THE LESLIE HARRIS CENTRE OF REGIONAL POLICY AND DEVELOPMENT

SUMMARY REPORT

BAIE VERTE PENINSULA THRIVING REGIONS WORKSHOP

COLLEGE OF THE NORTH ATLANTIC CAMPUS

BAIE VERTE

JUNE 7, 2018

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Introduction

As part of the Harris Centre's Thriving Regions Partnership Process, a workshop was held on June 7, 2018 at the College of the North Atlantic Baie Verte Campus. This event followed from a workshop held in the same place on March 28-29, 2017, during which participants identified the following priority research themes: tourism, community and regional development, natural resource development and food security (report found here: https://www.mun.ca/harriscentre/funding/Baie_Verte_Peninsula_Report.pdf).

The Harris Centre released a call for Expressions of Interest from Memorial University faculty, staff and students to complete research projects focusing on the priority themes. A fund evaluation committee comprised of local and academic members chose three researchers to move forward in the process and attend this second workshop to share information about their projects, gather feedback, develop local partnerships, and ensure that their projects are relevant for the region. This report provides a summary of the research projects being proposed, as well as the discussion surrounding each project during the workshop.

About the Harris Centre

Named in honour of the late scholar and former Memorial University President Dr. Leslie Harris, the Leslie Harris Centre of Regional Policy and Development was established on October 1, 2004. Dr. Harris was known for his integrity and independence, while making a practical contribution to Newfoundland and Labrador. The Harris Centre continues this commitment as Memorial University's hub for public policy and regional development. It links Memorial faculty, staff, and students with the people of Newfoundland and Labrador and supports research, public engagement, and teaching in areas of regional policy and development. Working with all units at Memorial, the Harris Centre builds connections, encourages informed debate and supports collaboration, enhancing the University and the province through mutually beneficial partnerships. Since its inception, the Harris Centre has developed a suite of knowledge mobilization and public policy tools and has increased the university's presence in communities and region across the province.

About the Thriving Regions Partnership Process and this Workshop

The Harris Centre's Thriving Regions Partnership Process is a new program that has taken the place of its Regional Workshop programming that was undertaken from 2005-2016. This new process includes development of more sustained relationships with people in regions throughout the province, as well as dedicated funding for Memorial researchers to complete projects in those regions. Other Memorial units partner on the process with the Harris Centre when appropriate, including Grenfell Campus and the Labrador Institute.

The Thriving Regions Partnership Process is providing an opportunity for Memorial University to work with people on the Baie Verte Peninsula to help promote a thriving social and economic region through the funding of publically engaged research projects in the region. This workshop was held for the entire Baie Verte Peninsula region, which is situated between White Bay and Notre Dame Bay, and is comprised of twenty-one communities along the coast between Purbeck's Cove on the west and Middle Arm on the east (see Appendix A for a list of communities in the region).

A local advisory committee has helped plan and promote this process in the Baie Verte Peninsula region, which consists of people from the following organizations: Anaconda Mining, Atlantic Canada Opportunities Agency; Baie Verte and Area Chamber of Commerce; College of the North Atlantic Baie Verte Campus; Community Business Development Corporation Emerald; Department of Tourism, Culture, Industry and Innovation; Grenfell Office of Engagement (GO Engagement), and the Town of Baie Verte (See Appendix B for the list of committee members).

The Harris Centre and Grenfell Office of Engagement led a Baie Verte Peninsula Thriving Regions Workshop on March 28-29 in order to identify priority research themes for the region, which included tourism, community and regional development, natural resource development and food security (see Appendix C for more details and find the report here: https://www.mun.ca/harriscentre/funding/Baie_Verte_Peninsula_Report.pdf)

Following the workshop, The Harris Centre released a call for Expressions of Interest from Memorial University faculty, staff and students to complete research projects focusing on these priority themes on the Baie Verte Peninsula. A fund evaluation committee comprised of three local and two academic

members reviewed the ten Expressions of Interest that were submitted and chose the following three projects to move forward in the process:

- Assessing Potential for Land-Based Production of Green Sea Urchin Roe on the Baie Verte Peninsula (Dr. Patrick Gagnon, Ocean Sciences Centre)
- Celebrating the Mining History of the Baie Verte Peninsula: A potential tourism mecca (Dr. Derek Wilton, Earth Sciences)
- Development of a Business Model to Help Address Food and Nutrition Security on the Baie Verte Peninsula (Dr. Carlos Bazan, Engineering)

Cohosted by the Grenfell Office of Engagement, the workshop on June 7th included presentations by these researchers on their projects, as well as brainstorming sessions on each project with the workshop participants (see Appendix D for the workshop agenda). The purpose of this workshop was for local community members on the Baie Verte Peninsula to learn more about the research projects being proposed for their region, and for the researchers to gather feedback and develop local partnerships to help ensure that their projects are relevant for the region.

The workshop was attended by thirty-five people, mostly from around the Baie Verte Peninsula. There was an excellent mix of interests, including municipalities; local mining, tourism and fisheries businesses; business organizations; health and educational institutions; non-government and community groups; provincial government; and interested citizens (see Appendix E for a list of participants). Participants evaluated the workshop very favourably, generally agreeing that they were able to express their thoughts and ideas, that they liked the format, that they would like to participate in future follow-up events, that the event met their expectations, and that the research projects are relevant for the region (see Appendix F).

Following this workshop, the researchers will submit full proposals by the end of June, 2018, which will be reviewed by the fund evaluation committee to ensure that they still reflect the original proposals, while incorporating feedback and potential local partnerships from the workshop. If the committee is satisfied with the proposals, the researchers will receive $15,000 each to move forward with their projects.

