

# ENVIRON- MENT & NATURAL RESOURCES

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**NL FORUM 2014**  
PEOPLE | PLACE | CULTURE | ECONOMY | DEMOCRACY



# DR. LESLIE HARRIS

October 24, 1929—August 26, 2008

When the Public Policy Research Centre and the Centre of Regional Development Studies were to be merged in 2004, the idea to name the new centre after Dr. Leslie Harris seemed perfect. Dr. Harris' career and values embodied the contribution that the new centre was intended to make to Newfoundland and Labrador.

Leslie Harris was born in rural Newfoundland, the son of a fisherman, and he never lost his connection to the way of life of the province. He was an avid salmon fisherman and dedicated berry picker. When his health prevented him traveling too far from St. John's, it was his trips to Fogo Island that he said he missed the most. His wife Mary was from Fogo, and they enjoyed many years visiting their summer home there, out on the berry grounds and enjoying, according to Dr. Harris, the best salt fish that could be found anywhere. Dr. Harris' love for and knowledge of the fishery and rural Newfoundland and Labrador were eloquently captured in his many inspirational talks and speeches over the years.

When he returned to Newfoundland with his University of London PhD, he helped design a new history program at Memorial that introduced students to history as a discipline. As he taught it, history was not about remembering names and dates, but it was about interpreting the past, understanding differing perspectives, and reaching your own conclusions.

This intellectual discipline was reflected in Dr. Harris' work as an administrator and as a leader in the province's public policy community. Whether it was as a labour arbitrator, the leader of an historic task force on the fishery, or the head of the Royal Newfoundland and Labrador Constabulary Police Complaints Commission, Leslie Harris was trusted to assess the merits of all arguments and evidence and reach fair and practical conclusions. He brought the same wisdom to his years as a senior administrator, vice-president (academic) and president at Memorial University. Through all his life and career, Leslie Harris personified integrity as an individual and engendered respect for the independence of the university as an institution. These values of integrity and independence have become the guiding principles of the Harris Centre.



# 10 YEARS OF HARRIS CENTRE

BY THE LESLIE HARRIS CENTRE OF REGIONAL POLICY AND DEVELOPMENT

**T**he Harris Centre was born out of a merger between the Public Policy Research Centre and the Centre for Regional Development Studies in 2004. In hopes that this new Centre of Regional Policy and Development would emulate the esteemed character of Dr. Leslie Harris—renowned for his integrity, independence, and relevance—it was named after the former president of Memorial.

In the ten years since, the Harris Centre has sought to live up to Dr. Harris' reputation, holding hundreds of public forums, dozens of regional workshops, and funding hundreds of thousands of dollars' worth of applied research, all pertaining to regional development and public policy in the province, all with the aim of increasing Memorial University student, faculty, and staff capacity to help the province contend with complex issues, and to improve public understanding of the same.

*An immense body of work funded, supported, and otherwise fostered by the Harris Centre has entrenched the Centre as an important part of the regional development and public policy landscape of the province.*

*The decade's worth of work stretching from Nain to St. John's, from the arts to the environment, and all points in between reads like a compendium of bright ideas from some of the most thoughtful and capable thinkers in the province. Always seeking to maintain integrity, independence, and relevance, the Harris Centre has provided a stage for Memorial's faculty's, students', and staff's expertise and curiosity to grapple with some of the most puzzling problems confronting Newfoundlanders and Labradorians.*

*To launch the Harris Centre into its second decade, and to facilitate further substantive public discussions about import-*

*ant issues, the Harris Centre has recruited a team of talented researchers to look back over its first ten years of work, and lead a discussion about where the province and the Centre are headed in the next ten—something we are calling NL Forum 2014.*

*The goal of the NL Forum 2014 is to discuss where we are and where we are going as a province through the lens of where we've come over the past ten years—ten years of unprecedented growth and prosperity—in five important areas: demographic and labour market development, environment and natural resource development, governance and public policy, regional and rural development, and social and cultural development.*

*This is the fifth and final topical report, wherein Dr. Tom Cooper examines the realm of the environment and natural resource development, and considers how our natural resource-based economy can be developed in a manner that is both environmen-*

tally and economically responsible.

The other reports include Dr. Russell Williams and Lucy MacDonald exploring how important decisions are made for the benefit of the province and its communities by all levels of government. Dr. Lisa Kaida and Chris William Martin from the Faculty of Arts (Sociology) assessed the complex demographic and labour market challenges facing the province, and the threat they pose to the province's economic and social sustainability, let alone growth. Dr. Jennifer Dyer examines the Harris Centre works related to the social and cultural development of the province, and provides a clearer picture of the important role culture plays economically, socially, and in relation to the other four themes in Newfoundland and Labrador. Dr. Ivan Emke and Anita Best examine the crucial issue of regional and rural development, something that is top of mind in all parts of the province, and around the world, as people seek to understand how to ensure all regions and all communities are able to

benefit from provincial prosperity, and participate in the development of the economy.

These thematic reports are a synthesis and critical analysis of the content of research reports, presentations, and conferences supported by the Centre—the ideas and issues dealt with across the range of Harris Centre programming since its inception.

