acted to push provinces in that direction by announcing that it would impose a Canada wide carbon price. That price can be in the form of a set tax per ton that applies to any type of GHG emission according to its equivalence expressed in terms of carbon, or it can arise from trading within a cap-and-trade system. The federal action entails setting a 'floor

price' for carbon, which would apply in any province where the provincial carbon rate falls below that floor: see Environment Canada (2016). This idea of a national floor price is consistent with most mainstream economists' view that carbon must be taxed or priced, see, e.g., Snodden (2016); it was also advocated by Sustainable Canada Dialogues (2015). The objective is to ensure that energy consumers are made aware of the true cost of fossil fuel consumption and, as a result, make different choices that lead to lower emissions. The higher price would induce them to switch to other energy sources, use more energy efficient devices and conserve.

Movement towards greater renewable energy in NL may be viewed as this province doing its fair share in the global effort to reduce GHG emissions, but it is more than that. This province has a physical abundance of potential renewable energy sources, including large and small hydro, wind, biomass, and tidal power. Developing those resources offers the possibility of economic gains in addition to supporting the global climate-change imperative. Yet, physical abundance does not necessarily translate into either environmental or economic sustainability: some renewable energy projects may have adverse environmental impacts that are too onerous to be acceptable, or the financial cost of the project may be so high that the net economic benefits could be negative.

The Muskrat Falls hydro-electric project is a case in point: there has been some controversy about its environmental impact and the cost estimate for its completion has ballooned. Once completed, sometime after 2019, its renewable energy will help in the efforts to reduce GHG emissions. It will largely displace the Holyrood thermal plant on the island, which accounts for about 10 percent of the island's GHG emissions. Interprovincial connection and an associated agreement to deliver a share of the electricity to Nova Scotia will reduce reliance on fossil-fuel plants there. However, unless the economic benefits to NL from that project's energy increase dramatically, the huge debt burden of the Muskrat Falls facilities will be a millstone round the neck of the provincial economy.

On the other hand, there were (and are) other renewable electrical energy possibilities in the province that have potential economic viability. Wind power seems to be the most likely prospect, since great strides have been made in improving the technological efficiency of wind turbines, making unsubsidized wind potentially competitive with other forms of electricity generation. Micro and small-scale hydro-electric development also offer opportunities, the latter of which have been explored for Newfoundland by Fisher et al. (2008), and biomass and geothermal energy are, or may become, economically feasible. Additionally, energy efficiency and conservation could be fostered by the proper

pricing of electricity and by a carbon tax. Economic principles that should have been embodied in electricity pricing policy were identified by Feehan (2012), and would have supported small-scale renewable projects, energy efficiency, and conservation as a substitute for Muskrat Falls. Unfortunately, an integrated mix of these possibilities was not seriously considered when the provincial government and the proponent Nalcor, a provincial Crown corporation, jointly advocated for Muskrat Falls. That was in spite of an extensive report by a federal-provincial joint environmental review panel that suggested that the project might not be in the province's long-run financial interests and called for an integrated resource planning approach; see Joint Panel (2011). A subsequent review by the provincial Public Utilities Board, the PUB, would not endorse the project either, PUB (2012).

Now, in 2017, there is little chance that the Muskrat Falls project will be halted or substantially altered, despite new leadership in the provincial government in 2015 and at Nalcor in 2016. This province's renewable energy future will thus be dominated by large hydro. Muskrat Falls will generate an average of 4.9 million megawatt hours (MWh) annually. Of that amount, 2.2 million is committed to Nova Scotia's energy provider, Emera Ltd., in exchange for building the Maritime Link connection between the two provinces (1 million MWh) and as a sales commitment (a minimum of 1.2 million MWh). That leaves 2.7 million MWh annually for NL: an amount well in excess of what is needed to fully displace thermal electricity production on the island. In effect, Newfoundland will be awash in electricity for many years after the completion of Muskrat Falls, and Nalcor (2016) forecasts that demand growth will be such that this ample supply will persist until the mid-2030s. Also, by 2041, the year that the Churchill Falls renewed contract's term ends, the province will have access to the approximately 30 million MWh annually, which is currently sold from that hydro facility to Hydro Quebec at the Quebec border. That is a massive amount of energy: more than three times the electricity consumption on the island of Newfoundland in 2015. However, delivering more than a small fraction of it to the island would require new transmission investment. The challenge is how to best work that reality into a sustainability framework.

A Sustainability Framework for Newfoundland and Labrador

The overriding characteristic of an economically sustainable energy policy should be correct price signals to energy consumers and producers. Mainstream economics defines a correct price signal as one that reflects the marginal social cost of a unit of energy, where that cost must include all components of cost, notably the environmental cost.

Facing the right prices, households, public institutions, commercial operations, and industrial consumers of energy will have the incentive to consume and conserve energy in the most efficient mix of uses. Some key elements of such a framework are discussed below.

A carbon tax/price

There is widespread agreement that a tax on carbon emissions or some form of equivalent quantity restriction, such as a cap-and-trade arrangement that leads to a price, is needed globally in order to reduce GHG emissions. A carbon tax typically applies to fossil fuel combustion, the main source of those emissions. Such a measure makes the prices of those fuels higher, so that they reflect the full cost of using them, and thereby creates an incentive for users of those fuels to reduce their consumption, either through conservation or by finding non fossil fuel-based energy sources. In effect, a carbon tax serves to level the playing field between fossil fuels on the one hand and renewable energy, conservation and energy efficiency on the other.

Post Muskrat Falls, the carbon tax would apply to hardly any electricity generation, except for diesel generation in isolated communities, in which case the tax would provide an incentive for exploring local renewable energy alternatives and conservation. However, a carbon tax would reach well beyond electricity generation, applying to all fossil fuel energy uses including transportation and oil-furnace space heating as well as industrial production.

No price subsidies or tax exemptions

While a carbon tax acts to level the playing field, price subsidies and tax exemptions across different forms of energy do the opposite: they send the wrong price signals. Taxes of general applicability, such as the HST (harmonized sales tax), should apply without exception to all forms of energy, while in general there should be no special breaks or levies beyond the appropriately set carbon tax. Exemptions and subsidies are not only administratively complex but they send the wrong signal to those consumers who benefit, because they induce them to use more than they otherwise would. This could be problematic for isolated communities that rely on high-cost diesel generation, and for low-income households, but there are better ways to assist those consumers than subsidizing their electricity. Cash transfers, for example, are particularly effective: the Residential Energy Rebate is one excellent example. That NL provincial government program which was terminated in 2015 provided cash transfers to low-income residential customers based on income rather than energy consumed.

Reform of anti-competition legislative

In 2012, the provincial government of NL enacted legislation intended to support the Muskrat Falls project and including laws that effectively prohibit independent power producers (IPPs) from operating in the province. This unfortunately stifles innovation and competition, and the law should be reformed to allow IPPs (private firms, co-ops or other non-profit entities) to establish in the province independently of Nalcor. All such IPPs should be allowed non-discriminatory access to the island's transmission grid with the right to export or supply local retailers. Crucially, they should have to operate unsubsidized and without special tax concessions, selling energy at a price that reflects the opportunity cost of electricity. That would encourage any IPP to find the most appropriate energy-producing technology, be it wind, biomass, small hydro, or some other source.

One challenge associated with many small-scale renewable energy projects is that they create an 'intermittency problem': there may be times when they cannot generate energy due to a lack of resource (such as not enough wind), or they cannot be readily expanded to match an increase in demand. With the large inflow of Muskrat Falls' energy, intermittency may be less of a problem but it still could impose some limitations. The challenge for non-hydro renewable energy will be to produce energy cost-effectively and without exacerbating intermittency.

A stronger mandate for the Public Utilities Board

The mandate of the PUB with respect to electricity should be extended. At present, the PUB regulates the two electric utilities: Newfoundland and Labrador Hydro (owned by Nalcor), and the private utility, Newfoundland Power (mostly distribution/retail), regulating their projects and prices. That mandate should be extended to include Muskrat Falls and all other electricity subsidiaries of Nalcor, and the PUB should also have oversight of IPPs' access to the island grid, taking account of any intermittency challenges as well as environmental impacts. More generally, it should also have the authority to approve the electricity projects of all IPPs as well as those of Nalcor and Newfoundland Power. The PUB should not be encumbered by government directives in carrying out its mandate; crucially, its setting of the regulated prices of electricity should be based on the opportunity cost of electricity, the implications of which are discussed in what follows.

Scenarios for Electrical Energy

Having the price of electricity reflect its opportunity cost, and having a carbon tax/price embodied in the prices of fossil fuels, would lead to the efficient economic use of both renewable and non-renewable energy sources. The prices of fossil fuels are market-determined and should automatically adjust with the imposition of a carbon tax. Pricing electrical energy is more problematic because NL has not had a real market for electricity, just a regulated price. However, with the connection of the island to the North American grid, the marginal value of electricity will be determined differently than in the past, even though that valuation was not actually used then as the basis for pricing electricity. How past practice failed and how future pricing should be set are elaborated in Feehan (2016) but the essential point is that the provincial price of electricity should be built on the ‘export price’. That is, the price at which electricity from this province can be sold to Nova Scotia’s Emera and beyond, is the opportunity cost of the province’s electricity and therefore should be the wholesale price in this province. On that basis, the PUB can take into account additional local costs and thus determine the prices for end-users in the province.

What the export prices will be are unknown, but looking briefly at a high and low price scenario is worthwhile. If the export price of electricity is low then, rather than exporting large amounts, its best uses might be local where it could fully displace oil-fired furnace heat in homes and buildings, and attract energy-intensive industry. It could even make the widespread adoption of electric vehicles attractive, and contribute thereby to lower local GHG emissions. To ensure that best use, the local wholesale price should be low, being set in accordance with the price available through export possibilities. On the other hand, if the electricity can be sold for high prices in external markets, then exporting larger quantities would yield the greater economic benefit. A high export price would lead to the realization of substantial export earnings while providing an incentive for more innovation, conservation, and development of other renewable energy within the province by the local utilities and IPPs. That high-price scenario would not lead to as intensive a displacement of fossil fuels locally as would a low-export-price scenario, but it would still be environmentally favourable because exported electricity would presumably displace fossil fuel usage in those places to which it is sold.

Each of these electricity scenarios has its attractions and reflects the best use of the province’s electricity resources in the respective circumstances. Adopting policies that do not respect the opportunity cost of electricity would impose needless economic costs on

the province. In short, the price of electricity in the province, with the exception of off-grid communities, should be built on a wholesale price that coincides with the export price.

Conclusion

Renewable energy, despite the attraction of it being non-exhaustible and able to reduce GHG emissions, does not guarantee economic viability. Unless good luck leads to very high export prices for electricity, Muskrat Falls will be a sad but powerful illustration of that point. Nevertheless, hydro-electricity from that project, and potentially from Churchill Falls, will inevitably dominate this province's energy future. While IPPs should be allowed, the abundant supply of hydro-electric power will likely crowd out most other renewable energy possibilities, except in isolated off-grid communities. More generally, appropriate pricing of the province's electricity, as well as the application of a carbon tax or its equivalent for all fossil fuel uses, will be good for NL's economy and environment. That will require a substantial change in the current outdated policy framework.

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2.3 Fisheries and Aquaculture in a Post Oil-Dependent Newfoundland and Labrador

Paul Foley, Environmental Policy Institute, Grenfell Campus, Barb Neis, Sociology, Dean Bavington, Geography, Gabriela Sabau, Grenfell Campus, Memorial and Winston Fiander, Fisheries Community Alliance.

According to the 2016 *Vital Signs* report, the cornerstone industries in many parts of rural NL are fishing, seafood processing and aquaculture. One or more of these are the top-ranked industries in the regions of Corner Brook, Twillingate, Bonavista, St. Alban's, La Scie, Port au Choix, L'anse-au-Loup, and Branch (McDonald & Greenwood, 2016). The focus in that report is on the wealth and employment contributions of these industries, but fisheries and local seafood processing are also fundamentally important to current and future food security, human health, and to the history, culture, and identity of people living in many parts of Newfoundland and coastal Labrador. This reflection imagines what our relationship to living marine resources might look like in a context of post oil-dependence, and discusses some of the changes needed to get there.¹

A number of documents released over the past several years have reflected on the strengths and weaknesses of the NL fisheries and aquaculture sector. The Fisheries Community Alliance policy statement on rebuilding fisheries expressed deep concern about “creeping privatization of public fishery resources”, about the lack of transparency around the molding of public policy related to fisheries as exemplified in particular by the negotiations around the Canada/EU Free Trade Agreement, about disjointed federal/provincial policy development related to fisheries management and the removal of fishery-dependent coastal communities from decision-making related to fisheries.

¹ The section draws on a number of existing resources that have tackled similar questions over the past few years, including reports done by Dean Bavington, Paul Foley and others (including http://www.curra.ca/documents/Harris_Centre_Final_Report.pdf), a document submitted to the provincial government by the Fisheries Community Alliance (Winston Fiander), insights from Gabriela Sabau on NL small scale fisheries and the Canada-EU Comprehensive Economic and Trade Agreement, and principles and recommendations contained in the Policy Paper, Principles and Policy Booklet released in 2014 building on work done through the Community-University Research for Recovery Alliance ([http://www.curra.ca/documents/Revised_CURRA%20Policy%20Paper%20April%2016%202014%20to%20the%20printer%20\(1\).pdf](http://www.curra.ca/documents/Revised_CURRA%20Policy%20Paper%20April%2016%202014%20to%20the%20printer%20(1).pdf)).