Research Projects and Feedback

Assessing Potential for Land-Based Production of Green Sea Urchin Roe on the Baie Verte Peninsula

Presentation

Over the past two years, Dr. Patrick Gagnon, Associate Professor with the Department of Ocean Sciences, has designed and carried out research with industry partners from Norway, Newfoundland, and Québec examining suitability of state-of-the-art aquaculture feeds and land-based containment systems for production of high volumes of green sea urchin gonads ("roe", the organ marketed for human consumption). This rapidly evolving research program, so far funded twice by the Natural Sciences and Engineering Research Council of Canada (NSERC) and showcased many times in national and provincial media, yields very promising results demonstrating high potential to produce market-quality roe. This outcome aligns well with the overarching objective of developing an integrated approach for land-based production of high volumes of high-quality roe in only a few weeks. Such intended operational simplicity could create business opportunities and socio-economic development in rural communities of Newfoundland because this approach can be easily replicated.

Proposed project activities and approach: One of the next logical steps in this multifaceted research is to explore feasibility of establishing sustainable, land-based urchin roe production in a key rural community of Newfoundland. Success depends primarily on fulfillment of three operational aspects:

1. Urchins grown in land-based containment systems must be collected in the wild at a size sustaining roe production. Easy access to wild stocks of urchins is necessary;
2. Facility with running seawater is required to house and supply containment systems with sufficient water circulation to maintain urchins in adequate health condition;
3. Qualified workforce is required to manually collect urchins in the wild, transport them to facility, and raise them in containment systems.

The Baie Verte Peninsula, with its 21 communities located along a cold-ocean system highly suitable for development of dense urchin populations, is ideally suited to assess potential for land-based production of sea urchin roe. Proposed Project Activities (PAs) include:

- PA 1) Characterization of urchin biomass (addressing OA 1): Proven scientific diving methods combining diver-acquired video transects, photo quadrats, and quadrat counts, as well as tow-camera systems will be used to quantify distribution, abundance, and size structure of green sea urchin populations in the peninsula. As explained below, this work could be done in collaboration with the FFAW and local fish harvesters and their vessels if there is an interest. Interviews with fish harvesters will provide additional information about areas likely to contain urchins for future assessments;
- PA 2) Identification of suitable facilities and workforce (addressing OAs 2 and 3): Existing facilities with running seawater, or which could be modified to supply running seawater, will be visited/documented and discussed with owners. Interviews with fish harvesters, owners/employees of fish plants, and aquaculture industry stakeholders will create knowledge about locally available workforce. Overall objective is to identify each community's interest and potential for urchin roe production, while gauging level of financial investment required;
- PA 3) Public outreach/education (involving whole community, facilitating PAs 1 and 2): Two presentations to general public will help build confidence and streamline project development. The first one, held at the onset of the project, will introduce the whole community of the Baie Verte Peninsula to project activities and rationales. Themes discussed will include green sea urchin biology and ecology, status of urchin fishery and aquaculture in Newfoundland and abroad, results of Dr. Gagnon's ongoing research in sea urchin aquaculture, and details of PAs 1 and 2. The second presentation, held at the end of the project, will disclose results of urchin stocks assessment (PA 1) and search for suitable facilities and workforce (PA 2).

The project addresses two priority themes that were identified during the first Baie Verte Peninsula Thriving Regions workshop in March, 2018: "Natural Resource Development" and "Community and Regional Development." The flourishing sector of aquaculture in Newfoundland is generally regarded as a means to support rural economic renewal and a timely complement to an unsteady fishery sector. Proposed project activities aim to educate and stimulate communities in the Baie Verte Peninsula turn an untapped marine resource sitting in their front yard into a commercial product creating jobs and business opportunities, fostering socio-economic development through attraction and retention of residents. One key aspect is to engage communities in new cooperation and partnerships that will value and utilize everyone's key material and human assets for the benefit of the whole region.

Dr. Gagnon has no existing collaboration within the Baie Verte Peninsula region, but he is very interested in approaching local fish harvesters, fish retailers, fish plant owners, and aquaculture industry stakeholders to discuss how they could be a part of this opportunity and help the region become a leader in urchin roe production in rural Newfoundland.

Group Discussion

- Local participant: There are sea urchins in the Fleur de Lys area, and there is an existing fish plant there as well. There is a project underway that is looking at harvesting sea urchins with a sucking device.
- Dr. Gagnon: Raking and sucking urchins is illegal in NL, they have to be collected manually. In Bay Bulls, where the urchins have been coming from for the experiments, collection has been very efficient and about 1000 urchins can be manually collected in about 15 minutes. The goal is to get urchins with almost no gonads, and to take them from the barrens area so that harvesting doesn't disturb the surrounding ecosystem.
- Local participant: Can you tell the size of the gonad before opening the urchin?
- Dr. Gagnon: No, but in barrens around NL the GI is always around 3-4%
- Local participant: How much are the gonads worth?
- Dr. Gagnon: It fluctuates seasonally - around Christmas time, when they are in high demand in Japan, it's around $150 US per kg. Instead of exporting them to US where the value added is done, we can ship them straight to Japan from here. It's best to send the urchins live to Japan (but they have to get there in 3 days), or they can be processed here.
- Local participant: How can we ensure that urchins are only harvested from the barrens?
- Dr. Gagnon: It depends on training divers to do so. Would have to make sure that the urchins are not over-harvested.
- Local participant: Is the goal year-round harvesting?
- Dr. Gagnon: Can harvest any time except for February or March because it's spawning season.
- Local participant: Is there a market opportunity? Is the market flooded already?
- Dr. Gagnon: The market isn't flooded at all, there's plenty of room to get in with a quality product.
- Local participant: Anaconda mining and others did a lot of data collection recently about the ocean environment, could some of that data be used to start to assess the urchin stock?
- Dr. Gagnon: Yes, that would be very helpful.
- Local participant: What are the average wages for divers?
- Dr. Gagnon: Not sure, need to discuss this further with people in the region.
- Local participant: What new products could be used from sea urchins?