Taken as a whole, the five reports will kick off discussion at the NL Forum 2014, a two-day conference that will bring together thought leaders and important decision-makers in the public, private, non-profit, and academic sectors to network and discuss these crucial issues. The issues discussed, the insight gleaned, and the understanding of major, and oftentimes complex, provincial issues will truly form the basis for public dialogue and important decisions for the next ten years. With the governing provincial party in a period of transition, and an election coming shortly on the heels of the conference, these two-days promise to be a watershed mo-

ment in contemporary Newfoundland and Labrador.

Following the NL Forum 2014, international regional development expert Dr. David Freshwater will synthesize all of the lessons learned and insights gleaned from the reports and the discussions, and extract their implications for the future of the province. Dr. Freshwater's report, upon its release in Winter 2015, will be a game-changing document for Newfoundland and Labrador. It will provide a panoramic view of the state of the province now, as well as a well-grounded look ahead to the next ten years in a rapidly changing province, and lay the ground work for the next ten years of work to make the province a better place to live, work, and do business. ▼



# 1 INTRODUCTION

The importance of the environment and natural resource development for the province of Newfoundland and Labrador is hard to overstate, and the works that the Harris Centre has supported over the past ten years reflect this far reaching importance. And while the works Centre supports on the environment and natural resources has predominantly focused on Newfoundland and Labradorian, the high-level purpose, scope and impact of research done in Newfoundland and Labrador, is not limited to the province.

For example, if there is a study of the impact of wind generated energy in Newfoundland and

Labrador, the findings likely will have been focused on provincial policy development, but they could also have an impact nationally and internationally.

On top of this, the environment and natural resources have a broad range of social, economic and environmental impacts that mean these sectors have far reaching implications for many facets of society.

This first part of the report provides an overview of what is meant by the environment and natural resources, as well as engaged scholarship and how these fit with the role of the Harris Center in supporting research and framing policy debates

around these issues in the province. The second part of this report focuses on lessons learned through research and events related to particular sectors that were supported by the Harris Centre. The report concludes with recommendations for how the Harris Centre might be better able to respond to stakeholder concerns in the works they support on the environment and natural resources.



## 2 DEFINITIONS

### 2.1 ENVIRONMENT

It is probably best to understand the environment, in the context of the Harris Centre scholarship, as both the natural and physical surroundings within the province of Newfoundland and Labrador. At the same time, the social, political and cultural circumstances should also be considered when discussing the importance of the environment as a theme of research and engaged scholarship.

### 2.2 NATURAL RESOURCES

Natural resources should be seen for the purposes of this report as the “material substances of a place which can be used to sustain life or for economic exploitation.” (“Natural Resources”) Meanwhile, development points to the exploitation of those resources for economic gain. These

definitions have a number of normative elements that underpin them: the trade-offs between ‘life’ and ‘economic exploitation’; the importance of place; policy questions on should resources be even exploited as well as the impact on the natural environment. Overall, all of these normative elements were well represented in the scholarship reviewed for this report.

### 2.3 ENGAGED SCHOLARSHIP

After reviewing the work supported by the Harris Centre over the last ten years, it is clear that the vast majority of the projects could be characterized as engaged scholarship.

Calls for multisided conversations between scholarly and practitioner communities to broaden horizons and improve lives have been made for some time. (Gibbons et al)

These multisided conversations are best classified as engaged scholarship, described as community-engaged scholarship that bridges the gap between scholarly and practitioner communities. (Sandmann) The Harris Centre is at the leading edge of community-engaged scholarship within Newfoundland and Labrador with its activities related to the environment and natural resources.

Engaged scholarship is important because it opens up inquiry and debate to a broader group of stakeholders than narrowly-focused scholarship otherwise would. Works supported by the Harris Centre are a good example of this, as they have engaged a diverse group of stakeholders in discussions of issues related to the environment and natural resource development. This has ensured that,

generally speaking, the work produced has been easier to read and understand, and its impacts have been well-articulated.

The Harris Centre, through the work it has supported on the environment and natural resources, has engaged a diverse group of primary stakeholders. And this work, by and large, has demonstrated that the environment and natural resource sectors affect a huge number of stakeholders. As a trend, the scholarship that has emerged from the Harris Centre over the last ten years has become more engaged as time has progressed. Moreover, there are specific sectors that always engage a multidisciplinary audience, such as the fishery, while others are predominantly focused on more scientific audience such as the natural environment.



## 3 METHODOLOGY

In order to identify trends, gaps and opportunities, a total of 160 reports, presentations and other items stemming from Harris Centre supported work in the area of environment and natural resources were classified into a number of broad based categories. Natural resources development is an expansive area, I used the classification of natural resources that is broadly followed by the provincial government of Newfoundland and Labrador. Specifically: agriculture, energy, oil and gas, forestry, fisheries and mining. As a result, it is important to acknowledge that there was obviously overlap between the different sectors in some of the items.

Works that are predominantly about the bio-physical environment were categorized separately. In some cases, there was overlap between the bio-physical environment and ones that were focused on natural resource development.

Harris Centre Regional Workshops were difficult to categorize as they often touch on a wide range of natural resource or bio-physical environmental issues. All of these were reviewed and their findings noted. However, for purposes of the classification, the Regional Workshop reports were recorded as ‘broad-based’ to reflect their intent and purpose.

An obvious limitation of this type of synthesis report is that classification is never an exact science. Given the remit to identify trends, opportunities and gaps, I am confident that this was an appropriate methodology to follow for this report.

