

**‘Knowing beyond measurement’: Integrating sustainability indicators and storytelling in
an alternative approach to sustainable development in rural Newfoundland and Labrador**

by

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Abstract

The theory and practice of sustainable development has often under-emphasized rural and natural resource-dependent areas, including in sustainability indicators (SIs) to measure and monitor local sustainability conditions. It also remains unclear how SI tools should be used by local stakeholders to support governance for sustainable development, including the roles of governmental and non-state actors in their design and application, and the efficacy of direct instrumental use versus more communicative forms of influence. This dissertation examines these inter-related knowledge gaps in the context of Newfoundland and Labrador (NL), Canada, wherein rural coastal communities have been central to the province's history and identity, yet are often labelled as unviable in popular debates. Drawing on socio-economic indicators like demographic decline and aging population, these characterizations are used to call the sustainability of rural NL into question, mirroring deficiencies-based narratives in other rural and resource-dependent places and reinforcing calls for asset-based approaches to local development.

In this context, the present dissertation explores the potential for integrating indicator-based tools with community storytelling, which has been examined as a potent way to represent contextualized local realities and mobilizing stakeholders for sustainability transitions. Taking a transdisciplinary approach, this study aims to bridge scholarship, policy, and practice while striving for community-based research methods and engagement with rural stakeholders. Through this approach, I examine existing ways of using SI and asset mapping tools in rural and resource-based areas and introduce a storytelling approach for not only identifying and measuring, but ultimately mobilizing rural sustainability assets. By proposing an alternative way to link knowledge and action through the power of storytelling, this study thus contributes to understandings of governance for sustainable development and the use of SI tools therein.

This dissertation is presented in four stand-alone manuscripts, including: a) an inventory of existing SI initiatives across rural Canada; b) a comparative analysis of three SI and asset mapping projects in rural NL; c) a reformulated conceptual framework for integrating storytelling and SIs in rural and resource-based areas; and d) an exploratory application of this storytelling approach on the Great Northern Peninsula of Newfoundland. These manuscripts build incrementally on one another, with the storytelling framework responding to the shortcomings of existing SI tools and providing a novel contribution to research and practice. Overall, this study makes significant theoretical, methodological, and empirical contributions to research on sustainable community development, rural sustainability, and SI tools, while bridging knowledge and action between academic, policy, and practitioner spheres.

Keywords: sustainable development; rural development; governance; sustainability indicators; storytelling; asset mapping; transdisciplinary sustainability; community-based research; Newfoundland and Labrador

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Co-authorship Statement

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The remaining chapters are co-authored according to the following contributions:

Chapter 3: I conducted all data collection and analysis, writing, revisions, and preparation for submission to the journal *Sustainability*. John Dagevos and Kelly Vodden assisted me extensively in conceptualization, informing research design and methods (e.g. overall methodological approach, case selection, analytical procedures), editing, and preparing the manuscript for submission. This article was published in October 2020 and is available at <https://doi.org/10.3390/su12208601>

Chapter 4: I conducted all data collection and analysis, writing, and revisions. Ratana Chuenpagdee, Kelly Vodden, and Doug May contributed extensively to conceptualization, informing research design and methods (e.g. methodological approach, case selection, making connections to potential research participants, support to research ethics application), editing, providing insights from their firsthand knowledge of the cases, and selecting a target journal (which we plan to submit pending approval of our abstract currently under review by *Regional Studies*).

Chapter 5: I conducted all literature review, writing, and revisions (including peer review corrections), while John Dagevos, Ratana Chuenpagdee, and Kelly Vodden guided and assisted me throughout this process. Specifically, they contributed significantly to conceptualization, framing the aims and intended contribution of the chapter, methods, editing, preparation for submission to the journal *Sustainable Development*, and supported peer review revisions and preparation for publication. This article was published in September 2020 and is available at <https://doi.org/10.1002/sd.2124>

Preface: Reflections on a transdisciplinary research journey

As preamble to this dissertation, I would like to share a personal reflection on the journey that this work represents. The following pages document a process of transformation in my own thinking and approach to conceptualizing the problems that I sought out to address at the beginning of my PhD research. As the following sections describe, the process that I followed evolved considerably along the way as I was confronted with realities from the communities in which I conducted the research, which ultimately brought me to a destination that I did not intend or expect. In this personal reflection, I briefly look back on this journey to shed light on the process that led to the non-linear, transformative approach described in this dissertation.

When I began my PhD research in early 2016, I was fascinated with SIs as a tool of community mobilization and set out to prove their efficacy for stimulating sustainability transitions in the under-researched context of rural communities. I had read extensively about previous efforts to enlist SI tools in collaborative, multi-stakeholder exchanges and had great faith that, if designed and applied in a participatory process, they could be the great coordinating mechanism for societal action towards a holistic SD agenda. There were two main reasons that I was so drawn to SIs. Part of this optimism came from learning about experiments of participatory monitoring of SD in other parts of the world, which I had encountered somewhat during my Master's research (Lowery, 2013). The other reason was a hope that communities could use these tools in the wake of a socio-ecological crisis to reflect on their sustainability, which stemmed from my personal experience of living through Hurricane Katrina while growing up in the Greater New Orleans area. I had seen how indicators related to flood risk and socio-economic vulnerability had entered public discourse after that disaster while residents asked critical questions about the region's future. In fact, this story of crisis and recovery was what

drew me to Newfoundland, where I saw another coastal region striving to re-invent itself in the wake of a great socio-ecological disaster. Here, in a very unfamiliar geographic and cultural context, I sought out to demonstrate how SIs could provide tools for rural communities undergoing a similar process of critical reflection and rediscovery. I was even introduced to one rural region that had experimented with SIs to craft a regional sustainability assessment tool – the Bonavista Peninsula (Holisko & Vodden, 2015) - which I intended to examine in-depth and understand how local stakeholders planned to use this tool to support regional sustainability.