A policy paper, booklet and list of principles produced in 2014 synthesizing insights from the multi-year Community-University Research for Recovery Alliance program of research on rebuilding fisheries and fishing communities² also identified a series of vulnerabilities related to fisheries and aquaculture, including:

1. corporate claims that NL fisheries are broken and in need of fundamental change in the direction of privatization and vertical integration;
2. persistent under-valuing and under-investment in the sector by both levels of government;
3. persistent emphasis on the production of a narrow range of mass-produced commodities for export markets to the neglect of diversifying species/products, creating niche markets and improving local food security;
4. reliance on single-species management of fisheries rather than on ecosystem and integrated coastal zone management; and,
5. limited recruitment of young people into small-scale fisheries and the related lack of a concerted effort on the part of government to consistently manage fisheries based on owner-operator, fleet separation and historical adjacency principles.

Other vulnerabilities associated with NL fisheries and fishery-dependent communities identified in the policy paper included a lack of efforts to promote synergies between fisheries and other sectors of rural economies like tourism, and a lack of democratically-elected regional governments with the regulatory, financial and human capacity to participate in integrated coastal zone development and management of coastal bays, fisheries and aquaculture.

Fisheries and Aquaculture in a Post Oil-dependent NL

Sustainable post oil-dependent NL fisheries and aquaculture must be ecologically, socially, economically *and* culturally resilient. They must be resilient to changing marine ecosystems and to changing economies in ways that include socially just transition plans among generations. They should be anchored and co-managed in rural coastal communities and regions that have safe and advanced infrastructure and the other

² See [http://www.curra.ca/documents/Revised_CURRA%20Policy%20Paper%20April%2016%202014%20to%20the%20printer%20\(1\).pdf](http://www.curra.ca/documents/Revised_CURRA%20Policy%20Paper%20April%2016%202014%20to%20the%20printer%20(1).pdf)

resources needed to effectively govern their underlying complex social and ecological relationships. Regions with strong fisheries and appropriate aquaculture developments would make major contributions to urban and semi-urban economic development in places like Corner Brook, Clarenville, and Gander, which would, in turn, provide critical services and infrastructure for fisheries. They would need to be co-managed based on meaningful input into decision-making on the part of those most engaged with and dependent on adjacent oceans and coasts. These fisheries and aquaculture industries would provide a foundation for a new kind of food system that would still rely on export markets but would also draw on food security and food sovereignty principles to create local as well as national and international distribution networks and opportunities.

Resilient fisheries and aquaculture in a post oil-dependent NL would be based on a well-developed and comprehensive research capacity that would, in turn, support the development of improved knowledge about ecology and ecosystem roles of fished species and aquaculture projects and about fisheries and fishing communities. This research would feed into a robust governance framework that would be designed to bring decision-making as close as possible to the local/regional level and an approach to management that would include, among its fundamental objectives, a fuel-efficient fishery. Fish harvesters would be involved in a meaningful way in fisheries science and assessment, and their observations and experience would provide an alternate lens with which to assess the status and health of fish populations and their marine ecosystems.

Resilient fisheries and aquaculture in a post oil-dependent NL would be defined by a new set of relationships between government, markets (including international trade regimes), communities and ecologies and by some core principles. They would be ethically and socially just and more democratic, with these principles integrated into governance at various levels. They would be more diversified and would capture more value through a reinvigorated onshore processing sector. The sector would focus on producing high quality products to be sold in markets that value fisheries that are not only ecologically sustainable but also safe and equitable.

In that future place, fisheries and aquaculture policy would be turned on its head so that it would begin with fish as living beings with intrinsic value *and* cultural significance tied to specific tastes, fishing places and peoples, and only then focus on the value of fish as a commodity for sale in regional and global markets. If fisheries and aquaculture policy starts from these paired assumptions, policy makers will be better positioned to provide informed and timely political judgments on such pressing issues as large-scale aquaculture expansion in Newfoundland, ecological regime shifts, and the related

challenges of how to organize new and renewed fisheries and avoid future moratoria. Inuk artist Billy Gauthier framed his recent hunger strike against the flooding of Muskrat Falls dam in cultural terms: "If you take that from me, my ability to go out and do my traditional cultural practices -- which, in large part is hunting and fishing — you take a big portion of my culture from me." Billy's hunger strike articulated a different order of value for fish and other living beings, and other protesters against the Nalcor project extended that argument, saying, "It's not only about eating and hunting—it's about our connection to our ancestors, it's about who we are" (Brake, 2016).

The recently-signed Canada-EU Comprehensive Economic and Trade Agreement (2017) (CETA) demonstrates some of the challenges of prioritizing ecological resilience and cultural values and developing new relationships between communities and markets in the current context. The federal and provincial governments recognize that some of the provisions in CETA would hurt seafood processing workers, particularly by removing the minimum processing requirement for fish harvested by NL fleets. Small-scale fisheries are, at present, vulnerable to the effects of industrial-type international competition and regulation. A number of policy changes that might allow them to be protected in this context include restructuring the fish and seafood industry, with a focus on high-quality processing and exports, as well as a more equitable allocation of fishing rights to protect small-scale fisheries, young fishers and fishing communities engaged in diversification of their activities. Also more just and sustainable supply marketing networks must be developed. These changes and others would allow such fisheries to benefit from the gains from trade, and contribute to a more equitable distribution of the benefits of the fishery to fishers and local communities.

Many of the insights above were incorporated into the CURRA policy paper, booklet, and ten principles for building socially, economically and ecologically resilient fisheries and fishing communities documents released in 2014 (CURRA, 2014). These documents used the many strengths of existing fisheries and some kinds of aquaculture as their starting point. These strengths include the "rich and diverse marine resources around our coasts that have supported a substantial fishing industry for centuries. In many of our coastal communities and regions, fisheries continue to be the major source of employment and wealth generation -- they are a crucial part of rural economies along all of our coasts." The policy booklet, *Moving Forward* celebrated the fact that, "[t]o a substantial degree our fisheries are still, as they should be, a "common good," in that ownership of these resources remains in the public domain. Access to them continues to be based (in part) on important principles like historical attachment and adjacency, and

on fleet separation and owner-operator policies. These principles and policies help to anchor people and wealth in coastal communities through harvesting, processing and other kinds of employment.” (p. 2). The 10 guiding principles identified through the CURRA work included the development of fisheries and other marine resources equitably and sustainably, in a way that would ensure they contribute to food security, become an engine of regional development under the guidance of new regional government structures, and a knowledge base drawing on diverse kinds of knowledge. The regional development program would maximize synergies within fisheries, and between fisheries and other sectors, and use “innovative approaches to marketing Newfoundland and Labrador fisheries heritage, culture, knowledge, stewardship and seafood within the province, nationally and globally.”

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2.4 Thoughts on Tourism in a Post-oil Economy

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A heavy reliance on oil revenues has resulted, over the past few years, in economic woes necessitating reductions to government services and spending. A robust and resilient economy is one that is diversified; tourism is one part of such diversification. Tourism and travel in Newfoundland and Labrador (NL) is growing and the sector is one of the more stable in the province. Generating more than \$1.1 billion in annual spending, tourism offers a renewable resource and accounts for 8% of all provincial jobs offering part-time, full-time, seasonal, and year-round employment. Tourism is a significant creator of jobs in all working age groups of the population and in all districts. Comprised of over 2,500 businesses, primarily small- to medium-sized, tourism supports the needs of a sustainable economy by providing the base for services and attractions that municipalities and other business sectors need in order to grow, attract workers, and leverage private investment, thereby supporting sustainable and viable communities across NL.

Accommodations, transportation services, attractions, festivals, events, restaurants, and the preservation/conservation of natural areas are all significant components of a robust tourism industry and equally essential components of vibrant and healthy communities that can retain their residents and even attract new ones: an important consideration when a significant percentage of tourism in the province is resident-based. Supporting and growing the tourism and travel industry in NL, then, aids business and economic development goals as well as helping to develop communities throughout the province. Especially in rural and remote communities, the industry represents one of the more sustainable economic opportunities available to both entrepreneurs and those seeking employment. As noted in *A Better Future* (Common Front NL, 2016) there is a crucial role for the provincial government to play in funding and facilitating training in green tourism practices, as well as developing a certification program that will recognize and support sustainable tourist businesses.

Thinking about a post-oil province brings attention to current trends in sustainable, locally-based initiatives — growing local, buying local, and making local products. When it comes to food, a focus on the local is evident in the number of restaurants

purchasing from local farms and fishers, and foregrounding such practices in their marketing materials. Many local, practical traditions are a cross between food and culture — getting your moose or caribou meat, jigging cod, knowing the best ponds for trout or the best spots for berries. Moreover, this local knowledge can be packaged for tourists through experiences that go far beyond the food on their plates. Cod Sounds, a culinary excursion company, provides such experiences, offering foraging expeditions, beach boil-ups, and classes in butchery, pastry-making, curing meat and Newfoundland cookery. Elliston, with its 130 root cellars and its Roots, Rants, and Roars Festival, is another example. Root cellars are a traditional way of storing food for the winter and this vernacular practice has been very successfully marketed to attract tourists to Elliston and the surrounding area. Needed now are imaginative ways of packaging other practical traditions, for such traditions are vital to sustainable ways of life that can also be marketed to tourists.

For the most part, craft production in the province has ceased to be carried out from necessity, but remains as a hobby. Many craft products are eminently marketable to culture-hungry tourists. The rugs that are hooked today are hung on walls, not used to clean muddy boots; snowshoes are made in miniature and purchased as pins or ornaments, and there are businesses dedicated to knitting hats, mitts, and socks. Cultural Craft on the Bonavista Peninsula is a local initiative that shows how this can be done. Focused on creating high quality crafts, area knitters, potters, coopers, blacksmiths, hookers, and quilters create products that draw on local history and culture. By the same token, Craft Labrador is a recently-launched organization operating on the same principle. Thus, some of the infrastructure for post-oil diversification of the old resource economy already exists.

Visitors come to Newfoundland for a variety of reasons. Provincial tourism campaigns have very successfully highlighted our stunning landscapes, including UNESCO World Heritage sites in both Newfoundland and Labrador. The industry can steer such assets towards eco-tourism. Culturally, we boast a distinctive folk life developed over a long history of adaptability, resilience, perseverance, and intercultural exchange. That said, there are challenges to further development that will have to be met and overcome. The tourist season, although it has recently expanded into the autumn months, is relatively short. There has been some expansion of audiences for traditional music, but there are not enough markets, venues, or potential audience members on the Island and in Labrador to sustain a performance career beyond the basic level. While there are other music careers possible (i.e. teaching, writing, etc.), none provide anywhere near the income of

successful performing, and so artists must find opportunities outside the province. We must ask: how do arts organizations like MusicNL or the Newfoundland and Labrador Folk Arts Society work to create performance opportunities outside of the tourist season? What can we do to make the infrastructure already in place more effective and develop a sustainable year-round industry for artists and musicians, given the heavy reliance on both government funding and private sponsorships? What happens when the oil money funding some of these organizations dries up?

The hospitality industry has been devastated by the current economic downturn. Locally-owned accommodations, restaurants, and bars expanded exponentially during the boom years, and rents, taxes, and labour costs expanded accordingly. Unfortunately, as the oil boom became bust, and the swath of petro workers on expense accounts has disappeared, industry costs have remained high, resulting in numerous closures, bankruptcies and lost employment in that sector. Those who have survived have two options – (1) go cheaper, tightening outlays and expanding local markets as much as possible, and (2) become as attractive as possible to tourists, conference delegates and other business travelers. The first option is a constant, ongoing process, while the second can be very difficult – tourists coming to Newfoundland are often looking for a very specific experience, and providing them that while still appealing to a core local base can be a challenging balancing act.

Visitors come into pubs every day seeking Screech-ins, which some local patrons find offensive. Framing naturally welcoming, easily accessible cultures as a ‘safe exotic’ can be great for tourism, but risks being detrimental to local perceptions of place and home. While Newfoundlanders and Labradorians value their culture, there is little consensus on what that is, and thus we find ourselves battling clichés and stereotypes in an effort to create tourism experiences and products that speak to the best of our culture. Traditional music must compete with the onslaught of mainland popular culture, and provincially-based food entrepreneurs vie for tourists’ dollars with pre-packaged chains that operate in ways that are unconstrained by local considerations. Common Front NL suggests that government consider levying excise taxes, specifically an accommodation tax and an entertainment tax. Allowing all municipalities across the province to implement such taxes could provide financial assistance for regions that are growing their local economies through tourism.

Transportation is another crucial infrastructure issue. Travel to the province is expensive by any mode of transportation — and it is oil-dependent. The long distances between both communities and major attractions require travel by roads that are not well-

maintained, and in some cases not designed to accommodate the increased traffic that comes with tourism. At the height of the season, available rental cars are scarce. Strong winds can lead to ferry service delays or cancelled crossings, which in turn affect accommodation as well as tour and event bookings. Aging vessels require higher levels of maintenance and break down frequently, also slowing ferry traffic. Adverse weather conditions can leave air travelers stranded in the province beyond their intended departure date. Given the significant amount of resident tourism, could a focus on local dollars spent in-province facilitate an emphasis on comfortable mass-transportation and local access (e.g., a province-wide bus system), and thus less oil dependence?

Traditional practices and knowledge found across the province can also be marketed to create a stronger tourism industry. Perhaps the next step for tourism in a post-oil economy is to focus on the “off” season. What traditional, local practices take place during the off-season, and how can we continue to practice those traditions and share them respectfully with tourists? For example, how can we market the experience of sleeping in a Labrador tent? Winter tourism activities in particular such as cross-country ski and snowshoe trails have been under-resourced. How do we work with organizations like Fishing for Success to teach net knitting during the winter? How do we make sure traditional knowledge and skills are passed on not only to non-resident tourists, but to locals across the province?