- Dr. Gagnon: They are used a lot in sushi bars in St. John's and there is a lot of demand from them. However, it's generally not part of the cultural diet in the province.
- Local participant: The roe can be fermented as a form of secondary processing that we could do here to add value.
- Local participant: What is the regrowth rate of urchins after harvest?
- Dr. Gagnon: After the larvae have settled on the ocean floor, it takes two years for them to reach sexual maturity, so there could be several sites that are exploited on different years to allow them to replenish.
- Local participant: The presentation didn't mention that this project is related to food security, as it's not something that is generally eaten here. Maybe there could be public sessions to encourage people to eat roe and get familiar with it?
- Dr. Gagnon: It isn't part of the cultural diet here, but it could be promoted more as a local food source.
- Local participant: What are the predators for the urchin?
- Dr. Gagnon: There are no predators, so that's why they are so abundant and their populations are self-regulated. In Nova Scotia, there have been mass kill-offs due to pathogens from the Gulf Stream, but that hasn't been a problem here and there are no known pathogens or parasites here.
- Local participant: Is Asia the main market?
- Dr. Gagnon: Yes, mostly in Japan, but there is a demand throughout Asia.
- Local participant: What other skill sets/assets (besides divers) are needed?
- Dr. Gagnon: Many skills/assets are needed, as well as any existing facilities (for example, old fish plants)
- Local participant: What value would the shells have?
- Dr. Gagnon: Calcium carbonate in the shells could be used in fertilizer.
- Local participant: What is the feed made of and is it safe for human consumption?
- Dr. Gagnon: It is very safe, it is made of all vegetable products, and there are no animal traces in it.
- Local participant: How many urchins can you include per growing cycle?
- Dr. Gagnon: Each raceway can hold about 1200 urchins per tier, and there can be up to 8 tiers.
- Local participant: What size does a facility need to be to be viable/ideal volume?
- Dr. Gagnon: That hasn't been decided yet, but it will come later after finishing the testing of the feed.
- Local participant: What is the Canadian or global catch volume?
- Dr. Gagnon: In BC it's a different species, but in NL the peak year was 1.9 million lbs.
- Dr. Gagnon: The first piece of research (what the Thriving Regions project will fund) will be to just map the potential, and then it will be up to an entrepreneur to develop a business plan and figure out how to make it a viable project.
- Local participant: How many licenses are available in the region?

- Dr. Gagnon: There are 55 licenses in the province, have to look into how many are being used, where, and how they could be transferred to the region if necessary.

Celebrating the Mining History of the Baie Verte Peninsula: A potential tourism mecca

Presentation

Dr. Derek Wilton has extensive experience in geology and the mining industry on the Baie Verte Peninsula as a Professor in the Department of Earth Sciences. This presentation provided an overview of some of the mining history of the region, as well as how this research will help contribute to the local tourism industry. Modern mining in NL began 154 years ago in 1865 when the copper ores at Tilt Cove were first exploited. In 1875, the copper mine at Betts Cove opened. Both of these mines were the pinnacles of the NL copper mining bloom of the latter half of the 19th century, a period during which NL was reputed to the 6th largest copper producer in the world. A unique aspect of these two mining operations was that they also included smelters for the further refinement of their copper ores prior to being shipped away. Until the start of the Long Harbour hydromet smelter in 2014 by Vale, the Baie Verte mines were the only ones in the province that actually undertook secondary processing. These Baie Verte operations were on the western edge of accessible coastline (just east of the French Shore) and were the first industrial complexes developed in the province that did not involve the fishery.

The Betts Cove mine and smelter operated from 1875-1883, then both were abandoned and the community deserted. The Tilt Cove mine operated from 1864 to 1917, and then another ore body was mined on the opposite side of the community from 1957-1967. The smelters at Tilt Cove were only used for a limited time in the 1880-1890's.

From 2000-2005, as part of the Coasts Under Stress collaborative research initiative project, Dr. Wilton and his students and colleagues conducted research on the Betts Cove and Tilt Cove mine sites and were most surprised to find that remnants of the smelting facilities at both sites remained and that the mechanics of the operations could be partially discerned. The reason for the existence of these artifacts being that there was no cleanup at either site, the remnants were left to fall into rubble. For instance boilers from Pennsylvania are left at Betts Cove, and the crumbled bottoms of the smelter chimneys along with tonnes of discarded slag remain at Tilt Cove.

In researching the smelting operations at these sites they were presented with a major problem in that there are no extant examples of these complexes. This is because everywhere else in North America, the remnants of such facilities have long since been reclaimed. Hence, Tilt Cove and Betts Cove can provide the unique opportunity for tourists and researchers to see the tangible remains of 19th century industrial complexes. And from a provincial perspective, they can provide learning experiences about significant industrial sites that predate World War I which demonstrate Newfoundland and Labrador's history as part of worldwide commerce in the 19th century.

In addition, these communities were both spoken about by two prominent men at that time, James P. Howley and Moses Harvey. These men had views that opposed each other with respect to the two communities, with Tilt Cove representing a traditional English town, which James P. Howley held in high esteem, and Bett's Cove following more of an American model, which Moses Harvey spoke highly of. This could potentially be seen as a microcosm of Newfoundland identity at that time: with one foot in England and another in North America. Dr. Wilton has audio materials documenting both men's thoughts on the two communities.