# 4 FINDINGS & ANALYSIS

**E**ight categories emerged from the review of the 160 reports and presentations of environment and natural resource-related works supported by the Harris Centre. These categories include: agriculture, energy, oil and gas, forestry, fishery, mining, natural environment, and broad based.

The following section provides background information on the sector, as well as analysis of the Harris Centre works on that category, what has been learned from these works, and recommendations for future works.

In all, the division of works according to category breakdown as follows:

SECTOR	NUMBER OF MATERIALS
Agriculture & Food Security	7
Energy	20
Fisheries	38
Forestry	7
Mining	5
Natural Environment	50
Oil & Gas	9
Broad based	24
Total	160

Once again, the Regional Workshops were broad-based and difficult to categorize. As a result, these are simply recorded as ‘broad-based’. Natural

environment, fisheries and energy are far and away the three most heavily covered topics.

## 4.1 AGRICULTURE & FOOD SECURITY

### 4.1.1 BACKGROUND

In Newfoundland and Labrador, 4,000 people are directly or indirectly employed in the farming or food processing sectors [...] Moreover, the value of farm production has grown within the province in 27 of the last 30 years with sales of \$111 million in 2008, while food processing reached \$501 million. (“Agrifoods”)

There are several issues facing the agriculture sector in Newfoundland and Labrador, in particular the impact of rising fuel costs on farm operations, as well as the declining number of farms in the province

(from 558 in 2006 to 510 in 2011), the decline of the area under agricultural production (from 89,441 acres in 2006 to 77,349 acres in 2011), the aging farmer population—whose average age now stands at 55 years old—and sustainable business models and appropriate crop selection. (“Farm Operators”)

#### 4.1.2 HARRIS CENTRE COVERAGE

All of the issues identified above have significant implications for the agriculture industry and for provincial food security, yet the overall number of Harris Centre supported works that contend with this are relatively low compared to fisheries, for instance. Ultimately, increased engaged scholarship and research supported by the Harris Centre could help the industry be positioned for future challenges, and help improve the province’s food security.

As well, in the works reviewed, there were relatively few reports that dealt primarily with agricultural issues. For example, there was one research report on the evaluation of a West Coast Farmer’s markets. Other subjects studied included plant knowledge, provincial food security, agriculture sustainability and school gardens. And, unlike the mining sector, the works reviewed pertaining to agriculture and food security were mostly aimed at a wide audience and conducted through a multi-stakeholder approach.

#### 4.1.3 WHAT WAS LEARNED?

The importance of food security and the agriculture supply chain are issues that will gain increasing importance in the short to medium term future. Some research supported by the Harris Centre over the last ten years addresses these important issues, including fostering provincial sustainable food systems and food security. Moreover, tapping into existing knowledge about agriculture

through research will be essential for the long-term viability of the sector. For example, the report done by Professor Hermanutz on “Intergenerational transfer of plant knowledge in Nunatsiavut” demonstrates that agriculture (especially subsistence agriculture) has an important history in the province, especially in rural areas. It is important to recognize that only recently individuals and communities have moved away from producing much of their own food to relying on industrial supply chains such as supermarkets for their food, which has greatly hampered our food security.

Emphasizing the importance of agriculture was also an important element of some Harris Centre supported works done over the past ten years, including investigating the merits of school gardens in rural communities and how to establish/reinvigorate farmer’s markets and promoting the importance of agriculture to the province. Regional workshops facilitated by the Harris Centre also reflected this interest in promoting sustainable agriculture and food security in the province, especially in rural areas.

#### 4.1.4 FUTURE DIRECTIONS

The interest in agriculture and food-related engaged scholarship exhibited by Harris Centre works reflects a growing interest among Memorial faculty. There is no stand-alone School or Department of Agriculture at Memorial, although Grenfell has recently begun to invest in this area. There are also faculty members who have an interest in the social, economic and environmental impacts of agriculture and food, but their scholarship may not have been reflected in the work that has been supported by the Centre over the last ten years. Part of this may be the specific expertise of faculty members whose research may not translate over to a broader, multi-stakeholder environment. For example, the cab-

bage maggot has many important considerations to Newfoundland and Labrador farming, but the Memorial researchers who study the entomological impacts may not be interested in addressing and communicating their research to a multi-stakeholder audience. Interesting topics, such as the importance of honey bees and their relative strength here as a species versus elsewhere in North America, may lack the number of farms and/or scope of activities to provide an important academic contribution although it may be interesting to a non-academic audience.

Given the decrease in the already low number of farms in the province and the overall importance of food security, agriculture is an area that should certainly be further explored in the future. Potential topics, beyond expanding the current thinking around food security and dealing with the decrease in farming activity, may include: sustainable smallholder land and water management; soil erosion and conservation; entomological issues for a non-academic audience; managing infertile soil; and best practices for agriculture in the North.

With the development of more specific agriculture expertise by the Grenfell campus, this is an area that may be of particular interest to the Harris Centre in the next ten years. We all need to eat. Where the food comes from, how it gets here, as well as how we promote food security in the province are important considerations for the province’s future prosperity and health.