NL does not lack tourist potential in any season, but the province needs to undertake the creation of necessary infrastructure (hostels on the European model, lodges, trails, shelters etc.). Local urbanites need to escape the burgeoning St John’s suburban sprawl for the occasional weekend – what better than a good year-round B&B service on the Avalon, complete with babysitters for young professionals, thus providing both an attraction for city dwellers and employment for rural youth?

As long ago as 1986, the Government of Newfoundland and Labrador’s *Report of the Commission on Employment and Unemployment* made useful suggestions for expansion of tourism, and most of those have yet to be realized. Wilderness tourism is promoting the Arctic these days. We can also offer wilderness by land and sea, winter and summer. Hotels can be built with sections that can be closed off during the winter, thus saving energy while providing year-round service. With imagination -- and minimal outlay of provincial monies -- NL could become one of the top tourist attractions in Canada.

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Section 3:

Changing Institutions and Enhancing Cultural Capacity for Future Sustainability

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3.1 The Role of Design (Buildings and Communities) in Supporting a Sustainable Post-oil Newfoundland and Labrador

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Introduction and Background

The fields of architecture (building and landscape) and urban planning can and should have a lot to say about what a sustainable post-oil Newfoundland and Labrador will look like. Thoughtful design of buildings, neighbourhoods, and communities will not only lessen our dependency on carbon fuels and the related production of greenhouse gases, but also support healthier citizens and combat the erosion of social capital that is so inherent in our increasingly sprawling communities. While Newfoundland and Labrador (NL) is anything but at the forefront of planning for sustainable design, there are some lessons from our recent past and our culture that could inform the way forward.

A planning culture we are not. Many, especially rural communities in the province, have had little input from professional designers. Rather they are the product of an organic evolution shaped by the landscape and resources. It could be argued that NL is, in a significant way, a survivalist culture, shaped by the vagaries of an economy dependent on commodities, natural resources, the mercantile system, and markets. In this context, the focus, for many, was on just getting through to the next year. Many Newfoundlanders and Labradorians found a way, if not to thrive, at least to get by, in the process creating a rich culture and sense of community.

Prior to the middle of the 20th century most communities in NL were quite compact, built on a pedestrian scale. In the second half of the century the car, market forces and consumer culture came to be the major shapers of our communities. Suburban development characterized by tract housing, suburban shopping centres and the shift of places of work to the peripheries became the norm, particularly in our larger centres guided in part by 20th century planning principles of zoning. In the case of the St. John's region, for example, we have seen incredible growth leading to sprawling residential and shopping areas moving further and further to the periphery over the last 20 years. In the

case of rural communities, our seeming inability to plan and implement alternative economies has contributed to rapid population decline. Clearly, this lack of a planning culture is no longer serving us well.

Moving Forward

How we plan and design our communities will play a major role in helping us to achieve post-oil sustainability on many fronts. Community planning and design should be based on the following guiding principles:

1. In preparing for a post-oil society, they should give priority to making green buildings. Green building design will go a long way toward decreasing our dependence on fossil fuels as buildings are one of the biggest contributors toward greenhouse gasses.
2. Green building design principles also take into consideration the embodied energy that is preserved when we recycle buildings including the energy embodied in the manufacture of a brick or piece of glass; the cost of transporting building materials to a site; not to mention the energy expended in demolition and the contribution to landfill of building wastes.
3. Planning and design should lessen our dependency on automobiles. Our current urban sprawl – not only in St. John's but in many smaller communities in the province as well -- depends on cars. The post-oil period will require more compact, denser communities and neighbourhoods in which uses are mixed, allowing us to walk from our houses to shopping, school, and work.
4. They should seek to enhance the health of our residents. As services and employment have moved further and further from our places of residence we are forced to drive a lot more. This is particularly the case in rural areas where many communities no longer even have a corner store or local employer. This move away from walkable communities is, no doubt, one of the contributors to obesity, particularly in rural areas of the province. The example of a small Trinity Bay community with a few hundred people that requires people to get in their cars to go to the town hall/community centre and playground, which is located out on the highway, is a case in point. At the very least, more attention should be given to incorporating walking trails and recreational opportunities into communities to improve local health.

5. Design and planning should be used to support social and community sustainability. Our suburban neighbourhoods, with their low densities and lack of social spaces, do little to build community and social interaction and lead to an increasing atomization of society. So much time is spent in cars getting from place to place that encounters with neighbours is increasingly rare. Josh Smee (2016) makes the case for walkable neighbourhoods as a support for social capital.
6. They should seek to support healthy aging by thinking about the life cycle of individuals as they age and designing housing and other infrastructure to adapt to people's changing needs so they are able to remain longer in their homes, in the familiar environment of their neighbourhoods, and close to the supports of family and neighbours.
7. All of the above principles assume that our objective is to support livable places. Heritage preservation and adaptive reuse are key aspects of building livable places. Preservation of our built heritage retains many of the familiar touchstones of our neighbourhoods that allow us to remain grounded in place.
8. In addition, heritage has been proven to support economic development in many communities and neighbourhoods as a tourism draw and by creating places where people want to live. Heritage districts tend to be some of the most dynamic areas in our cities and most of our biggest tourism destinations are historic communities and neighbourhoods including Trinity, Bonavista, Woody Point, and downtown St. John's. In the town of Bonavista a strong focus on heritage preservation is now drawing new, younger residents to the community, many of them professionals and business owners. Furthermore, designing buildings with integrity that are built to last will and guided by universal design and accessible means that we will have buildings in the future that people will care enough about to consider preserving as heritage enhancing the potential for preservation of embodied energy in future generations.

Learning about Sustainability

So what do designers – architects, landscape architects, product designers, and urban planners – have to teach us about sustainability? In a word, “design thinking”. This has a number of components that apply not only to building and urban design but also to

solving a variety of problems essential for adaptation to a post-oil period. These components include:

- the need for a holistic understanding of context encompassing cultural/historical, environment/climate, social, landscape, energy inputs and waste management concerns, as well as social change and the effects of time when creating a solution to a design problem.
- a highly iterative process employing experimentation and in which multiple possibilities are explored, critiqued and refined.
- active involvement of the clients/users of buildings in design development.
- an educational process to help clients understand things that they may have little knowledge about, and
- an ability to visualize space in all its dimensions. The two-dimensionality of much of contemporary problem-solving and design fails to take into consideration complexity (e.g., how people use and value spaces) and many of the factors that support sustainability.

What Needs to Happen to Support Better, More Sustainable Design?

We need to start rethinking regulatory standards and current notions around municipal zoning that do little to support the design of integrated, vibrant communities and neighbourhoods. Flexibility is key. Furthermore, governments need to:

- a) become more proactive by providing incentives for infill and adaptive reuse and by taxing undeveloped, serviced land in the urban core at higher rates while making it more difficult to build on new land on the urban periphery. Progressive cities around North America actively assemble land to support development for housing, parks, and cultural uses. As well, greater flexibility in the application of building codes can make adaptive reuse more feasible. A fairly recent study, commissioned by the City of St. John's, considered equivalencies in the building code for occupancies on upper stories of downtown commercial buildings making it easier for owners to develop these spaces.
- b) create a greater appreciation among their building managers of the inherent value of existing buildings (e.g., embodied energy) and an understanding of how to adapt them to new uses and standards. As an example, all of the buildings at the

Grace Hospital site have either been demolished (at great expense and production of landfill) or slated for demolition. These were well-built structures that could have been remediated and adapted at far less cost than demolition and reconstruction.

- c) be a better steward of their buildings and lands by ensuring structures remain in good repair so that they don't deteriorate to the point of no return and not sitting on valuable serviced land for long periods when these could be developed and enhance the vitality of neighbourhoods.
- d) create a broad discourse around the role of and importance of good design in creating sustainable communities. This would include creating opportunities for dialogue within the design community and between designers, builders, developers and municipal officials and decision-makers (politicians) and a wide variety of other stakeholders (e.g., social agencies that deal with housing, poverty, health) on how we can create more sustainable buildings and communities. Part of this discussion should include how we create distinctive buildings that are rooted in place, responding to our particular environment(s) and culture(s). Good, sustainable design comes out of multi-disciplinary approaches that involve the full range of stakeholders. This requires everyone to get out of their silos.
- e) move away from centralized systems for energy production, supply of services, waste management and food production. Centralized systems are often costly to operate, vulnerable to disruption and are dependent on external inputs. This is of particular concern for many rural municipalities. Decentralized systems are much more resilient and, in the long run, often more economical to operate.
- f) create and grow design literacy among their citizens so they can better advocate for and participate in discussions about the design of our buildings and communities. Inclusion of design awareness within the K-12 curriculum would be a start, perhaps within a broader unit on environmental and cultural sustainability.
- g) have greater openness within the design process to allow more ideas to inform our discussions. This could be done through such things as: design competitions, recognition of innovative design that supports sustainability; challenging local firms to take on innovative projects (e.g., as part of ongoing research and *pro bono* work for not-for-profit groups); and hosting field schools for schools of architecture from around North America that are integrated with other relevant disciplines within Memorial University to create multi-disciplinary approaches to design. Related to this is the notion of "architectural activism" in which designers

- take on projects that could support innovative sustainable design or through design “charettes” that bring together stakeholders to address design issues.
- h) encourage the use of locally-produced building materials in order to cut down on transportation costs, enhance local employment, and support architecture that is truly “of this place.” The recycling of building materials should also be encouraged.
 - i) start with an initial focus on relatively simple projects that are achievable and can be replicated.

Existing Strengths

There are a number of things we have going for us in NL that might support more sustainable design. We have our traditions of self-reliance and generosity in looking after each other. Our survival culture – which is within living memory for many – offers some valuable lessons for moving forward (e.g., working with what is locally available, recycling building components to build new structures). We have strong connectivity – we are a small place where people rub shoulders on a regular basis, which should allow us to create a meaningful dialogue on sustainable design. We are resource rich with abundant wood, stone and other building materials.

Conclusion

The transformation of the culinary scene in the province in a relatively short period of time (especially in St. John’s) from one of little interest to one of the most interesting in the country (recognized for its use of local ingredients and traditions) provides inspiration for how quickly we could shift from a relatively uninspired design scene to being recognized for sustainable, innovative design that is rooted in Newfoundland and Labrador. Lessons from the culinary community include the important role of champions and of close collaboration within the culinary community itself. These ideas can and should be into a larger provincial strategy if we are to transform NL in readiness for the end of oil.

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3.2 The Future of NL Media

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A strong, independent media is essential to both the transition to a post oil-dependent NL and its long-term sustainability. The current state of media here, in this province, and elsewhere is thus a serious cause for concern and must be addressed as soon as possible.

Dark Times

The week in fall 2016 when a group of journalists and media professionals met with me to discuss the state of the media industry in Newfoundland and Labrador, Rogers announced drastic scaling back in their magazine publications, including reducing the frequency of *Macleans* magazine from a weekly to a monthly. A few days later, *Hill Times* reported that Canadian newspaper owners were demanding federal government support to help them weather the financial storm they found themselves in (Amba, 2016). The *Globe and Mail*, *Toronto Star*, and *Financial Post* media together laid off hundreds of journalists in 2016 alone. Canadian Media Guild, a union representing journalists and media workers in Canada, claimed that in the period between 2008 and 2013, Canadian media shed a total of 10,000 jobs (Baluja, 2013). Those losses would include journalists across media, but also press workers and other support staff. In January of this year, Public Policy Forum released a report on the state of Canadian media entitled *The Shattered Mirror* (2017) reiterating all of these data and making a link between democracy, well-informed citizens and a free and well-resourced press.

Busy and frustrated

All of these trends hold in Newfoundland and Labrador with some important caveats. Newfoundland and Labrador newsrooms and the industry itself are quite small and a loss of even one position in an already stripped-down newsroom is deeply felt. In fact, even taking a vacation or a sick day means that you are leaving your colleagues scrambling to fill the pages of a newspaper or a newscast. During the summer, it is not impossible to be in a situation where there is nobody left in a newsroom to answer the phone.

The journalists who work in the province have a strong sense of obligation and belonging to this place – something in which Newfoundlanders and Labradorians top the national charts – so the diminished opportunities to work on ‘long-form’ (in-depth articles)

journalism that would address complex issues, such as climate change or the Muskrat Falls development, is deeply frustrating. Journalists want to make a difference in the province and that is increasingly difficult to do. Long-form journalism is, of course, still pursued, but it requires diligent time management to fit that work around the daily reporting. It is also worth noting that print media does more in-depth reporting while broadcast media tend to do less of it, or, in the case of CBC, much of the production of long-form documentary radio and television work may be done outside the province. That alone is not necessarily a bad thing, but it does speak to the diminished capacity of the public broadcaster to produce regional content.

With ever-smaller newsrooms, there are editorial jobs that simply don't exist or don't get done. Editing time is considerably reduced so, instead of providing mentorship and helping journalists develop their writing and reporting skills through a rigorous editing process, the remaining editors do the most basic of all edits – make sure that there are as few spelling mistakes as possible and that the paper does not get sued for libel. The situation is in some ways even worse in broadcast media where two-person camera crews are largely a thing of the past and the reporters are often expected to produce their own content without the help and mentorship of senior producers, while simultaneously meeting the social media and web demands for content.

One of the problems with the media industry in the province is that really not much is known about it. There is very little academic research on small media markets (such as Newfoundland and Labrador) and the public itself knows next to nothing of the changes that are sweeping the industry. A journalist said to me that “nobody's told the audience what is going on in the newsrooms. We simply cannot do what we used to do. We need to make the public understand what it would mean for daily papers to disappear.”

The disappearance of daily newspapers in the province is not beyond the realm of possibility. There is an acknowledgment that print media has a somewhat longer future here, given the aging demographic of the province, but conversations around whether or not a daily paper will be feasible in this market five or ten years from now are already happening. Online and non-traditional media are attempting to fill the gap, and reporters in traditional media outlets see them as a welcome addition, if for no other reason than that they can help extend the coverage of important issues such as the Muskrat Falls development. “There are so few of us, and getting fewer,” a reporter explained. “We need more people covering it [Muskrat Falls] and I am glad that other non-traditional media are out there ... but don't knock down the traditional outlets.”