As I began designing my PhD research plan, I wanted to combine the embedded experience of the Bonavista Peninsula with a wider set of experiences of SI tools and their use in rural areas. Thus, my original research proposal laid out a nested approach that would begin with a meta-analysis of existing rural SI projects from a wide range of locations, followed by in-depth case study research on the Bonavista Peninsula. Having identified an ongoing research gap in how SIs can be most effectively used in local governance (outlined in Chapter 1), I intended to propose a conceptual framework during this meta-analysis, based on a wide range of geographic contexts, then further develop this framework on the Bonavista Peninsula by working hand in hand with local stakeholders. At the very beginning of my PhD studies, I worked on a public engagement project with the Rural Secretariat, which had spearheaded the SI project on the Bonavista Peninsula, and began to understand the local context and the role that the indicators were intended to play. I also had the opportunity to visit other rural communities, like Fogo Island, where local leaders expressed interest in developing a similar tool and building on previous asset mapping work that had been done there. With discussions underway about developing future phases of the SI tool, and exploring multi-stakeholder collaboration efforts in

the region that could be connected to it, there seemed to be fertile soil to research this phenomenon while actively participating in its ongoing development and use.

However, several unforeseen setbacks happened that changed the course of the research. First, the Rural Secretariat was defunded in 2016, instantly eliminating the regional body that had led the Bonavista Peninsula SI project and who had been my key community partner thus far. Then, I moved to the west coast of Newfoundland, where I started the meta-analysis phase of my research while becoming involved in various community engagement initiatives of Grenfell Campus – the western campus of Memorial University (MUN) that works closely with communities in that region. One such initiative brought me to the Great Northern Peninsula (GNP), a region that I had heard about for one reason: its demographic decline. A report had recently been published by MUN researchers with demographic projections for the province, and the GNP had been slated to lose more population than almost any other region (Simms & Ward, 2017). On my first visit to St. Anthony (the largest community on the GNP), I heard local leaders express frustration about this report – and in particular the demographic indicators that projected great decline in the region. Community leaders spoke about these indicators as if they were being used to attack the region, and seemed to feel like they were not giving a complete picture about local assets that could be used for economic revitalization.

These encounters on the GNP planted a seed of doubt in my mind about the value of indicators. I was perplexed, having thought previously that indicators could reveal the realities on the ground and help local stakeholders understand sustainability in their own context. However, in subsequent conversations with rural community members both on the GNP and in other areas of the province, I began to hear that indicators were often not seen in this way. Often, due to the demographic situation of many rural areas, quantitative indicators were viewed with

mistrust and frustration: as the tools of powerful, urban-based institutions to confirm that rural Newfoundland (or at least most of it) was not worth sustaining. Furthermore, I began to realize that rural community leaders were often frustrated to hear about what communities like Bonavista and Fogo Island were doing – because these communities are very successful tourism destinations and receive lots of government funding. Suddenly, the indicators that I had come to Newfoundland to study and demonstrate their effectiveness seemed like perhaps they were not the hero in the story, but in some rural resident’s eyes, a tool of villains laying in wait to attack rural communities by labelling them as unviable.

These experiences forced me to change my focus and broaden my perspective, resulting in a fundamental reorientation that is captured in the later chapters of my dissertation. Firstly, I had to change the way I talked about community sustainability with rural community members. I realized that if I left behind the language of indicators and instead used the language of assets, rural community leaders seemed much more enthusiastic about what my research was trying to accomplish and how. Along the same vein, I began examining asset mapping tools, which have been used more often in rural NL than SI tools (as described in Chapter 4).

The other major change in the journey was the realization that stories, and the language of storytelling, resonated very clearly with rural community members. Newfoundland is often described as having a strong storytelling culture, and in my experiences with rural community members, I often realized that people were eager to tell me a story about their communities that went far beyond the specific questions I was asking. At the same time, while going between rural regions I started hearing two very different stories: one of growth and rebounding from the crisis of the cod moratorium, which was often told by people in places like the Bonavista Peninsula and Fogo Island, and one of communities that are often defined in terms of their challenges –

first and foremost, demographic decline. In the latter, I felt the anger and pain in the voices of people on the GNP who wanted their region to be known for more than just decline, and I was compelled to find out how my research could be part of telling a different story.

In the process that followed, I engaged in a delicate tightrope walk between the world of indicators and the world of stories, which is described in chapters 5 and 6 of this dissertation. During much of that journey, I reacted to the observed failings of standard approaches to using these tools in rural regions, which Chapters 3 and 4 largely describe. The journey also forced me to go between the two worlds of the rural and the urban, falling in love with rural Newfoundland – especially the GNP – while spending most of my time in the cities of Corner Brook, and then later St. John’s. This delicate balance also entailed conceptual tensions like the competing goals of local embeddedness and universal standards, grassroots community action and high-level policy, and tangible versus intangible aspects of community sustainability.

In the following pages, I describe how this journey took me through my PhD research, including how it influenced what became a very non-linear and iterative process of discovery and critical reflection. Although this journey ended up looking very differently than intended, I believe that this reflexive process ultimately resulted in a much more insightful and meaningful understanding of the problems that I sought to address, thus embodying alternative models of science like reflexive monitoring and transdisciplinarity (described in Chapters 1 and 2). This circuitous quest arrives at a destination that I believe contributes both to research and practice in ways that could not have been achieved with the linear journey I originally charted. Below I outline the steps of this journey, including the critical juncture in which I departed from my intended path and followed storytelling to a new destination.

Chapter 1: Introduction and Overview

1. Introduction

The concept of sustainable development (SD) has gained traction over the last several decades as a means of simultaneously advancing human well-being and ensuring environmental sustainability for both present and future generations. However, it is also an inherently ambiguous concept that straddles prevailing Western notions of progress and development, on one hand, and subversive calls for fundamental transformation on the other (Hopwood, Mellor, & O'Brien, 2005). Furthermore, the global aspirations of SD are often contested or misinterpreted when stakeholders apply them at the local level (Kates, Parris, & Leiserowitz, 2005). A multitude of frameworks have been developed to help contextualize universal SD priorities like poverty eradication, climate action, and healthy populations to fit national and local realities, most recently the Sustainable Development Goals (SDGs) endorsed by all United Nations member states (United Nations, 2015a). However, the meaning of SD in local contexts, and its implementation, continue to be debated. Ongoing points of contention include whether the loss of critical ecological functions can be substituted by technological advancements (Pelenc & Ballet, 2015), how global agendas like the SDGs should be implemented in existing governance systems (Biermann, Kanie, & Kim, 2017), and how progress should be assessed at local and global scales (Hák, Janoušková, Moldan, & Dahl, 2018).