However, these aren't the only important abandoned mining operations on the peninsula. The earliest known mine on the island is the National Historic soapstone quarry Site at Fleur de Lys, operated by the Dorset people 1600 year ago; which is well documented at the research centre there. The first gold only mining operation in NL opened in 1903 at Goldenville and there are remnants left there in the "woods". The Advocate Asbestos Mine (1963-1981) has left a huge footprint near Baie Verte with tailings piles and mine remnants. The Nugget Pond gold mine (1997-2003) still has a viable mill awaiting more ore. There were also many small ventures such as Hodder Prospect, Traverstown Prospect, and Parrell Showing.

Taken together and using the Tilt Cove and Betts Cove sites as lynchpins, this project will document the mining histories at these locales and develop a viable mining tour of the peninsula. The final products will include a guidebook (with maps), standard story boards at each location, and also the latest in digital techniques such that one stand in front of an artifact (be it a boiler, chimney, mill, etc.) and be able to listen to a detailed description of that site. Academic and general publications will be written to attract attention to the rich mining and cultural heritage of the peninsula. Key to the project will be derivation of an inventory of all remaining equipment, structures, facilities, etc. at each site; in particular Tilt Cove, Betts Cove and Goldenville.

Partnerships at Memorial will sought for this project, including faculty members from Earth Sciences, Geography and History, while undergraduate (BSc.) theses will be commissioned on various aspects. As part of the Coasts Under Stress project, in November, 2005, Dr. Wilton lead a field trip of MUN researchers to the Betts Cove and Tilt Cove sites and they held a public review of their research with the regional development association in Baie Verte. The theme of their public meeting was development of a tourism strategy for Betts and Tilt Cove based on their discoveries. There was great interest in pursuing the opportunities, but unfortunately there was no financial wherewithal available to proceed. Dr. Wilton is hoping this Harris Centre funding will aid in the advancement of a tourism strategy at this time.

Group Discussion

- Local participant: Clay Cove had an innovative way to do mining, in Rogue's Cove there is high-grade ore that's not native to the area, and the in the Fleur de Lys area they had to bring in emergency supplies after the company pulled out. So, there are also other opportunities for inventorying the mining history in the region.
- Dr. Wilton: How many people visit the museum in Tilt Cove?
- Local participants: Several people in the room raised their hands.
- Local participant: Minister Christopher Mitchelmore came down to look at Anaconda, talking about the potential for tourism of the peninsula - there were 1,500 visitors to Tilt Cove last year, so there is potential.
- Local participant: Tourism is now often about giving people experiences rather than just passively viewing something, but those experiences must be clear about restrictions and safety. Are arsenic levels in the surrounding area a safety concern?
- Derek Wilton: Probably not a risk since there's no interest in agriculture in that area, but it could be part of the story for bringing in an environmental component.
- Local participant: Likes that there seemed to be a clear product (Baie Verte Peninsula mining tour) that would be owned by communities in the region - it could also include things like a video that could be shown in schools.
- Dr. Wilton: Yes, that is a possibility. Wants to work with people in the region to come up with the tourism products that work best here.
- Local participant: This is the one project that could touch all of the communities in the region since the mining history is all across the region - could you take some of the approach that was done in the Klondike/Yukon and adapt some of what they've done to do here?

- Dr. Wilton: That is something that can be looked into.
- Local participant: In tourism today, what's trendy is experiential tourism - for example firing the cannon in Lunenburg. Maybe simulating the work that was done in the smelter could be a part of the tourism products. This project should think of the customer and what they want.
- Local participant: Experiential tourism is where it's at. A lot of people travelling today want to experience and take part in things, rather than read a storyboard or a map.
- Local participant: What trails already exist so that people can do hikes that link different mining sites?
- Local participant: What would be the cost of restoration?
- Dr. Wilton: The sites are still valuable without being restored, but people in the region can decide if that is something that should be done to enhance tourism.
- Local participant: What spin-offs will the region get from the tourists? What kinds of accommodations would people be staying in (tents, local accommodations) - if it's only geologists that would be coming, who stay in tents, it wouldn't be a big economic spinoff. Don't make it just a one day tour, because people should stay in the region longer. The East Coast Trail is a good example - we could tie the mining history into hiking tourism, trail systems.
- Dr. Wilton: There would be a demographic that would stay in tents, but there are many different types of tourists that could be targeted.
- Local participant: What is the potential to restore/put back some of the features so an immersive experience could be created for the tourist? There are already talks with ACOA about getting digital displays - the project may want to talk to the person behind it.
- Local participant: Panning for gold in the Yukon - could there be a way for a tourist to chop, polish, and keep virginite?
- Dr. Wilton: That is possible as long as it's not on claimed ground/private property.
- Local participant: There aren't many places in NL where you can hold a gold bar, but it could happen here. The historic tour could be juxtaposed with a tour of Anaconda for a modern mining tour experience.
- Local participant: Could remotely operated vehicles be used to see underwater artefacts in Bett's Cove?
- Local participant: Rambler actually used minerals from Tilt Cove recently, and it's now being looked at by an Australian company. Have to consider if there are future mining operations in those communities, how they could be done alongside mining tourism so it doesn't disturb the attractions.
- Dr. Wilton: With using MUN students in the project, hopefully it will expose people at the university to the Baie Verte Peninsula, especially with the increasing interest in tourism. On an international scale, people working in geology, mining and metallurgy could find the attractions interesting.

- Local participant: The CBDC Emerald has put $2.2 million into businesses in the region, and 27% of that was into the tourism industry.
- Local participant: Is there potential for the gravesites to be part of the experience?
- Dr. Wilton: Doesn't know where the gravesites are, but there could be some sad stories to tell.