From the perspective of working journalists the problems with non-traditional media stem from the fact that many of the people covering stories of importance are doing so from a very particular standpoint. They might be doing it as a hobby because they are passionate about it, or it might be an “ego stroke,” providing content for little or no money and without seeing journalism as a legitimate career path. What non-traditional media do well is bring to our attention voices that are usually not a part of the industry. There is an obvious need to bring different voices into the newsrooms – especially Indigenous voices. As newsrooms shrink, that goal is unlikely to be met any time soon: a trend now across Canada and North America.

Digital first, journalism second

The focus on digital platforms is taking away significant resources from more traditional journalistic work. “We are eroding our print audience because we are doing digital first,” is how one of the participants described the current situation. In addition, the metrics that determine the success of digital-first approaches often have to do with website visits. The proliferation of ‘click-bait journalism’ – headlines that sound compelling on social media and drive traffic to websites, but offer little or no substance – additionally frustrates journalists who attempt to offer more substantial journalism on provincial affairs. “What is really frustrating is that when you find the time to do something that is really important... you get a three-legged cat and suddenly that is what is important,” is how one of the reporters I spoke with describes the online environment. “Is it important because the public wants it, or is it important because we are telling them it is?”

The digital-first approach, and the required presence of reporters on social media, has meant additional difficulties for journalism in a small province. The lines are increasingly becoming blurred between entertainment and news, between news and opinion and, crucially, between public and private time for working journalists. “They want a piece of you on social media,” is a phrase that has been used more than once. Journalists describe how social media gives an illusion that they are working all the time and that, in turn, makes it really hard to stop working. “There is a huge difference between eight years ago and now. You need to be much more aggressive in terms of time management,” one journalist said.

The first draft of history

The idea that journalism has a ‘curatorial’ (the ability to point out things that matter) role to play is fundamental. Media should play that role in society, but currently it is unappreciated, misunderstood, or maligned as censorship. However, in the ocean of

information the public is exposed to, we should not give up so easily on that curatorial role. Indeed, there is a general consensus that reporters and journalists should go back to the fundamentals of newsroom roles and news gathering – story meetings, assignment editors, and helping the public relearn the difference between reporting, opinion, and even advertising. The current lack of understanding is already eroding journalists’ ability to engage in the production of high-quality photojournalism – the public just does not understand the difference between a photograph and the storytelling of photojournalism, nor does it have the ability to read that kind of visual storytelling.

Recommendations

So what is to be done? The *Shattered Mirror* report (Public Policy Forum, 2017) makes a series of recommendations focused on tax changes, fiscal and regulatory environments, and a cash infusion to support innovation in journalism and digital media. All of their recommendations are national in scope and require policy changes at the federal level. Whether the federal government adopts any of the recommendations or not, the province of Newfoundland and Labrador should seek its own solutions to ensure its citizens are informed, engaged, and able to participate in the social, economic and cultural development of the province.

Funding journalism

As a first step in this process, the province should create a journalism-specific line of funding through the Newfoundland and Labrador Arts Council that would, at various levels, support the creation of in-depth journalistic work and foster the development of a new generation of journalists and reporters who are dedicated to the craft. The funding should be available to individual reporters and editors, or teams of journalists who would pursue specific projects with a commitment from media organizations in the province to publish the work in an appropriate medium. The fund should be open to staff and freelance journalists in any medium and the award criteria should be based on the merit of the project, past work of the applicant, and the commitments from a news organization to publish or otherwise support the project.

Supporting entrepreneurship in media

As part of its strategy outlined in its *The Way Forward* plan (Government of Newfoundland and Labrador, 2016), the government should explore specific supports for the development of local and regional media. The supports should include effective and

appropriate business financing as outlined in the strategy, as well as access to technical and business development assistance.

New models for local media

Communities around the province also bear responsibility for developing and supporting their own media. Technology makes it easier than ever to create local and even hyper-local media. Social enterprise, co-op, and not-for-profit models for community radio stations and newspapers have also been successful and should be considered as potential models of business organization for a local media industry. Such organizations would also fit within the province's strategy articulated in *The Way Forward* that supports greater development of social enterprises and co-op sectors.

Teaching and researching journalism

The College of the North Atlantic and Memorial University have a significant role to play as the postsecondary institutions in the province. The college bears most of the responsibility for training the new generation of journalists in the province. It needs to rethink its journalism programs and develop a curriculum that would equip the students with a transferable set of skills focused on storytelling, reporting and ethics, with a strong grounding in entrepreneurship that would encourage students to pursue their own ways of creating and developing media in the province.

Working with journalists

Memorial University has a unique opportunity to work more closely with media partners in the province. Research funding from Canada's research councils already allows a partnership with journalists and thus provides an opportunity to give the public stories about relevant, cutting-edge research on a variety of issues facing Canadians. Such partnerships are rarely pursued, but have significant potential.

The time is right

Despite the failed business models and economic difficulties facing Newfoundland and Labrador and Canadian traditional media, the opportunities and technologies available at the moment make this an exciting time to be a storyteller. Those with passion for their communities, and for journalism, could not ask for a better time to tell engaging, accurate, high-quality stories to communities around the province. Journalism and its focus on factually-accurate reporting continue to be, maybe more than ever, a cornerstone of good citizenship and a democratic society. They are essential to efforts to transition to and sustain a post oil-dependent society.

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3.3 Immigration: Necessary for Newfoundland and Labrador to Thrive Post-oil

Tony Fang and David Brake

For Newfoundland and Labrador (NL) to have a thriving future, its population needs to stop shrinking in size to keep its existing services viable, and it needs to foster an entrepreneurial culture, to help its economy diversify away from its unhealthy reliance on the oil and gas sector. By fostering greater immigration, the province can address both of these key objectives. NL's ageing population and low fertility pose significant challenges for the province's future. Without immigration, employers may find themselves unable to expand due to shortages of skilled workers, and the increasing needs of an elderly population will have to be paid for by a diminishing workforce. Newcomers also bring other benefits. As other chapters in this document make clear, it is vital for the province to diversify itself away from resource-extraction-led employment towards a broader range of SMEs in the service sector and knowledge economy.

Compared to the rest of Canada, Newfoundland is a highly homogeneous province. As of 2011 only 1.8% of the population of NL was immigrants, compared to 20% of the population in Canada as a whole. This is important because diversity is key to enabling and supporting innovation and growth. Immigrants may feel it is easier to start their own businesses than to persuade existing employers to take them on. They can bring insights and skills from their different cultures and communities and can draw on different business networks to enable the development of a broader range of businesses. This can help to spur international trade and investment. And immigrant-run or -managed businesses may be more able effectively to absorb and integrate newcomers themselves, especially those from the same cultural backgrounds, thus building capacity for future newcomer growth. Moreover, existing Newfoundland and Labrador companies would benefit from a more ethnically diverse workforce – a 2014 McKinsey report found the most diverse companies were 35% more likely to out-perform the least diverse (Hunt, Layton & Prince, 2015).

The Newfoundland government has acknowledged the importance of supporting immigration. It is a partner in the Atlantic Growth Strategy, which has an increase in immigration as one of its pillars, and in the government's *Way Forward* document it set a target for 1,700 immigrants to be accepted annually by 2022 - a 50% increase on current

numbers. The number of migrants to the area remains low, however, compared to other parts of Canada. In 2011/12 the immigration rate was 0.7% across Canada but only 0.2% in Newfoundland, a pattern that has persisted for many years. Moreover, retaining the immigrants we receive is a problem. While Immigration, Refugees and Citizenship Canada data suggest 72% of skilled immigrant workers remained in NL after three years, only 39% of refugees stayed, and 80% of the international students we attract who became permanent residents left the province within five years (Statistics Canada, 2009).

A renewed provincial emphasis on encouraging immigration may come at an auspicious time: global refugee numbers are at an all-time high, and the Liberal federal government is welcoming more of them. At the same time, several of the countries in the developed world with which Canada competes for migrants are adopting policies aimed at discouraging further immigration. New restrictions on immigration, especially illegal immigration, were a policy cornerstone for the incoming American president, Donald Trump, and in the UK the Conservative government has been seeking to reduce immigration and the admission of overseas students. Across Europe, too, anti-immigrant parties are on the rise. As a result, the province may be able to draw on a growing pool of international migrants and students. These changes provide new opportunities. However, if successful, they may also further test Newfoundland's willingness and capacity to welcome, support and retain these migrants.

To date, even the raised provincial target numbers arguably are not sufficiently high to make a serious impact on the demographic challenges NL faces in the coming years. However, because of the low historic levels of immigration, support for immigrants in both the private and public sectors has lagged behind that of other provinces. If NL hopes to retain the future immigrants it admits, more investment in support infrastructure and human resources will be needed, and capacity building will need to start right away to ensure that support will be ready if the numbers begin to rise.

Recommendations

Intensification of research

Some valuable research has been conducted in this area in NL and other Atlantic provinces, but much of it has been small-scale, interview-based research, and little new work has been conducted in the last five years to take into account the changes in the economy. For example, a 2005 report prepared for the Atlantic Canada Opportunities Agency and the Coordinating Committee on Newcomer Integration called for, "a

comprehensive evaluation of the overall continuum of settlement services and integration support provided for immigrants and refugees through targeted and mainstream programs” (Goss Gilroy Inc., 2005). Developing an understanding of the capacity of the systems for helping immigrants would be an important precursor to making other changes but this work has not yet been done. There is also a dearth of collaborative work looking at how other Atlantic provinces, and key civil society organizations in those provinces, are addressing similar immigration challenges. Suggested research priorities therefore include:

- Up to date survey research and evaluation of existing programs and capabilities to establish the baseline for measurement of progress.
- Greater support for research initiatives across the Atlantic provinces to discover current issues of immigrant/refugee settlement and integration, as well as best practices in the region and elsewhere
- Building rigorous, public, third party evaluation of new programs and initiatives into funding proposals.

Private and governmental research can add to our understanding and the results should be shared widely if it is not already available. Peer reviewed, open access academic research, however, is the best source of rigorous, unbiased information and access to it must be supported both directly through increased funding and indirectly by having stakeholders give researchers as broad as possible access to their organizations, clients, and datasets.

Prior research suggests that a perceived lack of job opportunities available to immigrants and refugees is the largest single factor that has hitherto kept immigrants from staying in NL (Burnaby, Whelan, & Rivera, 2009; Gien & Law, 2009). The next three items address this directly.

Better provision of career-related information for immigrants and those considering immigration

Research has found that immigrants may have unrealistic expectations of what work they will be able to find when they arrive (Goss Gilroy Inc., 2005) and that they are not always aware of opportunities for work across the province. One report found, “[o]nly about 50% of newcomers to NL received information (either before, during or after arrival in NL) about how to access educational services and medical services. And only about 35-40% received information about how to find housing, look for a job, obtain

language training, access basic needs and services (food, clothing), and contact immigrant agencies.” (Gien & Law, 2009, p. vii) More than two thirds of immigrants settle in the Northeast Avalon area, while demand for skilled workers can be found across Newfoundland and Labrador.

Broader support for business development by immigrants

As noted in the introduction, the fostering of new SMEs is essential to diversify the provincial economy and can be of particular value to newcomer communities. There is also evidence here in NL that immigrants are interested in entrepreneurship – existing programs at MUN and the Genesis Centre disproportionately attract them, for example. To further encourage such development,

- programs to enable and support entrepreneurship should be as open as possible to residents regardless of their immigration status
- they should be well-signposted through existing immigrant support networks
- they should be made as accessible as possible to non-English speakers and backup materials should be available tailored for new immigrants to understand the financial, legal, and social resources for and barriers to entrepreneurship in the province and Canada.

Improved provision of ESL programs

A full-time, accessible, affordable, and professional ESL (English as a second language) program to support newcomers’ ESL learning needs beyond the Canadian Language Benchmark 5 is essential to the success of NL’s present policy on immigration. At present this is provided primarily via the Association for New Canadians (ANC), but in most provinces such services are available and funded by the provincial government through continuing education policies with school boards, or with community colleges and NGOs.

At present the ANC says it is not experiencing any difficulties meeting demand but its funding agreement with the federal government means it can only provide support and services to permanent residents. Temporary foreign workers and refugee claimants are not eligible for their services. To the extent significantly higher immigrant numbers are reached, the feasibility of a NL-based ESL teacher training facility meeting the standards of TESL Canada should be considered.

More resources devoted to processing of immigration applications

At present it can take 18 months to two years before an immigrant nominated by the province for expedited citizenship receives a permanent resident visa. Increased numbers of applicants will only increase pressure on existing provincial workers, so more resources will be required to ensure delays do not increase.

Greater provision of immigrant services outside of the St John's CMA

At present two thirds of all immigrants live in and around St John's and Statistics Canada projects this concentration will rise to three quarters by 2036. However some of the worst skills and population shortages are elsewhere in Newfoundland and Labrador. Although efforts are made to help immigrants wherever they are in the province, service providers are concentrated in St John's, but if immigrants are to be encouraged to settle where they are more needed – e.g. through cluster migration - support resources will have to follow.

Intensifying programs to aid the social, cultural, and psychological integration of immigrants and refugees

While many interviewees report residents are often individually friendly and welcoming, the lack of large-scale existing immigrant populations – particularly outside of the NE Avalon area - means new immigrants can nonetheless feel isolated. While racism and discrimination do not generally appear as important factors in surveys, some immigrants interviewed in more depth did feel some hostility. One said, “Local people feel immigrants are ‘stealing’ jobs from them – racism and discrimination towards foreigners very high.” (Gien & Law, 2009, p. 34). Clearly these are not easy issues to address, but a workshop on immigration and settlement made some useful general recommendations:

“Newfoundlanders and Labradorians need to take on the role that an immigrant enclave in a more metropolitan area would and make the newcomers feel welcome and at home. There should be more education on immigration for the general population, as well as efforts to better understand and combat racism and discrimination. Instilling tolerance in children is crucial in this endeavour.