Translating SD priorities to local contexts is especially challenging in rural and natural resource-dependent regions, which have often been overlooked in sustainable community development theory and practice (Markey, Connelly, & Roseland, 2010). Prevailing SD frameworks have largely focused either on the level of national governments or urban centres

(Hajer et al., 2015; Ellsmoor, 2019), often failing to consider the contextual differences between rural and urban communities and the need for place-based approaches to rural development (Vodden, Baldacchino, & Gibson, 2015). Furthermore, popular discourse often highlights narratives about the challenges facing rural resource-based communities such as population decline and economic stagnation (Hutchins, n.d.; Swenson, 2019), overlooking the capacities that these communities possess for achieving SD in their contexts.

One common approach for operationalizing SD in local contexts is the use of sustainability indicators (SIs), which include a broad range of tools but typically involve a suite of quantitative measurements chosen to evaluate the current state of socio-ecological systems and monitor progress towards stated SD goals (Bell & Morse, 2008). The SI field has gradually evolved from its origins in expert-driven tools to include more bottom-up approaches (Holman, 2009; Moreno Pires, Magee, & Holden, 2017), although debates continue among scholars and practitioners over the relative importance of technical rigour versus community participation (Ramos, 2019). In efforts to strike this balance, a particular challenge is finding high-quality data to measure a given indicator, which impedes international comparisons due to differing national data standards (Zoeteman, Mommaas, & Dagevos, 2016), and in rural areas where data may be out of date or collected at an inappropriate level of aggregation (Main et al., 2019). The development of local SI tools has often responded to global calls to action, like Agenda 21 and the wave of local SD implementation plans it inspired (UNCED, 1992; Bell & Morse, 2008). The adoption of the SDGs has rekindled this endeavour through their 169 targets and 242 indicators (United Nations, 2015b), which local governments, businesses, and non-profit organizations have begun adapting to their community and organizational contexts.

However, it is still unclear whether the use of SI tools can make an impact on measurable progress towards SD at various scales. The formal adoption of global agendas does not necessitate effective implementation, as evidenced by national-level endorsement of the SDGs by countries such as Canada, including governmental indicator frameworks, but continued lack of substantive policy action on crucial areas like climate change (Devlin & Lowery, 2019; Government of Canada, 2019). Furthermore, despite the widespread use and availability of SI tools at the local level, the use of these instruments often fails to discernibly influence the conditions they measure (Holman, 2009; Hák et al., 2018; Lyytimäki, 2019). In these instances, SI researchers have examined whether the indicators themselves have fallen short or the way they have been used, highlighting distinct forms of SI use and the underlying assumptions informing the stakeholders who design, use, and maintain them (Hezri & Dovers, 2006; Lyytimäki et al., 2014; Reid & Rout, 2020). Additionally, SI theory and practice have predominantly focused on urban contexts (Moreno Pires et al., 2017; Ramos, 2019), overlooking how important SD issues and indicators may differ in rural and resource-based communities.

In the province of Newfoundland and Labrador, Canada (NL), indicators of community viability are referenced in deficiencies-based narratives about the sustainability of rural regions. The province's history of European settlement is intimately tied to rural coastal communities that depended on the in-shore Atlantic cod fishery for centuries (Heritage NL, 2008). Now almost 30 years after the catastrophic collapse of that fishery and resulting federal moratoria on commercial harvesting (Schrank & Roy, 2013), rural coastal communities continue to seek new ways to redefine their way of life and diversify local economies by complementing fisheries (which mostly target other species such as shrimp and crab (Government of NL, 2016)) with other sectors like tourism and the arts.

There are several factors that make NL a valuable context for examining the role of indicators in understanding the challenges and potentials of rural SD. Firstly, prevailing political discourse in NL often fixates on demographic trends and other socio-economic indicators to tell an overarching narrative of decline about rural communities (Simms & Ward, 2017; Roberts, 2019). Although high rates of youth out-migration, aging population, and unemployment affecting many rural areas are important indicators of community viability, these quantitative trends cannot tell the whole story of the sustainability of rural regions, requiring a more in-depth understanding of why these trends are occurring in communities and whether particular governance interventions could help allay them. Secondly, rural NL communities are often rich in intangible assets like cultural heritage and identity (Parill, White, Vodden, Walsh, & Wood, 2014; Holisko & Vodden, 2015; St. Croix, 2015), which in many cases represent economic development opportunities that rural communities could use to (partly) reverse these downward trends, but traditional SI tools have often proved ill-equipped for measuring (Stone & Nyaupane, 2018; Ramos, 2019). Finally, the importance of stories like the aforementioned decline narrative, and contrasting stories of community pride and strength, suggest that a storytelling approach to SD may be appropriate for understanding sustainability in rural NL. Therein, storytelling may be useful for complementing quantitative indicators by providing essential local context, telling an explanatory narrative to interpret such data or motivate its collection, and mobilize rural stakeholders in identifying locally appropriate pathways for sustainable rural development (Sandercock, 2005; Veland et al., 2018).

This chapter introduces the central line of inquiry which this dissertation aims to address. It articulates the main research problem, informed by theoretical conceptions on SD, governance, rural community and regional development, and SI tools, thereby outlining the conceptual basis

for subsequent chapters. From this basis, I examine the use of SIs in governance for SD and suggest how these tools could be made more appropriate for rural and resource-based contexts when combined with a storytelling approach to sustainable rural development. Referring to the NL context, this chapter explores how such a storytelling approach could be undertaken in rural and natural resource-dependent regions, while outlining how this dissertation aims to do so. This chapter also describes the purpose and objectives of the dissertation, including the research questions that it aims to address. These objectives are discussed more in-depth in [Chapter 2](#), which outlines the structure of this manuscript-based dissertation and the overall methodology that was followed to meet these objectives.

2. Research problem

The problem that this dissertation aims to address is multi-dimensional and occurs at several overlapping scales. Although its central aim is to understand the value of SIs, when approached through a storytelling lens, for SD in rural and resource-based communities and regions, it is also embedded in global research and practice on the operationalization of SD, with a specific focus on the governance processes that support and impede rural stakeholders from contextualizing SD goals to fit their specific circumstances. The following section discusses the components of this research problem and integrates them into a unified challenge which the proposed storytelling approach aims to address.