## 4.2 ENERGY

### 4.2.1 BACKGROUND

From an economic perspective, few areas worldwide can match the value of the province’s vast energy resources (electricity and petroleum). (“Energy.”) Newfoundland and Labrador has an abundance of valuable oil, natural gas, hydroelectricity and wind resources, as well as potential energy

from other sources such as uranium, biomass, hydrogen, wave and tidal. (“Energy.”) In terms of electricity, on a per capita basis, Newfoundland and Labrador is one of the largest producers of electricity in the world. The province’s total developed and undeveloped electrical generation potential is 18,000 Megawatts. (“Energy.”)

#### 4.2.2 HARRIS CENTRE COVERAGE

This spectrum of both existing and future energy development, as well as the socio-economic and policy implications of it, have been a rich vein for research and engaged scholarship and were reflected (for the most part) in the works supported by the Harris Centre.

In total there were 20 reports and events supported by the Harris Centre that were classified as energy-related. The scope of these projects is broad: small systems, technology, policy as well as feasibility around energy systems were all considered. The focus of these projects was either technical or policy related.

#### 4.2.3 WHAT WAS LEARNED?

Of the materials reviewed, ten were Memorial Presents forums. From these events, the key themes emerging focused on energy-related mega projects (e.g. Churchill Falls, Muskrat Falls) or the future energy needs of the province—such as “A Prosperity Plan for Newfoundland and Labrador.” These presentations were geared more towards a general audience than a scientific or academic one.

The more scientific works on energy have a substantial breadth in terms of scope and purpose. Topics include: the feasibility of using waste heat, hybrid energy systems, pumped hydro energy storage systems and small-scale hydroelectric power generation. What is most impressive about these is their focus on Newfoundland and Labrador, es-

pecially rural and remote areas. The possible models discussed for rural and remote energy self-sufficiency explored through Harris Centre supported research projects were impressive. Tying some of these different models to policy considerations was also interesting. In particular, the session on “Our Energy Resources: for export only, or also for development?”—which examined a distributed approach to energy production: having a large number of locally-directed, small-scale generation facilities spread across the province—is an excellent example of connecting science to policy development.

Churchill Falls figured predominantly in a session with Dr. James Feehan’s “The Churchill Falls Contract: What Happened and What’s to Come?” focusing on the importance of the Churchill Falls contract historically, now and in the future.

The Harris Centre captured the importance of energy as a policy issue at the Memorial Presents forum “A Prosperity Plan for Newfoundland and Labrador,” which had over 250 people in attendance. Although the panel discussion was wide ranging, focusing on things like how to use the surplus generated by non-renewable resource revenues, it also touched on a number of other policy decisions that were picked up later works supported by the Harris Centre: Muskrat Falls, natural gas, as well as the broader question of provincial economic competitiveness in national and international markets through hydroelectric links.

Apart from these policy (and technical) options, the wider socio-economic impacts of energy were also explored in works supported by the Harris Centre over the last ten years. Mega-projects and the challenges facing resource-dependent economies were dealt with in “Community Resiliency: Navigating Boom and Bust Cycles,” a Memorial

Presents hosted by the Harris Centre in Labrador City about resilience and sustainability in resource-dependent communities.

Further to this, if we look at energy development both as a driver for mega-project development as well as a socio-economic choice, it is possible to see an interesting dilemma emerge for policy makers as well as business leaders. Do we follow the mega-project model without understanding how to manage issues such as dealing with the concerns of Aboriginal peoples or how communities and secondary stakeholders benefit from these projects? Or are there better ways of managing energy development? Such as those exemplified in the session “Our Forgotten Energy Megaproject: Putting Energy Efficiency to Work for Newfoundland and Labrador,” which describes the importance of reducing energy demand and identifies programs in other jurisdictions that were successful in reducing energy consumption. The policy and economic decisions to be made around energy use and development are endless.

#### 4.2.4 FUTURE DIRECTIONS

Energy will continue to be an important issue both as a matter of policy and technology in Newfoundland and Labrador. Specific energy-related topics to consider for the future in order to take advantage of opportunities include: using natural gas that is currently being produced offshore, energy security and access, energy development and climate change, the impact of energy investment, reducing the cost of energy technologies, introducing new models of energy systems, and financing energy development and export.

Some of these topics have already been addressed by Harris Centre supported works over the last ten years. However, alternative energy sources such as tidal energy, wood, peat, methane captured from landfills

and solar energy are also worth exploring. If Newfoundland and Labrador really is poised to be the foremost energy warehouse of the present and future, then future studies will have to be undertaken to ensure we fully understand the environmental, social and economic ramifications of this decision. As such, the Harris Centre must continue to support the exemplary works done to raise important questions about the best approaches to energy use and expansion both from a scientific and policy development perspective.

## 4.3 FISHERY

### 4.3.1 BACKGROUND

The commercial fishing industry remains an important driver in the province, which includes both wild fish and aquaculture, particularly in rural areas. Not to mention the social, political, cultural and ecological significance of the industry, despite it being surpassed by other sectors as the primary economic driver in the province. In 2013, the total production value of the fishery was \$1.1 billion. In that time the industry landed 268,646 tonnes of groundfish, pelagics, and shellfish, and employed nearly 18,000 people in either fish harvesting or processing for at least part of the year. (“Newfoundland and Labrador Fishing Industry Highlights 2012 (Revised) and 2013 (Preliminary).”)