Development of a Business Model to Help Address Food and Nutrition Security on the Baie Verte Peninsula

Presentation

Dr. Carlos Bazan, Assistant Professor in Civil Engineering and Engineering Chair in Entrepreneurship, Bennett Newhook, Greenspace Urban Farms and Mechanical Engineering Student, and Hannah Gaultois, Partner Relations Officer at Memorial University's Centre for Social Enterprise, presented on this joint project. Local partnerships have already been developed with Anaconda Mining and the Town of Baie Verte, with Food First NL also being on board. This research project proposes to address one of the priority themes identified in the Summary Report from the Baie Verte Peninsula Thriving Regions Workshop: "food [and nutrition] security." In essence, they define food and nutrition security as the adequate and reliable access to a satisfactory amount of quality and healthy food. Food and nutrition security (or lack thereof) has many implications for the physical and mental health of people who live in remote communities and harsh environments where access to sufficient nutritious food is inadequate. Food and nutrition security is a complex and multi-faceted issue. 84% of our communities in NL don't have a full service grocery stores and rely on local corner stores. The province only grows 10% of its fruits and vegetables and has a three day supply of food across the island.

Designing sustainable solutions to improve food and nutrition security must be holistic, be enabled by traditional knowledge, respond to local needs, and combined with economic development strategies. An all-inclusive approach to food and nutrition security and its compounding effects should comprise assessing country food, store-bought food, local food production, life skills and nutrition literacy, programs and community initiatives, and policy and legislation. This project will primarily focus on local food production by developing a business model for a social enterprise that will help to provide a scalable (and transferable) solution to food and nutrition security on the Baie Verte Peninsula. Memorial's Centre for Social Enterprise is a partner on this project, referring to a social enterprise as enterprises that earn revenue through the sale of goods or services to further social, community economic, cultural, or

environmental purposes; reinvests their profits into their organization; and has a blended return on investment that is both social and financial.

This project will utilize the lean start-up methodology to develop a business model for the social enterprise. The lean start-up methodology provides a systematic approach for managing the development of a feasible business model while affording entrepreneurs with a path "from idea to launch." The lean start-up methodology prescribes an iterative process where problem, product and customer hypotheses are developed and validated in order to minimize waste, time and money during the new product development process while building a viable business. It aims at developing a value proposition for customers in the most efficient way possible in order to decrease risk of failure by continuously testing and modifying assumptions about the market—an approach usually referred to as "build-measure-learn-repeat." Small start-up companies and large corporations alike are currently using the lean start-up methodology. Organizations of all sizes are applying the lean start-up methodology in industries from healthcare to defense, and in places from Silicon Valley to Mumbai. The lean start-up methodology is becoming a pervasive part of entrepreneurial communities but it has not been applied extensively for social innovations. This project will be among the few that will test the applicability of the lean start-up methodology to create a social enterprise.

The technology at the heart of the value proposition has been developed by Greenspace—a student operated social enterprise offering lowest-cost alternatives to urban farming initiatives. Greenspace has recently won the First Prize of the Social Innovation Challenge held in St. John's on May 11-12, 2018. The Greenspace systems are constructed from upcycled industrial materials and housed in used shipping containers. By utilizing these materials, the overall project costs and lifetime environmental impact of the solution are greatly reduced. The systems are highly customizable, allowing for the development of units that can produce a yield at a commercial scale whilst reducing recurring costs. They can utilize hydroponic or soil-based alternatives and can provide a limitless variety of crops. The systems can also be combined in arrays in order to maximize efficiency. The system can use waste resources (for example heat from industrial facilities), as well as solar panels or rain water. Through the utilization of this lowest-cost technology, this project can cater designs to the needs of the community, in order to ensure a higher degree of impact for a far lower cost than other solutions; thus expanding beyond the Newfoundland and Labrador Local Food Seasonality Chart that other agricultural programs provide. Each unit can grow up to about 66 kg of food every 9 days, which is approximately $1500 of potential revenue.

Notwithstanding the primary goal of this project is to provide food and nutrition security on the Baie Verte Peninsula; the possible benefits from the outcomes of this project are numerous and far reaching. That is, this project will help address (indirectly) at least one other priority theme in the Summary Report, namely "community and regional development." For example, the proposed solution to food and nutrition security can provide the opportunity for the lowest-cost, scalable infrastructure development in order to promote health and wellness initiatives and social wellbeing of the region, along with the potential for educational curriculum and intergenerational activities around fresh produce. In addition, this project would remove barriers related to food transportation, allowing for the development of a more sustainable, self-sufficient and local food supply. This project would also encourage connection between the social enterprise and education institutions, with the potential to operate within the scope of the Provincial and Federal Farm to School programming or as a year-round community garden. In addition, Greenspace is working with the Autism Society to create programming to employ individuals on the autism spectrum throughout various stages of the project.

The operationalization of this research project will follow the translational R&D (research and development) model and methodology "From Lab Bench to Store Shelves" developed at Memorial University. The translational R&D model and methodology was proposed to better link science and engineering research to commercial outcomes, i.e., to create a more seamless transition from research to business. It is a structured framework based on best practices in new product development, project management, new venture creation, science of team science, and intellectual property management that greatly improve the likelihood of delivering a product on time, within budget and to specification; hence increasing the odds of a successful product and business launch. The methodology explains how to initiate, plan, execute and close a translational R&D project conducted within an academic institution with the intent of bringing a product to market. Several researchers at Memorial University are using this methodology to design translational R&D projects to turn their early-stage innovations into businesses, or to advance the development of their innovations to the point where they become attractive for others, e.g., industry, to embrace the challenge of developing the innovations further for the market.

Group Discussion

- Local participant: The idea of having fresh fruit and vegetables for mine workers at Anaconda could be a good fit, but what are the power requirements and other factors and costs that are required?