The wicked problem of sustainable development

The concept of SD straddles competing ideals, drawing from prevailing Western notions of progress and development on the one hand (Du Pisani, 2006), and conceptions of sustainability stressing the need to halt the depletion of planetary support systems on the other (Pearce & Atkinson, 1993; Rockström et al., 2009). Robinson (2004) described SD as an inherently anthropocentric concept, with early iterations like the famed Brundtland Report¹ aiming to reconcile the seemingly opposing goals of environmental protection and human development (WCED, 1987). These notions were refined later through widespread models like the three-legged stool of environmental protection, social equity, and economic prosperity (Serageldin, 1996), and continue to be debated and reframed (Hopwood, Mellor, & O'Brien, 2005; Meadowcroft, 2017).

The concept has also been influenced, certainly in the last decade, by conceptions of well-being, which are very diverse but have a common concern for considering elements of human welfare that extend beyond traditional economic measures like income and material living standards (Stiglitz, Sen, & Fitoussi, 2009). Well-being frameworks integrate research from development economics and psychology to consider the numerous perceptual and material elements underlying human satisfaction (Armitage, Béné, Charles, Johnson, & Allison, 2012). These include both 'entitlements' to external rights and resources – such as the right to democratic freedoms or access to clean air and water (Sen, 1985) – and elements of 'subjective well-being' like the quality of social relationships, work-life balance, and subjective dimensions

¹ The Brundtland Commission defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their needs” (WCED, 1987, p. 16).

such as affective experiences and an abstract sense of internal flourishing, or *eudaimonia* (OECD, 2013; Ryff, 2018). Well-being can also be influenced by the local environment and community through sense of place, which is constituted from subjective attachments to physical places or environments ranging from aesthetic enjoyment to spiritual values (Beckley et al., 2007), and associations with cultural heritage or personal identity (Markey, 2010; Osborne & Taylor, 2010). Many well-being frameworks focus primarily on the societal level, like Prescott-Allen (2001)'s Well-being Index that ranked countries using a composite indicator, or the OECD's Better Life Index (OECD, n.d.), often incorporating environmental health as a component of societal well-being. At this macro-level, well-being frameworks have often been part of efforts to move 'beyond GDP' as an all-encompassing measure of societal welfare (acknowledging that this indicator was not originally intended to be used this way and is often misinterpreted by politicians as a singular score of national success (Stiglitz et al., 2009)), in which a variety of alternative measures and national accounting frameworks have been proposed (Costanza, Hart, Posner, & Talberth, n.d.).

In contrast to the primarily human-centred focus of well-being, sustainability is concerned with how to ensure human activities do not exceed ecological limits across current and future generations. Central to this question is whether stocks of natural capital – for example, a functioning climate, ecosystems, or natural resources – can be substituted by human-made capital (Pearce & Atkinson, 1993). From the perspective that the economy is a sub-system of an interconnected socio-ecological system (Berkes & Folke, 1992), the debate between weak and strong sustainability questions whether natural resources and ecosystems can be replaced with produced assets (e.g. technology) in a manner that ensures both human well-being and planetary integrity in the long-term (Dietz & Neumayer, 2007). From a strong sustainability perspective,

this substitution is impossible since natural capital stocks are necessary for human existence and have inherent value that cannot be replaced once they are depleted (Pelenc & Ballet, 2015). For example, wild fish stocks have ecological functions and cultural values that cannot be replicated if the same species are produced only through aquaculture. Priority is also placed on utilizing renewable natural capital stocks (as opposed to non-renewable ones like fossil fuels), thereby ‘living off the interest’ (flows) rather than drawing down on the principal (or stock) (Victor, 1991). More pragmatic variations acknowledge that some natural capital will inevitably be depleted to fuel the economy and the satisfaction of human needs (ideally through the sustainable harvesting of renewable resources like soil, forests, and fisheries) (Dobson, 1996). In this view, sustainability aims to preserve critical natural capital stocks whose destruction would cause irreversible harm to both the biosphere and human welfare (Dietz & Neumayer, 2007).

Integrating concerns for both well-being and sustainability, SD represents a bridging concept between these ideals. Early ideations on SD arose in the 1970s, when the seminal report *Limits to growth* questioned the sustainability of the prevailing economic system in light of shocks like the global oil crisis occurring at that time (Meadows, Meadows, Randers, & Behrens, 1972; Mebratu, 1998). In these early iterations, the ideals of human development (often interpreted as economic growth) and environmental conservation were often pitted against each other (Du Pisani, 2006). Another well-known report – *Our common future* (or the Brundtland Report) – tried to reconcile these seemingly opposing goals, with an explicit focus on the needs of the world’s poor (WCED, 1987). Later, Serageldin (1996) and others popularized the three-legged stool model of ecosystem-economy-society, which has been expanded extensively in capital-based formulations at national and local scales (Haan & Keuning, 1996; Scoones, 1998; Emery & Flora, 2006). Informed by the aforementioned well-being frameworks and the ‘beyond

GDP' discussion, SD thus considers a holistic range of capacities and capabilities required to enhance well-being while ensuring that these advances do not deplete the natural capital stock (Pelenc & Ballet, 2015), aiming not only to maintain, but improve, human welfare over time while sustaining natural capital both for present and future generations.

At least partly due to this broad focus, the SD concept is fraught with tension. Hermans and Knippenberg (2005) argue that the oft-cited Brundtland definition of SD was inherently ambiguous, failing to prescribe how society should balance intergenerational needs and welfare in practice. Incidentally, implementation was the main goal of Agenda 21 and the wave of local SD strategies it spawned around the world (UNCED, 1992; Moreno Pires et al., 2017), a goal that has been revived through the SDGs (United Nations, 2015b). National and international SD strategies often include such indicator frameworks, influenced both by domestic policy priorities and global agendas (Biermann et al., 2017; Lyytimäki, 2019). However, the focus on national and supra-national scales in much SD discourse has been critiqued for perpetuating a top-down vision of societal change in which communities and sub-national regions must follow the priorities set by the state and international organizations (Hajer et al., 2015). This approach has been critiqued for subsuming local realities to 'grand designs' (Sayer, Bull, & Elliott, 2008), which requires balancing grassroots development priorities with top-down SD agendas that may arise at both national and local levels (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006).