Immigrants already living within the province and the agencies that support them can be very knowledgeable teachers. As well, connecting immigrants with each other from the start should lead to greater levels of retention.” (Leslie Harris Centre of Regional Policy and Development, 2008)

Fostering better mutual understanding of workplace practices

The way that workers here are recruited, retained, and advanced in their careers can be different from what those from out of province expect, and differences in expectations can cause misunderstandings on both sides. As the ANC has recommended:

- governments, employers, the ANC, and community agencies [should] work together to provide immigrants with assistance in understanding the Canadian workplace through sector specific workshops involving workplace orientation and safety training.
- that these players identify “best practice” in the area of diversity training and cultural understanding in the workplace and make information and training available to both Canadian and potential immigrant workers.” (Coombs-Thorne & Warren, 2007, p. 80)

This report also recommended fostering more opportunities for immigrants to gain Canadian work experience and workplace understanding by encouraging more work shadowing, mentorships and internships.

Better recognition of and testing of newcomers’ academic and professional qualifications

The Department of Education must undertake a significant review of its policies on recognition of high school diplomas obtained outside of Canada to enable newcomers with secondary-equivalent education to apply to programs leading directly to certification for trades and other roles. The College of the North Atlantic, private colleges and other institutions must find an alternative to the Canadian Adult Achievement Test (CAAT) for assessment of non-native speakers’ skills and knowledge relative to high school diploma standards. The CAAT and the new, federally developed Test of Workplace Essential Skills (TOWES) do not adequately take into consideration the difficulties faced by those for whom English is not a first language when taking their tests. Professions such as social work, medical, law and law enforcement, K-12 teachers, business management must also be given strategies and resources to address the specific needs and contributions of newcomers. Overall, employers and trades groups must be consulted consistently for their concerns about newcomers in the labour market. From this, they can take ownership of any meaningful solutions created.

Enhanced focus on retaining international and inter-provincial students

Memorial University has been very successful at attracting students from across Canada and the world – a third of its students now come from out of province - and it educates

them to an internationally recognized standard. As noted in the introduction, however, only one in five of those who have successfully become permanent residents remain in Newfoundland and Labrador after five years. An internal report at Memorial made a number of recommendations that would help the international student experience. Those with more broad and long-term applicability include:

- Greatly enhanced provision of ESL support at MUN (at present this is only available through the writing centre). This would of course enhance international students' academic experiences but also make it easier for them to develop and sustain connections to the community that would encourage them to stay.
- More institutional support for efforts to promote inter-cultural friendship and exchange. International students could be our ambassadors, encouraging highly skilled peers and relatives to join them where they have settled. At present however those interviewed said that, "language, culture and lifestyle form an impenetrable barrier to domestic students", and as a result, "The vast majority reported that when they return home after completion of their program, there will be no lasting connection with the province." (Philpott, Kennedy, & Green, 2014, p. 27)

Conclusion

This is, of necessity, only a brief overview of the research that has taken place to date on immigration in NL – the reports cited contain many smaller-scale but valuable recommendations also worth scrutiny. And as noted early in this chapter, more research and better connections between organizations and researchers here and in other Atlantic provinces would be very useful in ensuring the policies suggested here are chosen and effectively implemented. With appropriately aligned policies and resources, we will better be able to live up to our reputation and enable more immigrants to stay here, prosper, and bring others to help us to build a stable and prosperous post-oil future in the province.

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3.4 Embracing the Lessons of Crisis: The Role of Education in Claiming our Post-oil Future

This reflection is the result of collaboration and discussion with members of the Faculty of Education and the Internationalization Office, Memorial University including (in alphabetical order)

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Introduction: What Does Sustainability Mean to “Us”?

What does a sustainable system look like? Rather than viewing sustainability as an end point or destination that provides security and fulfillment, it is more productive to think about sustainable systems as those that can adapt to changing circumstances by being reflexive, flexible, and forward thinking. Sustainability implies that growth is balanced: attuned to the ecological needs of our natural environment and the happiness of our citizens. Increasingly it has become about the need to balance the often-competing demands of local and global communities within the contextual frame of the ‘glocal’.

For societies like our own, sustainability comes from the ability of citizens to learn and employ knowledge, acting in ways that promote the aims of just and ecologically responsible forms of economic development. For this reason, we will discuss how the province’s education system can contribute to this sustainability vision by promoting unique approaches to the K-12 and postsecondary system that are tailored to NL circumstances and yet fit within the framework of a global knowledge economy.

Although our province has made many gains in recent years in terms of advancing basic literacy and numeracy, high school completion and postsecondary attendance, significant challenges remain in terms of Aboriginal rights, rural accessibility, periodic unemployment, ongoing outmigration and issues related to diversity, democracy, socioeconomic inequality, and ecological sustainability. Here, then, we will explore educational approaches that can help to create a more just and prosperous future for Newfoundland and Labrador (NL) during a time of economic challenge and increasing political discontent. Memorial University’s Faculty of Education’s mission statement highlights the importance of education in improving the human condition. To that end, education aims to support such goals as economic development, ecological sustainability, civic awareness, scientific literacy, as well as the pursuit of cultural, artistic, and historical knowledge.

How to Cultivate an Environment of Sustainability?

While education is increasingly seen as being indispensable in the modern world, it no longer guarantees a job. However, it does provide people with the opportunity to develop the attributes or transferable competencies to live a better life. Prime Minister Trudeau states that investing in education to “enable people to learn, think, and adapt” is essential to improving their lives (Trudeau, 2016). People have come to see formal education as an ongoing lifelong process rather than a life stage that precedes a single stable career. Education enables people to better navigate the world of work, and to be better prepared to adapt to an ever changing and unpredictable job market. It provides opportunities to develop such transferable competencies as, the ability to be flexible, to think creatively and critically, to problem solve, to cooperate and work well with others, and to work independently. This trend toward lifelong learning, consistent across the modern world, arises as a result of such factors as changing demographics, the expansion of global markets, the growth of the knowledge and service economy, technological advance, and rapidly rising postsecondary attendance rates.

A number of changes over the past several decades have shifted the nature of education. Online technologies and mobile technologies have given us a new ability to control the time and place in which learning occurs, and they have also dramatically reduced the challenges posed by geographical isolation in our province, opening our society to a globalized world and erasing many of the disadvantages of low population densities. But these technologies have also been disruptive: they have a Janus face. They make possible such things as online learning, the exposure of government corruption, and the brutality of military regimes, but they can also be used to disseminate hatred and to bring together those who are invested in extreme movements. They challenge our schools, universities and colleges, since the ability to experience life “on demand” has drastically shifted student expectations regarding educational delivery and participation.

Unfortunately, the dominant approaches offered in our postsecondary education system can also be problematic. Educational offerings have been required, simplistically, to mirror the needs of labor markets and enable students to obtain skills and credentials that will lead to better jobs. Fortunately, through Memorial’s Teaching and Learning Framework (Memorial University, 2011), this formula is beginning to alter the focus towards the overall growth of the student and the graduating student attributes they obtain throughout their education journey. This is an important shift: it recognizes the ever changing labor market, the global economy and the broader competencies required by

students in order to navigate such a challenging world and to be the change agents of the future. Thus, while students learn a specific “content area” during their time at university, they also develop competencies that will allow them to thrive in many aspects of their life after graduation – such as organizational, communication and leadership skills.¹ More work is needed to help students recognize and further develop these graduating student competencies, but this is an important initiative in the drive for a more sustainable future at the postsecondary level.

It is important for our postsecondary graduates to be aware of their transferable competencies and how they can be of use in multiple ways, but this is not enough. If we want to plan for a sustainable future, then the competencies needed to foster change through our graduates must begin in the K-12 education system. From a young age our K-12 students’ transferable skills need to be nurtured and given opportunities to develop through experiential learning in the classroom and the global community. They need to be provided with opportunities to use and further develop creative thinking, critical thinking, and problem solving skills, to be encouraged to make mistakes, to think “outside the box”, and to have opportunities to test their ideas and see how classroom learning applies in real life. In other words, school is not just a place, it is a way of facilitating shared inquiry and critical curiosity so that our students learn to ask meaningful questions and to listen to others.

Such an innovative learning environment requires the support of administrators, teachers, counselors, school boards and the department of education. As well, Memorial’s Faculty of Education has a key role to play in fostering this environment in its graduate and undergraduate education programs. This is the foundation that will help to develop the innovators, visionary leaders, and entrepreneurs who will help to create a sustainable post-oil future. To do so we need to realize that education is not so much about consuming content as it is about learning to ask the right questions. The educators of tomorrow should be leading learners and facilitators who can spark imaginations by drawing on insights and ideas from across the disciplines.

¹ For related research/information also see <https://www.mi.mun.ca/departments/officeoftheassociatevice-presidentacademicandstudentaffairs/careerintegratedlearningproject/>

What Type of Initiatives?

The “problem of oil” is generated by our dysfunctional idea of economic development and our indifference to the sustainability of the environment and to the workers that are often uprooted from their communities because of the boom and bust cycle of resource commodity industries. Oil is also a commodity that relies heavily on a massive industrial infrastructure that is tied closely to the production of goods and services, our food, building materials -- almost every conceivable aspect of modern life. What we need now is not an abrupt shift, but one of gradual change that discounts the value of carbon fuels and slowly allows new alternative energy infrastructures to grow and take hold. In this context, there are a number of initiatives that we in education can focus on now in order to move us towards a sustainable future. We describe these below.

Economic diversification

The past decade in NL has emphasized the importance of economic diversification away from our dependence on oil-related revenues, a dependence that has been reflected in college and university programs centered on producing technically-skilled workers for the oil and gas industry. Now, while public education in the K-12 system can continue to promote achievement in the sciences in general, it can also provide a well-rounded education for citizens who will need critical thinking skills and adaptability in a rapidly changing world. Likewise, the postsecondary sector will need to place emphasis on encouraging entrepreneurship and collaboration across disciplines, and also with industry. Funding diversification can be difficult, but perhaps it is time for us to think about creating a sovereign wealth fund to ensure that everyone benefits from our shared resources and that we continue to invest in researching innovative and sustainable solutions to some of our most long-standing economic challenges. As the Norwegian example illustrates, these types of investments encourage decision makers to take a long term outlook on economic development, and, more importantly, provide a means of coping with recurrent economic down turns that have been all too common in an era of global markets and resource-dependent economies.

Internationalization

It is important to become informed about best practices around the world and how they might relate to NL including, for example, what we can learn from regions such as Scandinavia, which has world-leading examples of innovation sustainability. Curiosity drives innovation, and curiosity about what is happening in the world around us can be instilled at an early age through education. Internationalization also includes attracting

and supporting highly-trained individuals from other countries who can be a part of our innovation teams (see Section 3.3 Immigration: Necessary for Newfoundland and Labrador to Thrive Post-oil). At the same time, the youth of our province need to become more aware of, and better understand, other cultures. Some international students at Memorial visit schools across NL and share information about their culture, while some students from NL go abroad and learn about other cultures around the world. These programs should be further developed to ensure the majority of our provincial youth have meaningful experiences with other cultures and countries. Furthermore, responding to globalization ethically requires that we ask ourselves how our students can become leaders in the ongoing struggle against poverty, environmental degradation, and human rights abuses across the globe.

Indigenization

Aboriginal history is very important both in NL and in Canada: we need to know more about it, and respect and value it. The *Final Report of the Truth and Reconciliation Commission of Canada* (see www.trc.ca/websites/trcinstitution) speaks to the importance of our Aboriginal heritage and how it needs to be recognized and honored. One way to support Aboriginal Peoples as they seek to empower themselves is to ensure that their culture and ways of knowing are represented in our training, teaching and learning programs. Providing K-12 and postsecondary students with insights about aboriginal and other cultures from both inside and outside Canada, provide them with a different lens through which to view the world and to approach and solve problems. For example, we have much to learn from students in Labrador who are more in tune with their connection to the earth and environment than are urban, and some rural, people. We all need to understand that we are citizens of the earth and what we do to the earth has consequences. Memorial University is working with stakeholders in the province as well as with our partners through the University of the Arctic to support our students to engage in topics related to Indigenous Affairs including environmental protection, governance, cultural heritage, economic development, education, social justice, health and language retention.

Social Justice Institute

Educators at all levels have demonstrated an increasing awareness of social justice issues related to global inequality, racism and discrimination of all kinds, including those based on race, gender, sexuality, place of origin and physical or mental disability. Educationalists have a responsibility to continue to expand this awareness in their students, in the hope that it will show in our actions and the wellbeing of all people:

healthy relationships will become a priority. The need to focus on relationships and listening to other people should be reflected throughout our education programs -- from our instructors who work with educators to our educators themselves -- so that they can promote this philosophy and create spaces in which both to listen to students and learn through experience the value of 'relationships first'. There is a clear need for an independent organization in NL that can serve as a center for those interested in using education to ameliorate inequality and to promote the awareness of civil liberties and human rights. Coordinating such efforts and sharing resources can be difficult, but these issues are of pressing importance, given ongoing issues raised by Aboriginal peoples in relation to recent development projects. A Social Justice Institute at Memorial University, or in one of the province's colleges, could provide leadership in social justice research, and enhance public awareness of pressing social justice issues. Such an Institute could also host visiting scholars and activists to encourage local interest in specific topics of concern that are related to sustainability, globalization, and deepening inequality.