### 4.3.2 HARRIS CENTRE COVERAGE

It was once said that the best way to make money in the fishery in Newfoundland and Labrador is to become a consultant and write a report on the problems that face the sector. Nevertheless, the economic, social and cultural importance of the fishery merits research interest and vigorous policy debate. The impressive breadth and scope of the reports done and supported by the Harris Centre reflects the importance of the

fisheries sector.

Historical and structural issues in the Newfoundland and Labrador fishery have been a predominant theme of much of the Harris Centre supported natural resource-related works. There are both significant challenges and opportunities for studying the fishery in the province, which reflect the full spectrum of natural resource development issues: social, economic and environmental. The fishery as a field is full of opportunities for innovation, yet much of the works reviewed predominantly focused on the problems the industry faces. For instance, the importance of developing international markets for fishery products, as well as the social, economic and environmental impacts of the industry on the province would make for highly relevant pieces of engaged scholarship. Yet these opportunities were not always reflected in the work reviewed.

### 4.3.3 WHAT WAS LEARNED?

In total, the fishery accounted for nearly a quarter of all materials reviewed—33 in all. There was a broad spectrum of work on fisheries related matters: policy, socio-economic implications as well as technically inclined reports, such as “Using otolith stable isotope microchemistry to define different North Atlantic cod (*Gadus morhua*) populations and their migration routes.” Works on the fishery in Newfoundland and Labrador have encompassed the entire history of the Harris Centre from early work done by the late Dr. Art May to recent work done by Dr. Barb Neis on “Moving Forward: Building Resilient Fisheries and Coastal Communities in Newfoundland and Labrador.” What was particularly impressive throughout these works has been the wide range of audience and stakeholders they was aimed at: policy makers, the public, academics.

The fishery as an industry is dependent upon scientific re-

search on stock assessment and the bio-physical ocean environment. The work reflected this, ranging from genetic determination of the uniqueness of Holyrood pond cod and hake populations, to the Atlantic cod population in the Gilbert Bay, to pelagic fish (capelin and herring) research.

Policy related questions were the main focus of the majority of fishery-related work supported by the Harris Centre. It is, however, important to say that the main lessons learned from this excellent policy work can be summed up, as the French would say, with “plus ça change, plus c’est la même chose”—the more things change, the more they stay the same. The excellent report by the late Dr. Art May examining *The Collapse of the Northern Cod* and accompanying public lecture “Rebuilding the Grand Bank Fisheries: An Action Plan,” manifests the deep, critical thinking exhibited in Harris Centre supported works over the past decade. Despite the reports, which were uniformly comprehensive, multi-disciplinary and exemplified engaged scholarship, little has changed in terms of policy in the province.

### 4.3.4 FUTURE DIRECTIONS

Given modest or non-existent changes in policy frameworks and practice, questions then emerge as to whether the Harris Centre should continue to be as actively involved in supporting research on the fishery as it has been in the past. Given the fishery’s importance to the province, especially rural Newfoundland and Labrador, the Harris Centre may not have a choice but to continue its excellent work on the fishery. Yet, if we know all the problems, all the potential answers, and there is a lack of political will to address structural problems, what is the purpose of doing more analysis? What is important, though, is that the engaged scholarship continues to be multi-sided and interdisciplinary reflecting the full picture of what

the fishery means to the province of Newfoundland and Labrador, including the social, economic and environmental nature of what is an important, yet fascinating sector.

## 4.4 FORESTRY

### 4.4.1 BACKGROUND

The province's forestry sector's estimated value for 2009 was about \$250 million for products that include newsprint, lumber and value added products. The industry directly and indirectly employs about 5,500 people in pulp and paper production, sawmilling, woods contracting and other value added enterprises. ("Forestry and Agrifoods.")

There have been significant environmental and economic challenges in the forestry sector recently, such as the closure of the mill in Grand Falls-Winsor. The sector has also experienced mixed economic results over the past number of years. For example, the demand for newsprint has been declining in the United States at a rate of approximately ten per cent per year, dragging North American prices down with it. Meanwhile, the local lumber market has benefited from the combination of a booming home construction sector, especially on the Northeast Avalon, and the high cost of importing lumber from outside the province.

### 4.4.2 HARRIS CENTRE COVERAGE

Despite these issues facing the forestry sector that should be of interest to scholars, there has been comparatively little research completed through Harris Centre supported activities on them. Likewise, there is also an array of environmental issues that are a constant in the forestry sector that have received very little attention from scholars through Harris Centre works. An opportunity exists for scholars to take an innovative approach to studying and analyzing

the forestry sector to ensure that the current benefits of a competitive and sustainable industry are maintained and the industry is positioned for the challenges of the future.

Despite forestry being an underexplored area by Harris Centre supported works, those projects and reports that were completed were of a high quality and comprehensive in scope, breadth and target audience. In total there were seven reports reviewed.

### 4.4.3 WHAT WAS LEARNED?

Dr. Behre's Memorial Presents presentation, "Whose Pine-Clad Hills? Forest Rights and Access in Newfoundland and Labrador," was an example of a comprehensive approach to reviewing forestry issues. As well, Dr. Wernerheim's research project, "Assessment of the net economic contribution of the industrial forestry in NL," examined a range of economic and policy issues in the forestry sector. There was also a Synergy Session led by Peter Milley, a consultant from Halifax Global Inc. "Biomass/Bioenergy: Forest Sector Regeneration?" that reviewed the opportunities for biomass energy emerging from the forestry sector.