Thus, SD is a classic example of a 'wicked problem', described by Rittel and Webber (1973) as one mired in debate over not only how to solve it, but on the nature of the problem itself. Wicked problems are inherent to socio-ecological systems, which are complex, subject to multiple interpretations by different stakeholders, and characterized by non-linear feedback loops between system components that can lead to unintended consequences (Berkes & Folke, 1992;

Checkland, 1999; Innes & Booher, 1999). In contrast, rationalistic approaches to managing complex systems tend to offer technocratic solutions that fail to understand the nature of such wicked problems (Rittel & Webber), leading to linear interventions aimed at isolating and controlling sub-systems in a silo (Lyytimäki et al., 2014).

In this wicked problems view, different actors perceive the problem(s) of unsustainability differently according to their worldviews and offer possibly infinite explanations for their causes and potential solutions (Rittel & Webber, 1973; Checkland, 1999; Innes & Booher, 1999).

Hopwood et al. (2005) assert that “[all] proponents of sustainable development agree that society needs to change, but there are major debates as to the nature of sustainable development, the changes necessary, and the tools and actors for these changes” (p. 47). Although some common principles have been identified like justice, efficiency, and resilience (Hermans & Knippenberg, 2005), what SD should specifically achieve (and the targets and indicators to measure progress towards these goals) remain widely debated (Kates et al., 2005). Hák et al. (2018) challenge that, even over 30 years after Brundtland, SD proponents have still largely failed to garner mainstream societal support for the concept. This challenge is partly due to lack of consensus over whether SD should pursue gradual reform or fundamental transformation, invoking long-standing debates between a more status quo position and radical movements like eco-socialism and deep ecology (and the threats that the latter implies for existing power structures) (Hopwood et al., 2005; Loorbach, Frantzeskaki, & Avelino, 2017). It also reflects the prevalence of a mechanistic worldview which presumes that socio-ecological systems can be isolated, measured, and controlled (Reid & Rout, 2020). See [Chapter 5](#) for further theoretical discussion on SD.

A capital-based approach to sustainable community development

In contrast to these global SD origins and debates, sustainable community development (SCD) takes a more bottom-up approach by balancing local development priorities with universal agendas (Bridger & Luloff, 1999; Fraser et al., 2006). Drawing from both SD theory and community economic development (Shaffer, Deller, & Marcouiller, 2006), SCD has an explicitly local focus for designing and carrying out sustainability innovations at the neighbourhood, community, and regional level (Roseland, 2012).

One of the most widespread tools for operationalizing SCD is the Community Capital Framework (CCF), which provides a holistic, systems-based approach for identifying and mobilizing key resources needed to build sustainable communities (Butler, Emery, Fey, & Bregendhal, 2005; Roseland, 2012). The CCF adopts the strong sustainability perspective described above, stressing the need to safeguard natural capital at local and global levels, while prioritizing community well-being and assessing local capacity to undertake development (Bebbington, 1999; Ekins, Simon, Deutsch, Folke, & De Groot, 2003; Emery, Fernandez, Gutierrez-Montes, & Butler Flora, 2007). It also builds on economic analysis, expanding the concept of capital (which typically refers to buildings, equipment, and other physical factors of production), to consider any stock of valuable resources that can be harnessed at the community level to support local development (Roseland, 2012), while borrowing from the production function which relates the flow of inputs such as labour, capital, and natural resources to outputs of goods and services (Farnham, 2014). However, the holistic approach of the CCF conceives of these capital stocks and flows across interconnected ecological, social, cultural, economic, institutional, and human dimensions (Butler et al., 2005). The Sustainability Balance approach, a Dutch methodology for designing SIs based in the CCF, approaches each capital's stocks as key

sub-systems required to sustain each capital in the long-term, using both theoretical foundations and local stakeholder priorities to define these stocks – and goals for improving them – in context (Zoeteman et al., 2016).

There are a number of ways to apply the CCF at the local level. Some approaches aggregate all sustainability dimensions into three forms of capital (ecological, economic, and socio-cultural), informed by the three-legged stool approach to SD (Serageldin, 1996; Knippenberg et al., 2007). Others, such as Butler et al. (2005) and Roseland (2012) use a larger set of capitals that considers culture, human capital, and physical infrastructure independently. The explicitly local focus of the CCF means that it can be applied flexibly in a given community or region to prioritize locally identified SCD concerns and portray interdependencies among social and ecological sub-systems. For example, conceptions of cultural capital highlight the importance of inclusive and welcoming communities that embrace a diversity of cultural expressions (Cochrane, 2006), which also enhance the economic capital stock through the flow of skilled workers to supplement the local labour force, and in turn reinforce human capital by enhancing the educational level of the community. Similarly, ecosystems are considered a stock of natural capital that can be measured through biophysical indicators assessing ecological health (Knippenberg et al., 2007), but these systems also deliver flows of resources to other capitals (e.g. economic) in the form of natural resource harvests. In turn, these flows can deplete interdependent capital stocks, like the brain drain phenomenon that siphons human capital from a community while also drawing down economic capital by decreasing the labour force. Such linkages between capital stocks and flows are considered in the concept of ‘spiraling up’, which has guided communities grappling with socio-ecological crises to identify community re-investment strategies that can enhance overall community sustainability (Emery & Flora, 2006;

Winkler, Oikarinen, Simpson, Michaelson, & Gonzalez, 2016). Through this systems-based approach, the CCF can help local stakeholders measure the quality and quantity of capital stocks and anticipate the effects of policy and planning interventions to promote local development that builds on synergies while avoiding unintended consequences (Roseland, 2012; Stone & Nyaupane, 2018). See [Chapter 3](#) for more details on these forms of capital and related stocks.