Innovation

The Scandinavian countries and Iceland are North Atlantic rim countries that have prospered while facing very similar challenges to those we have here. In those countries, we often see a significant emphasis on experimentation and innovation in the realms of business and social policy. Like them, rather than simply using our education system to produce students who are tailor-made according to labor market requirements, we need to teach students how to use their skills and knowledge to become leaders and risk takers in their own communities. Public schools and postsecondary institutions can use successful examples of innovation as demonstration case studies, and create experiential learning activities that help students to become aware of the importance of problem-solving and innovation in creating positive change in their communities. As well, diploma programs related to innovation, and courses in innovation, could be a part of the university experience. Too many of our educational initiatives are state-driven, built around governmental policy-making. Our future needs to become more localized and more integrated in wider society if it is to reflect the distinctive possibilities and opportunities inherent in the networks of NL local communities that are connecting to each other and to the larger world.

Green Energy Crown Corporation

There is significant potential in our province in the area of alternative energies including wind, micro-hydroelectric dams and tidal power, geothermal and solar energy. Rather than investing great quantities of public funds in large scale and high-risk mega-projects,

smaller scale projects with an emphasis on innovation and experimental design will help our province to become energy-independent and even export local technology and expertise worldwide. This will potentially help many rural and remote areas but, along with online technologies, it also holds great promise as a model for financial sustainability for many smaller centers. Universities and colleges will be key to helping start such alternative energy initiatives and subsequently using these sites for research and active learning. Our schools, universities and colleges should highlight these types of projects, provide training in alternative energy production, and invite students to think about energy production and distribution in a wider context, considering the varying needs and changing circumstances of specific regions and their (and our) underlying economic constraints.

Digital technology

Online learning is a powerful tool but it can become a highly modular, transactional, passive, and detached form of learning. Educators at all levels need to give students skills that will allow them to learn to shape online environments. They can do this by teaching them basic coding skills and information literacy. Blended learning holds great promise in this regard since it combines aspects of the inter-active, situational, and immediate experience of face-to-face learning with the convenience and self-directedness of its online counterpart. We also need to think about how we can improve public dissemination of our curriculum, as well as information about research programs and findings that have significant local value, perhaps by creating a public online learning repository that is associated with a research institute focused on sustainability and the environment. It is also important to support these types of initiatives with explanatory sessions and face-to-face interaction between experts and the broader public throughout the province.

Sustainable democracy

At the heart of this renewed vision of education is the idea that citizens shape the political and economic landscape by being critical, knowledgeable, and active in public life. It also entails an awareness of the importance of minority interests and rights and the need to create and maintain a wide-ranging public engagement with our most pressing policy issues. Towards such an end, education at the public school and university level must do a much better job of promoting our collective awareness of basic legal rights and accountability mechanisms with respect to the day-to-day operation of government. Promoting basic legal knowledge about public access to information and rights like freedom of expression is crucial if we are to ensure governmental accountability through

active public debate. Collectively, all of these measures can help to ensure that our democracy does not disregard the key environmental and other challenges including the rights and interests of the most vulnerable and voiceless members of our society and does not overlook opportunities to effectively address these challenges.

What Type of Education? (Practical Examples)

Traditional forms of education emphasize knowledge transmission and retention, are highly individualistic, and often separate subject areas into discrete disciplines studied in isolation from real world contexts. Schools, in other words, are remote from real life and students are taught to passively accept the curriculum, without really thinking about why (and whether or not) the knowledge they are studying is important. Instead, we need educational initiatives that are more applied, recognize the realities of global competition, but also reject a ‘one size fits all’ approach that ignores the significance of local needs and the transformative power of innovation. To fully harness the possibilities inherent in an inclusive society (see Section 1.4 Vision for an Inclusive Newfoundland and Labrador) of continuous learners we need to more fully and effectively integrate informal and formal ways of producing knowledge.

To accomplish this, we need to think about how to break down the traditional barriers between and within colleges, universities, secondary schools and the community, so as to ensure that we are maximizing our existing resources and our opportunities for collaborative research and learning. Within our own Faculty of Education there are a number of projects/structures that reflect the importance of interdisciplinary collaboration and applied learning (e.g., The Great War project, STEM, STEAM, the teaching and learning framework project, the Labrador Institute, Relationships First: Restorative Justice in Education). These represent an encouraging tendency to expand the notion of academic work beyond the walls of academe, combining teaching, research, and community engagement in ways that generate powerful synergies for teachers, students, and community partners. Many also utilize applied knowledge in social contexts and have a clear social justice dimension. However, such initiatives can only succeed if they are recognized and supported by central institutions and funding agencies with a willingness to incentivize community engagement and applied learning. Consequently, this type of applied, interdisciplinary approach needs to be recognized as both a teaching tool and a legitimate means of disseminating new knowledge. Clearly, Memorial’s Teaching and Learning Framework is a step in the right direction. Finding ways to further

develop such connections both within and across postsecondary institutions will create powerful opportunities for productive future collaboration and growth.

Conclusion: Recognizing the Power of Difference and Engagement

Education contributes to the development of expertise but expertise is valuable, not as mental ‘property,’ but in its use in helping learners to explore, solve new problems, and to understand the limits of their expertise. Innovation and awareness of the limits of our expertise often come from dialogue and awareness of difference. Difference comes in many forms and in order to learn from them we need to be respectful of, listen to, and learn from them. Our province would benefit from the use of innovative pedagogies and curriculum that can be adapted to unique environments and social contexts, such as a post-oil setting. Finally, we need to teach all of our students the importance of mastering existing knowledge as a means of becoming innovators and trend setters, and to encourage collaboration through team-based applied research and community engagement initiatives that are not limited by institution type or disciplinary interest. This type of active, collaborative, and community-based learning will also involve partnerships with local communities and even international partners in all areas of civic, business and scientific life. These fundamental insights should be reflected in the structures of our education system at all levels.

We need to balance our emphases on civic, ecological, cultural, artistic, and economic aims, and encourage our students to be critical, scientifically literate and highly skilled innovators who shape society while remaining knowledgeable about the kinds of pitfalls that history warns us about. The task may be daunting, but it will help us to recast the present crisis into an historical turning point, that will in future reveal itself to have been an important stepping stone towards a more equitable and sustainable future.

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Iron and Earth East

Iron and Earth East is the Atlantic chapter of an organization started by oil sands workers in Alberta in 2015. Its mission is to help skilled tradespeople – particularly those in the fossil fuel industry – to retrain to be able to take advantage of new opportunities in the renewable energy sector. The first project it has underway is a greenhouse powered by renewable energy designed and built in large part by workers from the oil and gas industries, an example of the kind of work the Organization hopes to help workers transition to. It has been running seminars to help raise public awareness of the vast potential Newfoundland has to produce renewable energy – not just using hydroelectricity but also through wind and solar (see Section 2.2 Renewable Energy in a Sustainable Post oil-Dependent Newfoundland and Labrador in this report). It is also planning a series of workshops across the province to help workers to understand where the opportunities are and how to gain the necessary skills, and wants to build bridges in the province between unions, the government, and industry – both fossil fuel and renewable. Its leaders hope thereby to ensure the necessary policies and programs are in place to encourage a thriving renewable energy sector in Newfoundland and Labrador and across the Atlantic provinces, and that workers whose jobs may be threatened by the decline in the oil and gas industries will be able to make the transition to well-paid secure employment, building and maintaining renewable energy infrastructures for local homes and businesses. For more information see <http://fb.me/IronAndEarthEast>.

Section 4:

Tactical Issues and Strategies

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4.1 State of Insecurity: How Muskrat Falls Threatens Our Energy and Economic Security

Steve Crocker, Dept. of Sociology, Memorial University

In October 2016, the #MakeMuskratRight movement succeeded in temporarily halting the planned flooding of a reservoir for the multibillion dollar hydroelectric project at Muskrat Falls, Labrador.¹ Protests in Labrador intensified and spread across the island following the publication, in June of 2016, of new scientific evidence that showed that the flooding threatened to poison the food chain of Indigenous and settler communities downstream from the project with methylmercury, a neurotoxin which results from the flooding of carbon rich soil (Nunatsiavut Government, 2016). Controversy about Nalcor's management of the project's environmental risks raises questions about the wider vision of energy security and risk – environmental and financial - that justified its construction in the first place.

The Muskrat Falls hydroelectric project was initially proposed as a way to provide a reliable source of clean energy, and a constant stream of revenue for the province into the 21st century. The mega-project will annually generate 4.9 terawatt hours of energy, almost four times more than the province would likely need to meet its future energy requirements. It will run 1220 kilometers of transmission lines capable of delivering power from the interior of Labrador, across the island and south into the American seaboard.² The massive scale of this project was justified by the prospect of selling excess energy over the 'Maritime link' (ML) to Nova Scotia, and on the American 'on the spot' market. Long-term revenue from external sales would eventually cover the short-term mega-cost of its construction. In this way, it promised a unity of financial and energy security.

However, as many critics, including Nalcor CEO, Stan Marshall, have pointed out, it is doubtful that the ML will ever be a reliable revenue source (Boone, 2017). It will, likely, always be cheaper for Americans to buy electricity closer to home. This was already true in 2010 when the project was proposed, but is much truer now with cheaper oil,

¹ For a good summary of the movement's emergence see The Independent.ca's Muskrat Archive at: <http://theindependent.ca/tag/muskrat-falls/>

² Taken from Nalcor's description of the project at : <http://muskratfalls.nalcorenergy.com/>

increasingly cheaper alternative energy sources, the spread of fracking, and the new American political reality of a deregulated energy sector that will be bad for the climate but good for cheap, local American energy.

In the more immediate future, financing the construction of Muskrat's excess capacity for external markets will greatly increase the cost of electricity for consumers on the island, making energy less rather than more secure for many people here. This is because conditions imposed by the federal government on the loan guarantees that finance the project require that the entire cost of the dam be recovered from rates charged for *domestic* supply to Newfoundland's electrical consumers. By Nalcor's own admission, this loan condition recognizes that revenue from the *external* sale of excess energy is so unreliable a source that no private or public institution has enough confidence in it to justify a loan.³ Yet, revenue from external sales beyond domestic supply is the only real justification offered by the government for the mega-size and cost of the project, the corresponding increase it will bring in our domestic electrical rates and the threat it will pose to people living near it. The escalating capital costs of this mega-project have already almost doubled from 6 to 11 billion dollars and are expected to soar even higher. We now have among the lowest electrical rates in the country. When Muskrat Falls comes on stream in 2020 and its costs are reflected in our rates; those rates will become the highest in the country (Boone, 2017).

Even more concerning than the devastating debt is the way in which its financing threatens the energy security of citizens on the island. Two changes in energy policy introduced in Bill 61, the 2012 legislation that authorizes the project, will have an especially troubling effect on our access to energy far into the future.

³ See then Nalcor CEO Ed Martin's response to the question: "Will this agreement [Power Purchase Agreement] be subject to regulatory oversight by the PUB? If not, why not?" "The costs of Muskrat Falls and the Labrador-Island Link are going into electricity rates. Provincial legislation has been established that ensures the costs of Muskrat Falls are going into the rate base without going through the PUB for approval. Nalcor has been clear on this fact from the onset of the discussion on Muskrat Falls. Prior to construction of the project, we needed certainty in financing." (Nalcor Energy, 2014). And then Natural Resources Minister Jerome Kennedy: "It will be necessary to show lenders — and it has been necessary to show lenders and rating agencies — that the rates charged to the ratepayers will be sufficient to cover the costs of the generation and the transmission of Muskrat Falls power, and that the revenue obtained from the rates will flow unfettered" (CBC News, 2012).

Firstly, to ensure the certainty of a revenue stream from domestic customers, Bill 61 gives Nalcor the “exclusive right to supply, distribute and sell electrical power or energy”(Government of Newfoundland and Labrador, 2012) This means, sadly, that *there can be no commercial development of alternative energy here for most of the 21st century because new energy would be in competition with Nalcor’s domestic sale of Muskrat power*. Recently, a visiting researcher from the University of Waterloo investigating the island’s wind energy potential discovered that alternative energy in this province has now become ‘illegal’, as he put it.⁴

Secondly, Bill 61 removes authority to review and set consumer electrical rates from the jurisdiction of the Public Utilities Board (PUB), a regulatory agency that has some autonomy in representing the public’s interest in assessing the cost effectiveness and rate structures of public utilities. Cabinet now oversees the Muskrat project, and sets electrical rates in whatever way it finds necessary to continue to cover the entire costs of the Muskrat Falls project, even as it goes massively over budget.

The Dunderdale government’s justification for removing the project from the PUB’s jurisdiction was that Muskrat Falls was “not just about the rates,” [but] also about things like economic development and government policy.”⁵ Indeed, changes introduced in Bill 61 fundamentally change the way that we think about the state’s role in producing and managing financial and physical risk, and in securing conditions of livelihood for the people of Newfoundland and Labrador.

In this increasingly unpredictable world of global market and environmental forces, we might reasonably look to the state as a device for protecting populations from risks and variation in market volatility, and from the physical dangers of natural and manufactured risks, such as climate change or mercury poisoning. According to this view, the state’s primary purpose is to provide an infrastructure that, in spite of global fluctuations in markets and climate, aims first of all to insure ‘conditions of livability’ such as affordable heat, power, food, shelter, and water for everyone (Butler, 2015).