- Mr. Newhook: The biggest input is usually the material cost, which can often be 100% donated by corporate sponsors. Power requirements depend on the lighting, crop, soil vs. hydroponic, etc.
- Local participant: Are any units already in operation?
- Mr. Newhook: Not yet, there has been experimental work at the MUN Botanical Gardens testing crops in similar conditions, and one of the founders has 10 years of agriculture experience. If this is operational on the Baie Verte Peninsula, it will be the pilot project. There are similar companies doing similar units, but they cost $70,000 a unit, which would mean you'd have to grow herbs to get the greatest revenue, or do vertical farming.
- Local participant: Are you looking for non-cash sponsorships as well?
- Mr. Newhook: Yes, they're very valuable because of the materials they can give.
- Local participant: What would be the social enterprise model?
- Mr. Newhook & Ms. Gaultois: That's up to the community/region, and that's what the business model in this project is hoping to develop. The business model does have to retain a non-profit status to get the corporate sponsorships.
- Local participant: Where does the estimate of revenue come from?
- Mr. Newhook: The $1500 per 9 days estimate is based on microgreens, which is applicable to St. John's, but the crop portfolio for this project would have to be tailored to the food security needs of the region. The $1500 in 9 day figure depends entirely on the crops grown and the method - a lot of it depends on microgreens, which have been used for a long time in high-end restaurants, but could be used for all kinds of things.
- Local participant: Fodder/forage for livestock could be an opportunity.
- Local participant: How could the interior setup of the systems be optimized to be efficient and cost-effective?
- Mr. Newhook: The Greenspace team has a lot of skills (hydroponics, design, business) that can be drawn on to ensure that this is the case.
- Local participants and research team: There are many potential local partners in the region: mining companies, schools, seniors groups, food banks. It's a great opportunity for social enterprise, and this could be integrated into curriculum. The units could be integrated into a commercial kitchen at a school or another public institution. There's a new seniors' residence going up in Baie Verte - there could be use of the waste heat from that facility. Mining operations in the area also give off a lot of waste heat from their ventilation systems that could be captured by the units, enabling year-round agriculture.

- Mr. Newhook: Looking for both monetary and non-monetary corporate sponsors. Companies often seek to get rid of used valuables and Greenspace can use these non-monetary donations while promoting the businesses.
- Mr. Newhook: Greenspace is developing a hands-on gardening curriculum based on one developed in New Brunswick.
- Local participant: What about geothermal energy for greenhouse production - there could be a greenhouse/root cellar combination that uses underground piping.
- Mr. Newhook: Greenspace has been talking with an engineer about this idea.
- Local participant: Is funding available? This hits the "Way Forward" government mandate in many capacities so check out the directions and see if it is a good fit.
- Mr. Newhook: TCII and ACOA funding are available, but want to solidify core details before seeking out funding. The MMSB may also potentially have funding available.
- Local participant: Would the shipping container be able to be used for a community mural or corporate advertising?
- Mr. Newhook: Greenspace would appreciate having their logo on it so they can ensure that they are promoting the concept and getting recognition, but want to make sure that corporate sponsorship and community value are also recognized so would be happy to have them included as well.
- Local participant: What inspections would have to be done for food safety?
- Mr. Newhook and Ms. Gaultois: If the food is being sold, Service NL has to do a food safety inspection, the facility has to be certified and people have to be trained.
- Mr. Newhook: There are retraining opportunities for workers who have been laid off, workers with disabilities (for example, partnership with Autism Society, etc.)
- Local participant: There are high-tech urban farming ventures that have everything automated.
- Mr. Newhook: The solution has to be plug and play, it could be digital, but high tech solutions also make the whole system dependent on high-cost computers. A low-cost Arduino systems could be set up instead.

Next Steps

The researchers will submit expanded research proposals by the end of June, which will be reviewed by the Fund Evaluation Committee to ensure that the projects still reflect what was originally proposed, while also incorporating local input and the development of community partnerships. Once the projects are approved, the researchers will receive their $15,000 in funding in July and move forward with their

projects. The researchers will continue to engage with people in the region throughout their projects, and an additional session will be planned when their projects are at or near completion to share results and discuss next steps.

Conclusion

The Thriving Regions Partnership Process is going well in the Baie Verte Peninsula region so far. The workshop local participants seemed very interested in the process, enthusiastic about sharing their vision and ideas for their region, and are looking forward to being a part of the upcoming research and next steps. The researchers were also really excited to engage with people and develop partnerships, as they want their projects to have real impact in the region. The Harris Centre is also looking forward to coming back to the region and to seeing what engagement and partnerships can be fostered through this process.

Appendix A – List of Communities and Populations

Source: CBDC Emerald

		2016	2011
1	Westport	195	220
2	Purbeck's Cove	31	45
3	Middle Arm	474	476
4	Burlington	314	349
5	Smith's Harbour	131	146
6	Seal Cove	303	304
7	Wild Cove	49	66
8	Baie Verte	1,313	1,370
9	Fleur de Lys	244	265
10	Coachman's Cove	105	92
11	Ming's Bight	319	333
12	Pacquet	164	184
13	Woodstock	190	190
14	Nipper's Harbour	85	128
15	Harbour Round	188	212
16	Snook's Arm	10	18
17	Round Harbour	0	5
18	Tilt Cove	5	5
19	Brent's Cove	157	181
20	Shoe Cove	168	161
21	La Scie	872	899
22	Between Communities	49	29
	Baie Verte Peninsula	**5,366**	**5,678**

Appendix B – Baie Verte Peninsula Thriving Regions Advisory Committee

Ken Carter & Marilyn Forward, Grenfell Office of Engagement

Allan Cramm, Anaconda Mining

Scott Dawe, Atlantic Canada Opportunities Agency

Lloyd Hayden & Amanda Street, Baie Verte & Area Chamber of Commerce

Catherine Moss, College of the North Atlantic

Brian Peach, Town of Baie Verte

Darryl Perry, Department of Tourism, Culture, Industry and Innovation

Jennifer Whalen, CBDC Emerald

Appendix C – Priority Themes for the Region

A combination of individual reflection, group brainstorming, and smaller break-out group discussions were used to determine the priority. The below four themes emerged as being the priorities for the region. The descriptions are provide some guidance on what is important to the people in the region within those broad themes.