Governance for SD

Due to the wicked nature of the problem of unsustainability, this multi-dimensional conception of SCD can reveal conflicting development priorities and competing stakeholder interests. These dynamics, and the non-linear nature of interventions in complex socio-ecological systems, imply that moving towards SD requires a divergent form of decision-making from traditional governance. Therein, alternative models of public policy have emphasized how state-centered governance tends to feature hierarchical structures that limit the ability of citizens to participate in shaping the decisions that affect their livelihoods (Sayer et al., 2008; Hajer et al., 2015). In contrast, multi-stakeholder governance arrangements have been argued to be not only more participatory, but also more effective for addressing complex problems arising from socio-ecological systems (Salamon, 2002; Bomberg, 2004; Lafferty, 2004; Newig & Fritsch, 2009). To resolve sustainability challenges that often span multiple jurisdictional domains and geographical scales – such as climate change or global pandemics – alternative governance arrangements are required that engage both state and non-state actors at all relevant levels (Hooghe & Marks, 2003; Bache, Bartle, & Flinders, 2017). This multi-stakeholder governance is a parallel but distinct approach to representative democracy, drawing from shared decision-making experiments that have been devised in complex policy environments where established political

processes have broken down (Susskind & Cruikshank, 1987; Lawrence Susskind, van der Wansem, & Ciccareli, 2003). These multi-stakeholder governance arrangements aim not to circumvent the state, but create a middle ground between hierarchical state control and pure self-governance through a collaborative process (Kooiman, 2003). In this approach, broadening the scope of actors involved in decision-making brings together state agencies and a wider set of stakeholders (Emerson, Nabatchi, & Balogh, 2012; Peters & Pierre, 2016), partly because this range of actors (including the state) is responsible for complex problems and thus must be engaged in crafting solutions. Authors like Salamon (2002), Kooiman (2003), and Ansell and Gash (2008) have argued that central governments are indeed shifting in their roles within more loosely structured networks of governing actors including civil society, businesses, local governments, and other stakeholders.

These multi-stakeholder governance arrangements have a number of features that are considered more conducive to solving complex socio-ecological challenges. First, they feature more horizontal relations between actors that require state agencies to acquire new facilitative skills to activate a wider network of non-governmental actors (Kooiman, 2003; Emerson et al., 2012). Second, this network approach requires coordination across multiple levels of government and jurisdictional domains to address multi-scalar policy problems (Hooghe & Marks, 2003). Insights from alternative dispute resolution and the mutual gains approach have underlined the importance of open communication between different stakeholders who must negotiate their subjective realities to arrive at shared truth, identify mutual interests, and agree upon strategies to achieve a common vision for progress (Susskind & Cruikshank, 1987; Innes & Booher, 1999; Kooiman, 2003). For example, it may be undisputed that the forestry sector is declining (due to factors like loss of export markets or low commodity prices), but state forestry agents may

perceive this threat very differently from local leaders in forest-dependent communities, Indigenous Peoples who depend on forests both economically and culturally, sawmills facing lost revenue, or conservation groups proposing new protected areas. Rather than relying on the state to dictate solutions, a multi-stakeholder approach must engage all of these actors to balance their diverse interests. Similarly, Kooiman's (2003) interactive governance theory highlights the importance of not only explicit rules and institutions, but also latent normative constructs like myths and images, in motivating policy actors' decisions (see [Chapter 4](#) for examples related to rural asset mapping and SI initiatives). The collaborative governance framework stresses the importance of developing trust between these stakeholders in light of entrenched adversarial relations and disputes over jurisdictional authority (Susskind & Cruikshank, 1987; Himmelmann, 2002), as well as shared images and understandings (Kooiman, 2003).

While the literature outlines these ideal features, these collaborative arrangements are often not carried out in practice. Purported examples of collaborative and multi-level governance have often been demonstrated to be more rhetoric than reality, like Vodden (2015)'s assessment of rural watershed governance initiatives, or Gibson (2019)'s examination of collaborative governance arrangements, across rural Canadian regions. Furthermore, Gibson (2014) found that a regional collaboration pilot initiative on the Great Northern Peninsula of Newfoundland failed to overcome public participation challenges like engaging local residents outside of a core group of key stakeholders and was strongly driven by provincial government agencies. A major barrier to this collaborative approach is the reluctance of actors, particularly state agencies, to relinquish control over areas which they have traditionally overseen, or 'turf' (Himmelmann, 2002), which is often perceived as a threat to expertise in areas like fisheries management, or even as a challenge to existing power structures (Hall, Vodden, & Greenwood, 2016; Barragan-Paladines

& Chuenpagdee, 2017). A related issue is the challenges that arise in the inception phase of such governance arrangements, which the interactive governance approach has examined through ‘Step Zero’ analysis to understand how choices made in the initial stage of a policy instrument’s development, such as which stakeholders are included (and excluded) from the design and how pre-existing policy regimes and principles influence present instruments, play out later during implementation (Chuenpagdee & Jentoft, 2007; Barragan-Paladines & Chuenpagdee, 2017). See Chapters 3, 4, and 6 for more discussion on these governance frameworks.

To achieve this multi-stakeholder vision of governance, new forms of knowledge and action are needed that transcend boundaries between academic and policy domains and reflect the multi-dimensional nature of SD. Alternative research programs have emerged under banners like post-normal science, sustainability science, Mode 2 learning, and transdisciplinarity (Funtowicz & Ravetz, 1993; Gibbons et al., 1994; Brandt et al., 2013; Loorbach et al., 2017). These alternative approaches to science adopt an integrated and boundary-spanning lens, seeking to transcend disciplinary research conventions, sectoral divides, and divisions between academic and citizen knowledge (Clark, 2007; Brandt et al., 2013). They also encourage the active participation of non-academic stakeholders in defining complex sustainability problems and co-designing solutions (Mauser et al., 2013), which parallels community-based and participatory research approaches (Ochocka & Janzen, 2014). Transdisciplinary research programs also challenge conventional assumptions that presuppose a linear relationship between science and policy, building on critical evaluations of the role of communication in innovation processes (Leeuwis & Aarts, 2011), and reframing expectations on the use of scientific evidence by policy actors (Richards, 2019). One such model of transdisciplinary knowledge is the Integration and Implementation Sciences (I2S), introduced by Bammer (2005, 2013, 2016) as a novel

specialization for advancing integrated knowledge to solve complex real-world problems. I2S are characterized by three core commitments, including: 1) a foundation in complexity science and systems thinking, 2) the use of participatory methods, and 3) a focus on the management, exchange, and implementation of knowledge (Bammer, 2005). See Chapters 2 and 5 for more discussion on this transdisciplinary approach that guided the overall study and the proposed storytelling approach in particular.