The new vision of energy governance which informs Muskrat Falls policy, on the other hand, reconceives the state as primarily a business enterprise and sees the publicly-owned

⁴ ‘Essentially against the law’ to develop wind energy in N.L., says researcher’, CBC News, January 8, 2017. Available at : <http://www.cbc.ca/news/canada/newfoundland-labrador/researcher-calls-for-changes-for-wind-power-1.3926183>

⁵ Then Natural resource Minister Shawn Skinner quoted in (CBC News, 2011).

commonwealth of collective resources and political power as a unique financial asset – a reliable revenue stream –that can be leveraged to underwrite loan guarantees and finance highly-speculative partnerships with private sector projects. This ‘financialization’ of the domestic energy supply makes us more, rather than less, subject to market volatility.⁶ It uses the secure legislated revenue stream of our electrical consumption as a means of financing a mega project that is a serious financial risk to our energy security, and a direct physical risk to the food supply, way of life and sovereignty of adjacent populations.

“Big Dams started well but have ended badly. There was a time when everybody loved them. Everybody had them. Big dams are obsolete. They’re uncool. They’re undemocratic,” writes Arundhati Roy (1999). Dams themselves have no political stripe, of course, but the political economy of their mega-financing does, and has been the curse of nations from Afghanistan to Ghana, and from India to Belize (Nixon, 2011) and now Labrador. Sustainable energy in our post-oil future will depend on our ability to free ourselves from the Muskrat model of energy security and direct our collective resources to our protection from, rather than exposure to, physical and financial risk.

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4.2 Fossil Fuel Divestment and Post Oil-dependent Newfoundland and Labrador

Robin Whitaker and Gerard Curtis

In April 2015, a resounding majority of Memorial University of Newfoundland Faculty Association (MUNFA) members at an unusually well attended general meeting voted to support the efforts of the student-led ‘Divest MUN’ to encourage fossil fuel divestment of Memorial University’s endowment and investment funds. At the same time, that majority voted to ask MUNFA’s representatives on the Memorial University Pension Committee to explore similar measures with respect to MUN’s pension funds, and agreed that MUNFA should begin exploring fossil fuel divestment in its own funds/portfolios of fossil-fuel investments.¹ In doing so, they joined a growing international movement united by the belief that current levels of fossil fuel extraction and consumption are unsustainable if we are to have any hope of a livable future.

In this short chapter, we outline the philosophy behind fossil fuel divestment - the phased shedding of investments in fossil fuel companies - and connect it to broader questions about how we can build a sustainable post oil-dependent Newfoundland and Labrador.

Background

It is fitting that MUNFA took its lead from Divest MUN, a group started and led by students at Grenfell Campus, since the international Fossil Fuel Divestment movement grew out of student activism into a diverse constituency of people and organizations. Shortly before we put our motion to MUNFA, the *Guardian* had launched a massive campaign, in conjunction with leading divestment campaigners 350.org, to “Keep it in the Ground.”² Then-editor Alan Rusbridger (2015) explained why he was devoting the last year of his tenure to this issue by saying that he would leave the *Guardian* with “very few regrets”:

¹ The precise wording of the motion can be found in the minutes from MUNFA’s April 2015 general meeting, Retrieved from http://munfa.ca/resources_type/general-meeting-minutes/, accessed 21 August, 2017.

² See: <https://www.theguardian.com/environment/series/keep-it-in-the-ground>

...except this one: that we had not done justice to this huge, overshadowing, overwhelming issue of how climate change will probably, within the lifetime of our children, cause untold havoc and stress to our species.

So, in the time left to me as editor, I thought I would try to harness the Guardian's best resources to describe what is happening and what – if we do nothing – is almost certain to occur, a future that one distinguished scientist [Kevin Anderson] has termed as “incompatible with any reasonable characterization of an organized, equitable and civilized global community.”

As Rusbridger put it, by then, the meaningful debate was no longer about whether climate change was occurring. It was about how governments could forestall the “now predictably terrifying consequences” of climate change; and how to prevent the owners of the remaining fossil fuels - states and corporations alike – “from ever being allowed to dig most of it up. We need to keep them [sic] in the ground.”

At the time of writing, hundreds of major investors have joined this movement and relocated nearly \$5.5 trillion of investments in fossil fuels (GoFossilFree n.d.). They include religious institutions, charitable and for-profit foundations, pension funds, social justice organizations, universities, and governments. Of particular interest to us in Newfoundland and Labrador, given the North Sea parallels, in 2014 the University of Glasgow became the first European academic institution to commit to full divestment from fossil fuels (University News 2014). In 2015, the Norwegian parliament voted to divest its Sovereign Wealth Fund of investment in coal companies (several large pension funds in Norway have relocated their monies away from *all* fossil fuels, including oil).³ Remarkably, in January 2017, the Republic of Ireland committed to rid its Strategic Investment Fund of coal, oil and gas investments, making it the first country to divest fully from fossil fuels (Osborne 2017). The next month, the Université Laval in Quebec – whose administration had already been working to become a carbon-neutral campus – also committed to the full divestment of its endowment fund holdings in fossil fuels (Carleton 2017).⁴

³ See: <http://www.divestnorway.org/>, accessed 12 March 2017.

⁴ See also <https://350.org/press-release/universite-laval-divests-from-fossil-fuels-responses-from-across-canada/> accessed March 8th 2017.

Why Pursue Fossil Fuel Divestment?

The main arguments for fossil fuel divestment hinge on financial considerations, legal duties, and ethics. To start with finances: the divestment movement gathered momentum when Naomi Klein and Bill McKibben looked at research by the Carbon Tracker Initiative (CTI: n.d.) that identified the threat of a carbon bubble akin to the housing bubble that was so central to the global financial crisis of 2008/09. That is, real limits to the amount of carbon the atmosphere can absorb mean that fossil fuels may be significantly overvalued, posing the threat of another market crash.

As Klein and McKibben point out, the CTI research was produced for corporate investors, which should ease fears that divestment will lead to financial disaster (McKibben 2012). Instead, over-investment in fossil fuels may ultimately pose a much greater financial risk. In fact, index-aggregating companies such as MSCI - which provides overviews for fund managers - and key economic figures, such as Bank of England Governor Mark Carney, have been warning investors and insurance companies for several years of the financial imprudence of assuming that fossil fuels are a safe investment. Meanwhile, major investment groups HSBC, Aviva and Standard Life are all concerned about the risk of fossil fuel reserves becoming “stranded assets,” assets that have to be abandoned before they reach their expected economic payout (Stranded Assets Programme 2013).⁵

As a 2015 research report by the law firm Koskie and Minsky elaborates, legal responsibilities and loyalty of duty compel Trustees to consider the impact of climate change on pension funds (Gold and Scotchmer 2015). In January 2017, OPTrust, one of Canada’s largest pension funds representing 18 billion dollars of pension fund investment for 87,000 Ontario provincial employees, completed a full analysis of the impact of climate change risk to its funds. A major conclusion of this research was that the entire investment industry should standardize reporting on carbon exposure.⁶

So from a purely financial perspective, investors, including pension fund managers, have a fiduciary obligation to address the risks of over-investment in fossil fuels. In much the

⁵ Increasing numbers of fund managers now specialize in such shifts of focus and advise investors on the possible liability of investing in areas like co-mingled fossil fuel funds.

⁶ See: OPTrust (2017) “Climate Change: Delivering on Disclosure,” and other reports, Retrieved from <https://www.optrust.com/AboutOPTrust/News/OPTrust-Proposes-Action-on-Climate-Change-with-Release-of-Position-Paper-and-Portfolio-Climate-Risk-Assessment-Report.asp>, accessed March 8th 2017.

same way, as contributor after contributor to this Report points out, governments have a responsibility to diversify their economies and their investments so as to reduce the risks of over-reliance on a single industry sector. As such, even if they are not deeply concerned about the environmental consequences of climate change, people, organizations, and governments should see the benefit of economic diversification.⁷ Such diversification includes the development of renewable energy sources that, as Andy Fisher's chapter indicates, are particularly rich in this province.

However, these economic arguments for divestment and diversification cannot be divorced from the moral imperative that derives from the risks climate change poses to current and future generations. The CTI research is based on devastatingly simple math. It calculates that fossil fuel companies, and countries that act like fossil fuel companies, currently hold in reserve five times as much fossil fuel as we can burn and still have a meaningful shot at keeping global warming below the critical threshold of two degrees Celsius – and they are looking for more oil.

The problem takes on extra urgency when we consider how far we are on our way to the two degrees Celsius limit already, as research by NASA demonstrates.⁸ The World Health Organization (WHO) has identified climate change as a major threat to human health, particularly to the poorest populations (WHO/ UNFCCC 2015), estimating that it will cause an additional 250,000 deaths per year between 2030 and 2050 (WHO 2016). Meanwhile, the effects of climate change are already putting Newfoundland and Labrador communities (e.g., Harper et al. 2012; Cunsolo et al. 2011; Wolf et al. 2013) and industries (e.g. Mullooney et al. 2013) in harm's way, and as noted in Tarasov and Finnis' contribution, the future could see much more serious climate-related problems for this province.

Governments and corporations are increasingly likely to find themselves in court for failing to act on the known damage from climate change. In June 2015, the Dutch environmental group Urgenda won a landmark climate change lawsuit when the Hague District Court ruled that, in order to meet its constitutional duty of care to the living environment, the Netherlands must implement a 25 per cent reduction in greenhouse gas emissions based on 1990 levels, over the following five years. (This time frame matches

⁷ Also see: "Editorial: Politics of Climate Change Belief." *Nature Climate Change* 7(1) (4 January 2017). Retrieved from <http://www.nature.com/nclimate/journal/v7/n1/full/nclimate3198.html>, accessed 7 February 2017.

⁸ See: <http://climate.nasa.gov/>, accessed 7 February 2017.

what Divest proposes for the fossil fuel disinvestment of pension funds: a reasonable phasing out, rather than an abrupt withdrawal.) Even as the Dutch government appeals the verdict, it has led to new policies aimed at reducing emissions and reinvigorated Dutch environmental activism. It has also inspired citizens and environmental groups around the world to initiate court challenges against their own governments.⁹ Meanwhile, the Conservation Law Foundation is suing Exxon Mobil for damages and penalties, and the oil company is also under investigation by the Attorneys General of Massachusetts and New York for lying to investors and the public about its prior knowledge of climate change (Caplan 2015; Goldberg 2016).

In this province, Memorial University continues to host research that will contribute to fossil fuel extraction beyond the clearly defined “tipping-point” limits of present reserves. That includes research focused specifically on Arctic drilling technology, despite the particular vulnerability of that environment both to climate change and to more “prosaic” risks, such as those posed by oil spills (Sandlos 2015).¹⁰ If the funding for such initiatives often comes from fossil fuel companies or their industry associates, it is not always a straightforward “donation.” Royalty and Benefits Agreements for specific extraction projects often include funding commitments for research, development, and education. In the case of Hebron, for example, the negotiated benefits include a commitment of \$120 million for research, education development, and training tailored to the needs of the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB).¹¹

The divestment motion passed by MUNFA did not target research funding or particular projects, but it does highlight connections between the fossil-fuel industry and Memorial University. The upshot should be intensified institutional and governmental self-examination about what it means for a public university to best serve the interests of the people of the province. For its part, the provincial government should negotiate for benefits that would fund research into greener energy development, conservation, and the social science of climate change.

⁹ For an analysis of *Urgenda V. Netherlands*, see: de Graaf, KJ and J. H Jans. 2015; also see: Khan 2017; Harvey 2017.

¹⁰ And see: <https://www.mun.ca/research/about/rgcs/mrp/projects/> and <https://www.mun.ca/research/explore/chairs/sponsored-chairs.php>, accessed 12 March 2017.

¹¹ See: http://www.nr.gov.nl.ca/nr/energy/petroleum/offshore/projects/hebron_royalties.html, accessed 13 March 2017.

In a similar vein, public contributions to the Newfoundland and Labrador Hydraulic Fracturing [‘fracking’] Review Panel, including that of Divest MUN, repeatedly emphasized panel members’ moral and legal obligations to include climate change and other environmental issues in their deliberations. Ultimately, the panel’s assessment of the possible risks and benefits of hydraulic fracturing in Western Newfoundland was that, under current conditions - which include the Province’s policy obligations in relation to climate change - a moratorium on fracking should remain in place (Gosine et al. 2016; also see Brake 2014).

In short, the shift to a post-oil economy and society is increasingly a legally- mandated “foresight” responsibility that governments have to protect their citizens. Disinvestment campaigns work to make the public aware of these responsibilities. By seeking fossil fuel disinvestment in a five-year stepped process, they connect the theoretical end of climate-change impact to the material goal of freeing up investment for a greener, and more sustainable energy network in the province. Disinvestment thus acts as an economic counter-weight, pointing to the potential for employment in sustainable energy and protecting subsequent generations against the financial and environmental burdens of climate change.

In this context, disinvestment is not simply a financial decision: it is also a clear moral statement that we will not stand passively by as the damage continues. As academics, we are especially concerned that failure to act in face of the overwhelming scientific consensus means abandoning our students to the environmental and economic consequences of our disregard. While addressing climate change on an individual level can feel overwhelming, collectively, the moral and political clout of the disinvestment movement could be enormously powerful. Similar campaigns contributed significantly to reining in the corporate power of big tobacco and hastening the end of Apartheid in South Africa - which is why the Nobel Prize winner Desmond Tutu’s support for fossil fuel disinvestment is so significant. In short, disinvestment campaigns have worked. Fossil fuel industries are right to be worried.

Isn’t it Inconsistent to Call for Divestment When We All Use Fossil Fuels?

Our reliance on fossil fuels is not just a matter of choice. Through a combination of inaction and design, we have come to live in a world, locally and globally, that is engineered to keep us hooked on fossil fuels. In this province, we not only have little

ready access to clean energy sources but, as Andy Fisher points out in this volume, existing policies discourage their development.¹² Further, multiple contributors note, public transit is woefully inadequate (particularly in the face of intensified suburbanization) while private vehicle transportation is effectively encouraged by public subsidies, and there is little material support by any level of government for such active transportation options as cycling and walking.