Tourism

The Baie Verte Peninsula region has a great deal to offer when it comes to tourism development, particularly related to mining, including the Dorset Soapstone Quarry National Historic Site, as well as numerous cultural and natural attractions. There needs to be increased collaboration within the region to fully realize the economic potential of the tourism industry. For a successful tourism sector, the region should better connect with regional and provincial tourism networks. These networks would allow tourism operators to promote the region in a strategic way through shared communications and packaging.

During the workshop, participants recognized that there is a significant need for researchers to help them identify current and potential tourism attractions, sites, and services, as well as their current and potential connections and networks. Research could also examine the tourism potential for the region, taking into consideration both the assets it has and the challenges it faces. Participants also identified a variety of opportunities that could be a starting point for a research projects, including mining tourism centered on the historic and current operations which could potentially make the region into an interesting geological tourism site; cultural and experiential tourism focused on rich arts and craft heritage and the fishing industry; and the development of regional partnerships and tourism products and services.

Workshop participants also indicated they would like to have a better understanding of the amenity and service improvements current operators need to make in order to enhance tourism in the area and meet contemporary visitors' expectations. The participants also identified the need to better understand what kind of regional infrastructure developments would have the most impact on tourism as well as other sectors of the economy.

Community and Regional Development

Like much of the province, the Baie Verte Peninsula is grappling with a declining population residing in dispersed communities. Many of these communities face challenges in providing services and infrastructure, and a regional approach could be a more efficient and effective way for communities to share and advocate for resources. Research could examine current cooperation and partnerships between communities, as well as the potential for increased regional cooperation and governance with respect to various services and infrastructure development. These shared assets would contribute to an overall quality of life in the region, which would help attract and retain residents by providing opportunities for recreation and entertainment, civic engagement, and health and wellness initiatives.

Considering the aging population, making the Baie Verte Peninsula a place where people want to live is imperative for its future development. However, it is also necessary to recognize that seniors are an important part of the fabric of its communities. Workshop participants were especially interested in research that would create opportunities for intergenerational collaboration and knowledge exchange.

They would like to understand how to build and manage a stronger community sector that makes contributions to the economic, cultural, and social wellbeing of the region.

Workshop participants expressed an interest in exploring regional approaches to the delivery of a variety of programs, such as recreational and health services. They recognized that transportation and infrastructure represent major barriers to such regional approaches, and are interested in learning about and exploring various models that would help them meet those needs. One particular area of interest is the development of intergenerational programs that would improve food security in the region through community gardens and improved access to fresh food. The participants indicated they would be interested in projects that help them foster pride in their community and develop amenities and entertainment options for a broad range of residents and tourists alike.

Natural Resource Development

The Baie Verte Peninsula is rich in natural resources that contribute to the mining, forestry, fisheries, and tourism industries. One issue that impacts all of these industries is the availability of a multi-use deep water port in the region. The development of a shared port for all industry sectors could increase opportunities for manufacturing and trade, cruise ship visits, and potential oil and gas related projects, among others. Research could examine the current status of the ports in the region, and suggest ways forward for the development of a shared deep water port.

With the mining industry playing such an important role in the economy, it provides numerous manufacturing, business and education related opportunities. Workshop participants highlighted that there is a need to research and document the current and potential mining operations, support businesses, manufacturing, and infrastructure. Research could also examine how linkages between the mining industry and research, education, and training opportunities could be strengthened to promote the region as a centre of mining expertise. While mining is extremely important, the region must continue to diversify its economy. To avoid the boom and bust cycle, other natural resource related industries need to remain active and grow, including current industries such as fisheries and forestry. Research could examine the role that these industries play in the economy of the region, as well as what future developments are possible.

Food Security

People throughout the Baie Verte Peninsula should have access to affordable nutritious food, and regional approaches to developing a more sustainable and self-sufficient food supply are necessary. One way to move this forward is by growing more food locally on the Baie Verte Peninsula through the development of activities such as commercial agriculture, home-based and community gardening, and local fisheries that are able to supply to residents. Workshop participants noted that research could explore the barriers and identify the solutions to growing or harvesting food locally, including vegetables, mushrooms, honey, fish, livestock, berries, or any number of options. In addition, the size of the local market as well as what would help motivate people in the region to grow, buy and eat local food could be examined. It is also important to recognize that local food production is already happening on the peninsula, and developing an inventory, mapping networks, and exploring successful models of current activities would be beneficial.

There are opportunities for the development of programs and initiatives such as community gardens that bring together seniors and youth organizations to provide fresh produce to the local food bank; ocean-to-plate marketing models; potential land-based aquaculture development; and a cooperative model for

agriculture equipment, infrastructure and farmers markets. These programs and initiatives could all connect with educational institutions at every level throughout their development. In addition, participants noted a research topic of critical importance is determining whether mine tailings would be useful as fertilizer for agriculture and gardening, as they may be ideal and underutilized mineral sources for the development of sustainable fertilizer and food products. Food security in the region is seen as an issue that could potentially bridge all of the other themes that are part of this applied research fund, including the tourism, mining, and community and regional development sectors.