Indicator-based approaches to SCD

To move towards SD in a given jurisdiction, sustainability indicators (SIs) are both a widespread approach for operationalizing high-level sustainability goals and reflective of the aforementioned tensions surrounding the nature of knowledge and action in sustainability transitions. Defined broadly, SIs draw on a range of quantitative and qualitative data to measure multiple dimensions of well-being and long-term sustainability (Ramos, 2019). Although much research has focused on single indicators or composite indices, including modified national wealth measures like the Genuine Progress Indicator or the National Accounting Matrix including Environmental Accounting (NAMEA) (Costanza, Hart, Posner, & Talberth, n.d.; Haan & Keuning, 1996; Costanza et al., 2004), this study focuses on indicator suites that assemble multiple measures of ecological, social, economic, and political factors to reflect SD conditions of a given area or jurisdiction (Bell & Morse, 2008; Stiglitz et al., 2009). These indicator suites can be as broad or narrow as those designing them choose, often incorporating the single indicators mentioned above. They can either be organized along established SD frameworks like the CCF or the OECD's well-being model (OECD, n.d.; Knippenberg et al., 2007), or assembled by local stakeholders according to a grassroots sustainability vision. Indicator suites also differ in the

amount of aggregation employed, with some frameworks using sophisticated statistical techniques to aggregate indicators into composite indices, and others presenting all indicators individually; in both cases, scoring techniques require normative choices about the weight assigned to each indicator (e.g. weighting all indicators equally or prioritizing some based on stakeholder priorities or other criteria) (Reed et al., 2006). Such indicator sets are used both locally and at the national level, informed by national sustainability priorities and international frameworks like the SDGs (Hák, Janoušková, & Moldan, 2016; Lyytimäki, 2019).

Over the last 30 years, the theory and practice of SIs has gradually evolved from a largely technocratic approach to include more participatory methods. SIs gained popularity in the 1990s during a first generation of expert-driven tools, like Multi-Criteria Decision Analysis (Ferrarini, Bodini, & Becchi, 2001) and the Environmental Sustainability Index (Bell & Morse, 2008), which often relied heavily on statistical analysis and specialized bio-physical or economic indicators. This first wave was followed by a ‘participative turn’ that responded to Agenda 21’s push for local SD implementation (UNCED, 1992) and the influence of grassroots SI initiatives like Sustainable Seattle that inspired other communities to devise their own local indicators (Holden, 2006). This more participatory approach sought to ensure that local residents’ perspectives were reflected in the indicators chosen to measure community SD outcomes (Fraser et al., 2006; Bell & Morse, 2008). More community-based SI approaches also brought increasing attention to how indicators can impact policy by encouraging novel solutions to local SD challenges (Gahin, Veleva, & Hart, 2003; Holman, 2009). Contemporary SIs range from tools tightly linked to higher-level frameworks like European Union sustainability priorities or the ISO 37120 framework (Moreno Pires & Fidélis, 2015; Berman & Orttung, 2020), to locally-devised indicator sets responding to community priorities, like Winnipeg’s *Peg* initiative or the *Boston*

Indicators Project (Boston Indicators Project, n.d.; Peg, 2019). SI scholars and practitioners remain divided on whether these participatory and applied methods jeopardize the rigour of the indicators themselves, which many argue should be validated using statistical analysis rather than community perspectives (Hák et al., 2016; Ramos, 2019). However, these disparate approaches can be integrated by using both stakeholder input and expert knowledge in the selection and measurement of indicators (Hermans, Haarmann, & Dagevos, 2011).

When employed in this participatory manner, SI tools have been compared to methods of community asset mapping (Champagne, 2005). Originating in Asset-Based Community Development (ABCD), an alternative approach to local development that highlights a community's strengths and capacities rather than solely its deficiencies (Kretzmann & McKnight, 1993; Mathie & Cunningham, 2005), asset mapping represents a wide variety of approaches to identifying and mobilizing community resources for development. Asset mapping aims not only to assess the state of local assets, but also mobilize citizens in novel efforts to employ those assets to improve community well-being (Fuller, Guy, & Pletsch, n.d.). Mapping local capacities at individual, associational, and institutional levels can thus reveal assets which may be overlooked in more traditional development models (McKnight, 1995). Thus, asset mapping can be especially appropriate in marginalized communities that are labelled as unviable by external agencies (Bebbington, 1999). There are numerous ways to do asset mapping, like cataloguing the whole assets of a community in a systematic fashion (Fuller et al., n.d.), or highlighting intangible assets like stories and cultural heritage which quantitative indicators are often ill-equipped to measure (White & Lynch, 2012; Ramos, 2019). To assess the full range of local assets relevant to SCD, asset mapping can be used alongside quantitative indicators to represent intangible community resources, like cultural heritage, or ones for which official data

do not exist or fail to capture local realities (e.g. non-market sources of income like self-provisioning activities).

When employed in this participatory and holistic approach, SIs have led to multiple positive local outcomes. The use of SIs have helped many communities articulate a local sustainability vision, allowing stakeholders to translate global imperatives like Agenda 21 into locally relevant agendas for change (Bell & Morse, 2008; Hermans et al., 2011; Moreno Pires et al., 2017). Locally developed indicators can also help identify new ways to evaluate community assets that are difficult to measure quantitatively, like culture and identity, which Stone and Nyaupane (2018) highlighted in the context of the cultural values of wildlife in a Botswanan nature preserve and risks of cultural commodification from tourism. SIs have also encouraged dialogue among stakeholders from diverse backgrounds and sectors, as Holden (2013) discussed in the context of a later stage of Sustainable Seattle focusing on individual happiness indicators. In the context of marginalized communities, such as a South African township as described by Terry (2008), SIs have been linked to community empowerment and the creation of communication channels between disenfranchised residents and local governments to voice often-silenced concerns. Further elaborating this communicative role, Hermans et al. (2011) discuss how indicators designed using the CCF in the Netherlands helped local stakeholders build common understanding about SD goals. In this way, SIs have acted as a catalyst of social learning and reflection among diverse stakeholder groups, encouraging shared exploration of conceptions of well-being and sustainability (Reed et al., 2006; Buhonovsky & Jäger, 2013). Such collaborative applications of SI tools have parallels with the concept of reflexive monitoring, which challenges more traditional monitoring and evaluation processes by stimulating shared visioning among multi-stakeholder teams and strives for reflection and

learning, highlighting that system innovation projects are evolving processes requiring iterative monitoring and reflection (van Mierlo et al., 2010). See Chapters 3, 4, 5, and 6 for more discussion on community-based SI tools and their outcomes for local governance and development.