Forestry is a valuable industry that has played an important role in the economic history of the province and there is no reason why it could not play an equally important role in the future. How to develop resilience within the sector and an adequate set of policy options in promoting restructuring of the industry are all issues that need to be further explored. Addressing public policy issues to ensure that the sector can survive (and thrive) from an environmental, social and economic perspective was an underlying theme emerging from the Harris Centre supported research to date.

### 4.4.4 FUTURE DIRECTIONS

The relative lack of academic work

on forestry supported by the Harris Centre compared to other resource sectors may reflect the absence of a dedicated forestry department or centre at Memorial over the past ten years. There has been a number of forestry experts, but they lacked the critical mass to make a sustained contribution to forestry scholarship in the province on the same level as the fishery, for instance. However, with the establishment of the Boreal research centre at Grenfell Campus earlier in 2014, this could be poised to change. (Hutchings)

There are plenty of opportunities for future forestry research. For example, Dr. Wernerheim's report identifies trends and opportunities for future work in the forestry sector, especially in the commercial sector. (Wernerheim, Michael C., and Blair Long) However, more work needs to be done on the environmental and scientific aspects of forestry.

Future engaged scholarship could also consider the importance of the environment in forestry and the interaction between it and other natural resources development. A useful lens to guide future engaged scholarship on the forestry sector could be the idea of a sustainable forest that must consider multi-stakeholders interests.

## 4.5 MINING

### 4.5.1 BACKGROUND

Mining, especially in Labrador, represents a very important natural resource sector for the province. A total of sixteen mineral commodities are produced in the province. Six metal mines currently produce iron ore, nickel, copper, zinc, cobalt, antimony, and gold. Other operations mine slate, limestone and dolomite, amongst other commodities. According to the provincial government, mining and mineral exploration companies directly provide high-paying jobs to more than 8,000 men and women throughout Newfoundland

and Labrador. (“Value of Mineral Shipments”) Expenditures by these companies find their way into all corners of the province. The latest forecast is that the total gross value of mineral shipments will be near \$3.8 billion for 2014. This is up slightly from the estimated 2013 value of nearly \$3.7 billion. (“Mining in Newfoundland and Labrador.”)

#### 4.5.2 HARRIS CENTRE COVERAGE

Given its importance, the mining sector should provide a fruitful field of inquiry for engaged scholars. However, there was a relative paucity of activity among the Harris Centre supported researchers that dealt directly with mining and mining related activities. For instance, there were only four applied research reports that had to do predominantly with mining. Most of the reports were aimed at a scientific rather than a broad based audience. For example, Dr. Shafiq Alam’s report “The development of application parameters for the treatment of mine water bodies with severe acid mine drainage pH>3 to promote Biological Polishing a sustainable solution for mine waste water” was aimed at a very specific, scientific audience.

#### 4.5.3 WHAT WAS LEARNED?

Mining has an incredible environmental footprint that requires constant control and monitoring. The work reviewed reflected the importance of the environmental footprint of the mining industry. Whether it was mine water waste, bioremediation of toxic materials, biomass waste or its impact on climate change, the scientific study of mining is an important consideration especially when it comes to environmental issues.

Reviewing presentations and reports from Synergy Sessions and Regional Workshops, the socio-economic importance of mining emerges as being of great importance. Min-

ing provides jobs, develops technical expertise and drives the economy in the Labrador West region, for instance. Strategic issues such as the life-cycle of mines, how to manage the inevitable boom/bust of the industry as well as the development of clusters of expertise around the industry were all issues present in the work reviewed.

#### 4.5.4 FUTURE DIRECTIONS

Given the importance of mining to the province, it was interesting to observe the paucity of reports on the subject. There were no specific research reports or presentations on the economics of mining, despite the importance of the commodity-based price cycle or the socio-cultural implications of mining being provided as part of the some materials reviewed. Exploration and development, the impact of mining on communities, managing commodity-based risks, as well as developing supplier capacity were all issues that were identified in the regional workshops yet did not emerge as research reports.

One of the potential reasons for this lack of engaged scholarship on mining is the structure of the industry. Mining is effectively a closed industry, dominated by insiders—those with specialist knowledge accumulated over many years. While the wider processes and some of the implications from the economics of the industry can be considered by outsiders, the industry is highly competitive and effectively closed to academic researchers. For example, consider the relatively few academic mining centers here in Canada; exceptions obviously exist, such as within the University of Toronto. At Memorial the strength of the Department of Earth Sciences is the understanding and explanation of the scientific basis of geological and mineral formations; this does not necessarily translate into a deep knowledge or even interest in the socio-economic

implications of the mining sector. As well, there may be individual scholars who have deep interest in the mining sector and examining its social, economic and bio-physical impacts but this is not reflected in the research supported by the Harris Centre over the last ten years.

Additionally, at a broad level, it would be advisable to keep in mind the principles espoused by the Federal Department of Foreign Affairs regarding responsible resource development as they apply to Newfoundland and Labrador, which include:

- Improving the governance of mining to strengthen national, provincial, and municipal governments and regulatory institutions to manage the extractive sector transparently and responsibly;
- How to grow mining related businesses and improve local economic development reliant upon mining;
- Methods to enable communities to maximize benefits from the extractive sector to promote inclusive and diversified growth; and
- Consideration of the drivers for development of new and innovative approaches for mining and mineral sector development. (“Natural Resources Management.”)