Appendix D – Workshop Agenda

Baie Verte Peninsula Thriving Regions Workshop: Phase 2

College of the North Atlantic, Baie Verte Campus
Thursday, June 7, 2018

Agenda

1:00-1:05pm	Introduction by Amy Jones, Harris Centre
1:05-2:15pm	Assessing Potential for Land-Based Production of Green Sea Urchin Roe on the Baie Verte Peninsula • 1:05-1:25pm Presentation by Patrick Gagnon, Department of Ocean Sciences • 1:25-2:15pm Group Discussion and Brainstorming
2:15-2:25pm	Break
2:25-3:35pm	Celebrating the Mining History of the Baie Verte Peninsula: A potential tourism mecca • 2:25-2:45pm Presentation by Derek Wilton, Department of Earth Sciences • 2:45-3:35 Group Discussion and Brainstorming
3:35-3:45pm	Break
3:45-4:55pm	Development of a Business Model to Help Address Food and Nutrition Security on the Baie Verte Peninsula • 3:45-4:05pm Presentation by Carlos Bazan, Faculty of Engineering • 4:05-4:55pm Group Discussion and Brainstorming
4:55-5:00pm	Wrap-up by Amy Jones, Harris Centre

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Office of Engagement

Appendix E – List of Attendees

Name	Organization
Carlos Bazan	Engineering, Memorial University
Clar Brown	Retired Educator & Former Councillor
Allan Cramm	Anaconda Mining Inc.
Jordan Cramm	Anaconda Mining Inc.
Kim Dempsey	Woman of the Sea Hospitality Home
Winnie Dempsey	Dorset Museum
Judy Dobson	College of the North Atlantic
Marion Fitzgerald	BVPHC Auxiliary & Used Clothing and Food Bank
Marilyn Forward	Grenfell Office of Engagement
Scott Furey	College of the North Atlantic
Patrick Gagnon	Ocean Sciences, Memorial University
Hannah Gaultois	Centre for Social Enterprise, Memorial University
Chelsea Greenham	CRA Leadership
Sadie Hewitt	Town of Westport
Amy Jones	Harris Centre, Memorial University
Juanita Kennedy	College of the North Atlantic
Craig Lewis	Lewis Enterprises
Karen Lilly	Central Health
Brennan Lowery	Grenfell Campus
Bennett Newhook	Greenspace Urban Farms
Deep Patel	Engineering, Memorial University
Brian Peach	Town of Baie Verte
Shannon Pinsent	Adventure Central Newfoundland
Peggy Randell	Town of Westport
Jonnie Ricketts	Baie Verte and Area Chamber of Commerce & Grenfell Campus
John Stead	Town of Pacquet
Amanda Street	Baie Verte and Area Chamber of Commerce
Ellis Stuckless	Retired Teacher
Joy Walsh	Town of Fleur de Lys
Brian Warr	Member of the House of Assembly
Jennifer Whelan	CBDC Emerald & DTTA
Michael Wheaton	Eastern Fish Markets
Wayne Wheaton	Eastern Fish Markets
Ryan White	NLESD & Town of Baie Verte
Derek Wilton	Earth Sciences, Memorial University

Appendix F – Evaluation Summary

Baie Verte Peninsula Thriving Regions Workshop Evaluation Summary
Baie Verte, June 7, 2018

Participants provided a scoring of 1 to 5 for each of the below questions, with 1 being strongly disagree to 5 being strongly agree. The average score given to each question is provided.

Total number of attendees: 35
Number of forms filled out: 18
Response rate: 51%

Question	Average Score (Out of 5)
The promotional materials for this workshop accurately described its content	4.4
There was sufficient time provided for discussion, brainstorming and networking	4.5
I was able to express my thoughts and ideas throughout this workshop	4.7
I liked the format this workshop used (presentations, group discussion, etc.)	4.6
The research projects that were presented are relevant to the Baie Verte Peninsula	4.2
I would be interested in speaking further with one or more of the researchers to provide input or become a partner on their project(s)	3.9
The workshop increased my awareness of how Memorial University and community members can work together	4.3
I would like to attend future sessions that are part of the Baie Verte Peninsula Thriving Regions Partnership Process	4.6
Overall, this session met my expectations	4.6

How did you find out about this event? (Please list all that come to mind):

- Email invitation
- Referral from co-worker
- Was contacted by a representative of the Harris Centre
- Work (Chamber of Commerce summer employee)
- Through attendance at a workshop in April and through a chamber member
- Email communications
- Received an email invite

- Town promotion
- Invitation
- E-mailed invitation, coworker invited, I am connected to the BV CNA campus
- Harris Centre News Letter
- Through work email
- Through a colleague
- My school leadership teacher
- MUN website

Please indicate your age group:

- 30 or under: 17%
- Between 31 and 54: 39%
- 55 or older: 44%

Additional comments:

- I would love to see more people attend these sessions.
- Very organized and professional presentations.
- It was very uplifting and refreshing to see innovative projects taking place in Baie Verte. Growing up in a rural community can be depressing as you feel like there is no growth or opportunities but seeing resources being spent on ways to improve the community you live in makes you feel very good and hopeful for the future of rural communities in Newfoundland.
- I am a community individual who is interested in developing a peninsula model of cooperation especially around tourism. This workshop and idea presentation certainly enables this concept. All three of the projects presented certainly enable opportunities for peninsula cooperation.
- An excellent start...has to be an organized body established for each initiative to be explored to its fullest. The Peninsula certainly needs a funded tourism committee/organization. A focus on the historical mining and geology of the peninsula should certainly be a priority.
- I enjoyed learning about the projects and presentations. Being able to ask, share and learn was great. Not sure about the sea urchin for we cannot get licenses at this time. The green container is a good idea yet it will add little too sustainably for the area. A unit for the school to inspiring kids to farm will be great. Yet learning about the heated air from the mines, inspired me to reach out and see about greenhouses for the area. That for this workshop. I also on talks with Pat about urchin.
- I like the way it's going.
- Great job!