Globally, fossil fuel companies pour massive resources into political campaigns that range from tobacco industry-style ‘dirty tricks’ to corporate lobbying against climate regulation.¹³ In the terminology of Peter Benson and Stuart Kirsch, this amounts to fostering a “politics of resignation” that is characteristic of “harm industry”: enterprises that are inextricable from harm to people and the environment. Despite all that we know about the damage entailed, these corporations manoeuvre to make us feel it is futile to challenge their power (Benson and Kirsch 2010). As for the idea that industry is simply giving us what we want, hyper-acquisitiveness is not an innate human drive. As the anthropologist Richard Robbins (2014) shows, it took extensive social and political effort to turn us all into consumers.

So, while we can all do some things to lessen our impact – most obviously, through personal energy efficiencies and carbon offsetting for those who can afford it – voluntary action on an individual level is only one piece of the puzzle. In this context, disinvestment is another tool in the arsenal of harm reduction. It focuses attention not just on our individual dependency, but also on the traffickers who would profit in the short-term by fostering and exploiting that dependency while disavowing their responsibility to reduce that harm.

But Aren’t We Punishing Those Who Can Least Afford It? And Can We Afford It?

Some argue that it is unfair to demand carbon reductions just when much of the world is seeing the benefits of industrial progress. Of course we have a moral obligation to mitigate global inequality, but to say that this requires continuing along the same

¹² Also see the Newfoundland and Labrador Environmental Industry Association policy sheet: “Net metering and feed-in tariffs are policy instruments used successfully in other jurisdictions.” (nd). Retrieved from neia.org/wp-content/uploads/2014/07/POLICY-SHEET-Renewable-Energy.pdf, accessed 12 February 2017.

¹³ For one personal account, see: Wright and Mann 2013.

destructive path is disingenuous and, ultimately, self-defeating. In fact, nations that leapfrog fossil fuel dependency and promote clean energy can enjoy significant economic and health benefits over those getting hooked on greater carbon usage. That said, however, this will have to be a shared project of the global north and south. At the same time, gold-standard carbon offsetting firms are investing heavily in renewables in these countries. China, with its vast economy, is a world-leader in clean energy development. Under the circumstances, we have to wonder why we have so far failed to develop our own wind and tidal energy.

In short, we conclude that disinvestment is based on the idea that it is ethically inconsistent to profit from an industry whose entire business model, as Naomi Klein has said, is grounded in planetary harm. If disinvestment is not the whole answer to the challenges we face as a province and as a species, neither is it an empty gesture. Instead, it should be seen as one part of a wider program for progressive change.

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4.3 A Sustainable Post Oil-dependent Newfoundland and Labrador: The Environmental Perspective

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The first rule of sustainability is to align with natural forces, or at least not try to defy them. ~Paul Hawken

The Context

Today, we face complex and interdependent global challenges of unprecedented magnitude including population growth, growing water scarcity, threats to food security, wastage and increasing demands for energy, and a changing climate. Climate change looms as perhaps the largest threat facing humanity. As noted in the first reflection in this document, climate change presents critical challenges for humanity and, to avoid potentially catastrophic consequences for the world, all countries and jurisdictions must develop policies that avoid a global temperature increase of more than 2 degrees Centigrade during this century.

In 2015, *Sustainable Canada Dialogues* (SCD), a group of over 60 researchers from every province, worked collectively to identify a possible pathway to a low carbon economy in Canada. They produced a Report --*Acting on Climate Change: Solutions from Canadian Scholars* -- that received national and global media attention for its focus on solutions for Canada for a low-carbon future. Potvin et al. (2015: 7) suggested that in addition to putting a price on carbon, Canada can reduce its greenhouse gas emissions (GHGs) by:

1. producing electricity with low carbon emissions sources;
2. modifying energy consumption through evolving urban design and a transportation revolution; and
3. linking transition to a low-carbon economy with a broader sustainability agenda, through creation of participatory and open governance institutions that engage the Canadian public.

Using the SCD document as a starting point for our discussion, our team engaged in an exercise to collectively construct a vision of what an environmentally sustainable post oil dependent NL could look like. We then worked backwards to identify the kinds of perspectives, orientations, skills, expertise and infrastructure we would need to get there. Studies suggest that people view scientific evidence about human impact on the natural environment through lenses that are shaped by their cultural values (Hoffmann, 2105). Thus, to effect any significant sustainability improvements in our province, we will need to shift cultural values towards more environmentally sustainable ones.

What Could an Environmentally Sustainable Post Oil Dependent NL Look Like?

The year is 2050. Newfoundland and Labrador is recognized nationally and globally as a leader in environmental sustainability. We have built on our place-based assets to respond to the complex global challenges listed above. We have mitigated the risks these trends present and have seized opportunities arising from them in a way that is aligned with the natural environment. In a post oil-dependent NL, the way we live and work contributes to social-ecological well-being. We have developed strong governance processes that allow environmental decisions to be made holistically with the participation of various sectors and stakeholders. We have effective, visionary leadership at the provincial and municipal levels to address environmental challenges. We are engaging in more regionally-based forms of decision-making and governance that are attentive to the particular circumstances of the province, including our coastal communities and rural areas.

The NL government has taken a rigorous ‘polluter pays’ approach and has adopted carbon pricing that has created incentives for businesses and individuals to reduce their carbon footprints and seek out sources of green energy. It has also found other ways to improve social well-being while reducing our environmental footprint, including the development of alternative energy sources, and supporting other forms of organizing, such as social enterprises and cooperatives, which seek to address social issues using business approaches, such that social and economic goals are better balanced.

Culturally, there has been a shift in values, away from a culture of over-consumption, low density suburban sprawl, and private car use, towards an ethic of environmental responsibility, well-being, and quality of life. Citizens have strong environmental values and are aware of how the natural environment sustains our communities and society as a whole. Within an effective institutional environment, the behaviour of individuals and organizations supports these values.

People spend more time ‘in nature’, for instance, hiking the province’s many beautiful trails. They also use carbon neutral modes of transportation and passive transportation such as walking and biking, while Metrobus provides functional and appealing alternatives to private car use in metro St. John’s. Homes are smaller and more energy efficient, powered by carbon-neutral renewable energy such as wind power and hydro power, as are businesses. Energy projects have been developed in ways that respect Indigenous rights and downstream environmental health and sustainability, and include a thriving wind-power industry.

More people are composting, and growing their own food, and farmers’ markets that supply local seafood as well as agricultural products, have sprung up across the province. We have developed effective waste-diverting systems throughout the province. Urban planning has created more green spaces, and reduced transportation congestion. Many rural places have been revitalized by industries (e.g. the fishery and tourism) that are environmentally sustainable and support communities. In a post oil-dependent NL, our whole economy is built around industries that capitalize on our strengths, and importantly, we have regulations and practices in place that allow us to not only gain wealth from these industries but to do so in ways that respect and enhance the natural environment. We have found sustainable ways to develop many of our core industries: the fishery, agriculture and nutraceuticals, tourism, arts and culture, and technology. Let us examine each of these in turn.

A Fishery that Sustains Community

We have built a fishery that sets sustainable baselines for quotas, developed using multispecies considerations as part of an ecosystem-based fisheries management and science. Young people are returning to the fishery, creating employment, well-being, and food security in coastal communities. We rely more on small-scale fisheries and our new fisheries are focused more on quality supported by “best practices” fishing rather than on quantity. We process the fish in NL, and we are feeding ourselves as well as exporting high-quality fish to high-end markets, as with Fogo Island hand-lined cod.

Place-based Agriculture and Nutraceuticals

Berries are harvested for personal consumption, using techniques that protect and enhance the environment, public health, and communities, and wild organic berries and berry products are exported. We also produce and export place-branded nutraceuticals (food that contains health-giving additives and has medicinal benefits) to demanding global markets. In addition we harvest

locally a variety of food products that enhance the quality of the food we consume, increasing our food security and reducing the carbon footprint of importing food.

Tourism that Benefits Communities

We are a national and international tourism destination for people who want to experience our stunning and pristine natural environment and the appealing cultural environments of our communities. We have protected our natural and cultural assets despite the overwhelming homogenizing pressures of globalization. This provides us with a tremendous advantage as a unique destination in an increasingly urbanized world. Tourism development is focused on creating infrastructure and amenities that benefit local communities, thereby contributing to community sustainability and well-being throughout the province. Recognizing that the tourism industry can create benefits and challenges for communities and environments, we have developed anticipatory strategies for managing tourism impacts in parallel with promoting the province as a tourism destination.

Arts and Culture

Artists have a way of knowing that the rest of us don't have. They know things from first principles; they interact with the world on first principles. (Zita Cobb, Co-Founder and CEO of the Shorefast Foundation).

Our artists and our cultural industries are thriving and contributing to our cultural tourism industry. Not only are our cultural industries respectful of the natural environment, they also help shape our province's environmental ethic and encourage us to think critically about our relationship with nature and with one another.

Technology Sector

The province, Memorial University and our technology sector have shown leadership in transforming the expertise and skills that we developed in technological research. Development in the oil sector has supported the emergence of a strong presence in technology research and in the renewable energy and other sectors. In addition, we have developed ocean technology expertise that allows us to produce environmentally-friendly technologies. With our abundance of renewable hydroelectric power, we have attracted energy-intensive industries such as data centres that require large amounts of clean energy.

The Kinds of Perspectives, Orientations, Skills, Expertise, Infrastructure, and Institutions We Need

It is not enough for politicians and business and civil society leaders to claim to be bound by the rules of the game, because we humans made up the rules and the game, and we can remake them as we deem necessary for our own good (Kurucz, Colbert & Wheeler, 2013: 254).

An environmentally sustainable NL requires “re-visionary” thinking. We need to be mindful of global trends while being keenly aware of our social and environmental strengths. While looking to the future, we can also learn from the past by “hind-casting” to 50 years ago to pre-oil NL. We need to question the economic activities in which we currently engage. For example, we need to find better ways to do what we do, including how we fish. We need to ask bold questions like *what kind of fishery should we have that would be competitive in the world and sustainable?* We should also decentralize some of our institutions to ensure better decision-making, closer to where the costs and benefits are felt.

We need to develop skills that transform our technology sector (which is tied to oil) and then leverage those skills for other industries in environmentally sustainable ways. We need to attract venture capitalists who are willing to invest in green technology or other environmentally sustainable businesses. The provincial government has a role to play in this.

With our demographic challenges, which include an aging population, and low birth rates, we will need to become a place that is increasingly attractive and welcoming for immigrants. NL already does very well in terms of amenities and quality of life with respect to air quality, drinking water quality, access to outdoor recreational amenities, proximity to wilderness and wildlife, and a thriving arts and culture scene. We can better promote and support these strengths to attract new residents and business ventures to the province.

We also need to overcome challenges such as having a geographically isolated and dispersed population and turn these into opportunities. We will need to make tough choices along the way that may negatively impact some industries and/or communities, such as picking winners. Since resources are limited, we will need to be strategic in how we allocate resources.

There is a large role for public education (including our school systems and Memorial University) to teach the critical thinking and skills needed to build a sustainable future for NL. In the past Memorial’s Extension Service played a key and important role by facilitating community dialogue; to get to a post-oil sustainable provincial economy, Memorial University

will need to play key leadership and collaboration roles in contributing to more environmentally and socially sustainable development pathways. For example, it can facilitate dialogue around how to find a path forward for communities that is respectful of the natural environment. This will allow communities to come together to determine what an environmentally sustainable post-oil future looks like. Such conversations, for example, might include the role of social enterprise in bringing opportunities to rural communities.

We need institutional leadership that eliminates governmental and other institutional siloes in order to cross-fertilize ideas and improve decision-making. We need to create institutional spaces for planning and for conversations across sectors. For example, all stakeholders need to be brought to the table to work together to develop the sustainable fishery of the future. These stakeholders should include all levels of government, the Union, the processors, and others who might have a different perspective on the fishery. Each of these main players has very specific and somewhat selfish interests and they all must be tempered by the needs of the whole province for a fishery that provides for the maximum environmental, social, and economic benefit. Greater engagement across the key sectors we've discussed here – fishery, agriculture, tourism, arts and culture, and technology – will make a vital contribution to better develop landscape-level planning for environmental and social sustainability.

Leadership is also needed to provide incentives for making good decisions while changing pathways that people can live with daily. In the St. John's area, for example, this could include making parking more expensive, encouraging the use of public transportation by, for example, including a bus pass in tuition. This extra income could then be used to improve our transit system.

Strong environmental governance also means having robust environmental protection laws reflecting key guiding principles such as sustainability, equity, public participation and transparency, precautionary principle, prevention. In addition, there needs to be a meaningful role for citizen-led environmental groups in the environmental assessment process.

Finally, and most importantly, we need leadership that will challenge us to reconstruct our values so that we can transform our currently unsustainable systems of production and consumption. We live in a world where we face daunting interrelated problems with population growth, growing water scarcity, threats to food security, wastage coupled with increasing demand for energy, and a changing climate. But if we have the courage to lead, we can turn these challenges into opportunities. Leadership for sustainability requires each and every one of us “to work to understand our major sustainability challenges, to help others in developing a shared

understanding, and to engage people broadly in constructive conversation and action towards the goal of all of us living better lives” (Kurucz et al., 2013: p. x).

We end this thought piece (and these diverse reflections) with the poem *It's the Dream* by Norwegian poet Olav H. Hauge (translated by Robin Fulton) that reflects on building a sustainable future.

It's the dream we carry in secret
that something miraculous will happen,
that it must happen -
that time will open
that the heart will open
that doors will open
that the mountains will open
that spring will gush --
that the dream will open,
that one morning we will glide into
some little harbour that we did not know was there.

<http://www.boloji.com/index.cfm?md=Content&sd=PoemArticle&PoemArticleID=78>

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