On a purely logistical note, with the relatively large distances scholars have to travel to engage in mining related research (i.e. there is no mine sitting on the outskirts of St. John’s), the Harris Centre may have to investigate innovative ways of funding such research.

## 4.6 NATURAL ENVIRONMENT

### 4.6.1 BACKGROUND

As mentioned earlier, the environment can be thought of as “both the natural and physical surroundings within the province.” And in the province, there is an abundance of breathtaking natural land and seascapes, which sustain a great diversity of plant and animal life, and are not only the site of much of the econom-

ic wealth of the province in terms of natural resources, but also where many residents live, work and play, as well as a major tourism draw, which is another important industry for the province's economy.

When Harris Centre supported works looked at more purely environmental issues, they have tended to closely follow a similar vision to the Province's Department of Environment and Conservation: "a clean, sustainable environment and healthy, resilient ecosystems in perpetuity for the social, physical, cultural, biological and economic well-being of the province." ("About the Department.")

#### 4.6.2 HARRIS CENTRE COVERAGE

The natural environment is a broad categorization and the works supported by the Harris Centre reflect this breadth. In total, 46 reports could be classified as Natural Environment. The major themes that have emerged include the availability of drinking water, the importance of environmental mapping and how to engage in successful environmental remediation. As in other sectors, some of the works were very scientific, while others appealed to a more general audience. As a rule, the Memorial Presents and Synergy Session forums were aimed at a broader spectrum of stakeholders, while, on the other hand, some of the research reports were very scientifically focused such as the "Composition and deposition of atmospheric reactive nitrogen to boreal forest sites along the NL boreal ecosystem."

#### 4.6.3 WHAT WAS LEARNED?

One of the main areas of focus for Harris Centre supported research has been drinking water. This focus has emerged because of the RBC Blue-water Applied Research Fund, and this research has shown the strengths characteristic of Harris Centre sup-

ported applied research: it is focused on Newfoundland and Labrador, multidisciplinary and stakeholder based. The work on drinking water has been vast. For instance, projects have not only been scientific, but have also included issues specific to Aboriginal communities, the importance of drinking water in rural Newfoundland and Labrador, as well as the social importance of drinking water. Of the 46 projects reviewed that were focused on the natural environment, 14 of them dealt with drinking water issues. And throughout these reports, it is made clear that water is not only a commodity, it is vital for the production of a civil, healthy society. This research is commendable and demonstrates its best approach to engaged scholarship.

Apart from the drinking water, the other materials reviewed on the natural environment were quite diverse and few obvious trends emerged. Another predominant sub-theme was waste management and recycling, stemming from the Harris Centre- MMSB Waste Management Applied Research Fund. This included topics, such as, electronic waste, as well as the use of technology in the development of waste management processes. The intersection between the socio-economic as well as the natural environment also emerged as a subtheme, as did mapping, including marine habitats and ocean beds.

#### 4.6.4 FUTURE DIRECTIONS

Despite the impressive breadth of Harris Centre supported works on the subject of the natural environment, gaps in coverage do exist. Generally, much of the research seemed to be directed towards a narrow, scientific audience. Whereas, the province would stand to benefit from a broader scope of research that might look more in depth into areas such as climate change, as well as specific topics such as coastal erosion, environmental governance and policy

making, oceans and marine ecosystems, and parks and protected areas.

Policy issues surrounding the natural environment will continue to be a major issue due to climate and ecosystem change in the near to medium term future in the province. Thus, Harris Centre supported work, whether it is on ocean ecosystems, citizen science or sustainable planning, will continue to form an excellent base for further exploration.

## 4.7 OIL & GAS

### 4.7.1 BACKGROUND

While it may technically fall within a broad energy category, given the economic, social and environmental importance of oil and gas in the province, it is worthwhile to review this sector separately from the energy sector (which is otherwise focused predominantly on hydro-electricity).

In January 2009, the three currently producing offshore projects—Hibernia, Terra Nova, and White Rose—reached one billion barrels of oil produced. ("Energy.") In addition to these projects, the province recently reached agreements for expansion of the original Hibernia and White Rose developments and a new project, Hebron, is progressing with first oil forecast between 2016 and 2018. ("Energy.") This offshore oil production has been driving the economy of the province, and especially the Avalon region, for the past ten years and will continue to do so in the near future.

In addition to oil production, the province also has a strong oil and gas exploration sector. The Jeanne d'Arc Basin has active exploration programs, and in recent years, more companies are exploring the deeper waters of the Orphan Basin, Flemish Pass Basin and the Laurentian Basin. ("Energy.") All of these developments pose technical, operational and economic considerations

that should be of interest to engaged scholars, with more work that could be done on the operational and project implications of the oil and gas sector.

There is also potential for oil and gas development in western Newfoundland, both on and offshore, however it seems any future oil and gas production will depend upon hydraulic fracturing, or ‘fracking’, which is highly contentious and the subject of ongoing public debate. In 2013 the Government of Newfoundland and Labrador announced a moratorium on fracking, and in October of 2014 it announced an independent panel to review the practice and make policy recommendations. (“Minister announces independent review of hydraulic fracturing.”)

As well, given Newfoundland and Labrador’s strategic position on international shipping lanes, there is potential for additional research on the benefits and hazards related to transportation in the oil and gas sector, including the transshipment terminal in Placentia Bay that services the offshore industry. On the negative side, there is the potential for oil spills and other pollutants that may

have an impact on the environment.

Construction and operation of offshore production and onshore processing facilities has also become a significant part of Newfoundland and Labrador’s oil-related economic activity. These include a number large-scale fabrication projects throughout the province, such as those at Bull Arm and Argentia. These projects have significant socio-economic impacts on the province and the specific areas where they take place.

#### 4.7.2 HARRIS CENTRE COVERAGE

Nine Harris Centre supported works were categorized as oil and gas-related, including two technical reports that were aimed at an academic audience—for example “Oil spill preparedness in NL offshore”—and two that were more focused on the social issues—such as “Synergy Alberta – A community engagement success story.” The work on oil spills by Dr. Chen, although aimed at a technical audience, is notable for its being of an especially high caliber.

#### 4.7.3 WHAT WAS LEARNED?

Whether Newfoundland and Labra-

dor is getting its ‘fair share’ of benefit from oil production was a continual theme in the research reviewed and, moreover, was the title of a Memorial Presents forum organized by the Harris Centre. This session was particularly salient to the public policy debates on offshore oil and gas that have emerged within the province in the past decade. Royalty regimes, industrial benefits and legislation are all important issues that emerged and discussed during Harris Centre events. The conclusion that has emerged is that Newfoundland and Labrador is doing so well economically because of offshore oil and gas. The social, economic and environmental multi-stakeholder implications of offshore oil and gas were also well explored by Harris Centre supported work; exemplified in the forum on the 25th Anniversary of the Atlantic Accord.

#### 4.7.4 CONSIDERATIONS FOR THE NEXT TEN YEARS

Despite the work that has been done to date, more is needed that examines the social, economic and environmental impact of the oil and gas sector on the province.



## 5 CONCLUSION

The work supported by the Harris Centre clearly demonstrates the intrinsic interconnectedness of the environment and natural resource development issues. Through the examination of both it is possible to see overlap: both deal with the natural environment; the social, political and cultural circumstances are important to both; and place is vitally important to both—the geographic area as well as the human activity occurring in the region. Given the importance of those three elements, it is essential to further develop our understanding of the importance of natural resources and environment in the context of Newfoundland and Labrador. The best tool enabling us to do so is engaged scholarship.

Engaged scholarship is het-

erogeneous, multidirectional, collaborative, highly participatory, and of service to multiple audiences. (Sandmann) Too often the Harris Centre supported research projects, while generally very high caliber, were in some cases not consistent with engaged scholarship. They were homogeneous to a specific discipline, unidirectional and of service to a limited rather than a broad audience. Traditionally, one of the strengths of Harris Centre programming is that it engages multiple stakeholders, yet this was not necessarily manifested across all of the work reviewed on the environment and natural resources. It's notable, however, that when research projects were more engaged with multiple stakeholders, the overall quality also improved.

A disconnection was also ob-

served between the topics discussed by various stakeholders at Regional Workshops and the research emanating from the Harris Centre applied research funds. Too often ideas and opportunities for further research about the environment and natural resource development emerged from regional workshops but they were not followed up on or further explored by researchers. A more active approach to engaged scholarship by the Harris Centre may address this issue.

The Harris Centre, as Memorial's primary outreach arm, sits in a particularly challenging position between academic rigor and community relevance. And while this challenge cannot be addressed simply by adopting some "magic" conceptual framework, a stakeholder perspective does have potential to frame these

challenges in a useful manner and provide a means for addressing them.

The difficulty with taking a more earnest stakeholder approach in the academic world is that the pendulum-like swings between academic rigor and relevance sometimes lead to unbalanced and even dysfunctional relationships between researchers and stakeholders and can become overly focused on satisfying limited set of academic stakeholders. (Clinebell and Clinebell) The unwanted result can then be that university students and faculty may appear to be generally ignoring local communities in their single-minded pursuit of primarily theoretical academic research so as to generate publications or grades necessary to maintaining academic respectability and accreditation, and for keeping their jobs.

Adopting a more explicit stakeholder approach within the Harris Centre would mean that stake-

holder community considerations could be incorporated into the design, development and delivery of research and scholarship. One important benefit of this would be increased strategic effectiveness for the Harris Centre and increased efficacy of the research projects it supports—both stemming from the more congruent alignment with stakeholder needs and benefits. It is also likely that the Harris Centre’s work on the environment and natural resource development could be made more effective, or at least more relevant, by including dimensions and learning activities connected to and with local community stakeholders.

Essentially, it is about bringing the work of Regional Workshops, other outreach activities and formal academic research into more consistent alignment with engaged scholarship. The future will bring many challenges and opportunities in the

areas of environment and natural resources for engaged researchers, and addressing these will be of crucial importance for the long term impact of the Harris Centre.

The Harris Centre cannot forget that it is a multidisciplinary centre engaged in a wide variety of stakeholders especially in the environment and natural resources. It has moved the bar when it comes to research and engaged scholarship on the environment and natural resources sector, and with a focused, multidisciplinary approach, it can continue to do so for the next ten years. ▽

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