Implementation gap in SIs

Despite the gradual shift to more participatory approaches outlined above, SIs often fail to influence local governance in a way that tangibly leads to more sustainable outcomes (Holden, 2006; Lyytimäki, 2019). The SI field has long debated how communities should use these tools – whether they must be directly incorporated into the policy process or instead play a more nuanced role in fostering multi-stakeholder dialogue and reflection (Brugmann, 1997; Pinfield, 1997; Hezri & Dovers, 2006; Lyytimäki et al., 2014). Even prominent initiatives like Sustainable Seattle, one of the most well-known municipal SI initiatives in North America which inspired many others, was ultimately dropped from the organization’s activities after going through many cycles (the latest being a more individually-focused Happiness Initiative) (Holden, 2013; Sustainable Seattle, 2020). This fate is not uncommon among other SI initiatives, whether conducted at the local or national level (Moreno Pires & Fidélis, 2015; Lyytimäki, 2019).

Much research has sought to identify the causes of this SI implementation gap and how it can be overcome (Bell & Morse, 2003, 2008; Holden, 2013; Lyytimäki et al., 2014; Ramos, 2019). The classic debate between Graham Pinfield and Jeb Brugmann (Brugmann, 1997; Pinfield, 1997), for example, questioned whether SI initiatives can tangibly impact local governance if not directly used by municipalities or other local authorities. Subsequent discourse has highlighted conflicting interpretations of how SIs should be used in local governance. Hezri

and Dovers (2006) contrast between the *instrumental use* of indicators as direct inputs into formal policy-making, and *conceptual use*, in which SIs act as an indirect vector for dialogue among a broad range of stakeholders. In the former, indicators are often the purview of the technical expert, whereas a broader societal use implies that the knowledge of non-experts is an equally important input into indicator design. For example, public safety could be measured with official crime rates based on local police records or national statistics, but resident perceptions of safety in their community could be very different from this assessment, requiring public discussion of why this discrepancy exists. Hermans et al. (2011) discuss how SIs, when playing this role in public discourse, can create a ‘common language’ to talk about sustainable development (p. 6). Similarly, Lyytimäki et al. (2014) use the opposing metaphors of Russian *matryoshka* dolls and the game of telephone, in which SIs may be designed to perfectly capture the complexity of the real world using the logic of simplification, yet simultaneously exist as the confluence of multiple perspectives on (un)sustainability in which their meanings are subjective and liable to transform as they are communicated across society.

These debates highlight competing conceptualizations of the role that SIs should play in governance for SD and the transition to more sustainable societies. Examining the national SI framework in Finland, Lyytimäki (2019) considers whether SIs can be used as a thermostat for actors to directly influence sustainability conditions in a linear fashion, or merely as a thermometer which society can check periodically to see if it is getting closer to SD. The thermostat metaphor corresponds with the information deficit model of science communication, which assumes that citizens will take appropriate action on issues like climate change or pandemics once educated about the problem (Veland et al., 2018). This conceptualization assumes a linear relationship between the information that SIs relay and necessary actions by

individuals, organizations, and society at large, implying a one-for-one linkage between the indicator and the actions taken by the necessary stakeholder(s). For example, indicators may reveal that air quality levels are below accepted limits, implicating that industries must switch to less polluting technologies or regulatory agencies impose stricter mitigation measures.

Sometimes, indicators reveal policy problems that cannot be addressed at the local level (e.g. declining fish stocks, which are under federal jurisdiction in Canada), implying the need to link each indicator to governmental and non-governmental actors and interventions at the most appropriate scale (see Chapters 3 and 6 for more discussion). As goals are achieved, the indicators may change (or the benchmarks that said indicators are expected to reach), allowing for feedback loops between societal priorities and the indicators chosen to represent them. In contrast, the view that SIs are merely a thermometer of societal values draws attention to the range of issues that are represented by indicator tools, revealing whether important local priorities are not being measured. Therein, SIs act as a mirror for societal stakeholders to reflect on their values and how well community conditions align with them, rather than instruments for directly influencing local SD outcomes (Personal communication, J. Dagevos, July 28th, 2020). See Chapters 3 and 5 for a more detailed discussion on these debates.

Sustainability in rural and natural resource-based regions

The gap in conceptualizing and moving towards SCD widens in rural and natural resource-dependent areas. SD literature and practice tend to focus on either national-level implementation or urban contexts (Hajer et al., 2015; Ellsmoor, 2019). In the latter, little consideration is given to the contextual differences between urban and rural communities (Markey et al., 2010), leading to urban-centric SCD models that often overlook rural contexts. Although the advantages of a

place-based approach to sustainable community and regional development in rural contexts have been articulated (e.g. Vodden, Douglas, Markey, Minnes, & Reimer, 2019), this approach is often not reflected in interpreting SD to rural contexts.

Natural resource-dependent communities also tend to be excluded from prevailing SD discourse, which often focus on these resources at a planetary scale but overlook the well-being of communities that depend on them. Theoretical conceptions on the decoupling of economic activity from primary extraction (e.g. Meadowcroft, 2017), which are essential for reducing the depletion of natural capital, often overlook social justice considerations in communities that depend on extractive industries, highlighting the need for a ‘just transition’ (Mccauley & He, 2018). There are important distinctions between communities that depend on renewable resources, like timber or capture fisheries, and non-renewable resources like mining or oil and gas. In the former, if extraction does not surpass the ecosystem’s regenerative capacity, such as through high-volume industrialized harvesting, communities can harvest these resources indefinitely (and often have for centuries, e.g. Chuenpagdee & Jentoft, 2007), whereas the latter implies an inherently temporary boom often followed by a bust period which puts the community into economic stagnation (Winkler et al., 2016). The idea of the just transition directly considers communities and workers dependent on fossil fuel industries, calling for the creation of new livelihoods in low-carbon activities to ensure that local economic well-being is not sacrificed for environmental sustainability (Newell & Mulvaney, 2013). Without this social justice orientation, resource industries and the communities that rely on them can easily be labelled as “dirty, dangerous, and dying” (Hall & Donald, 2009, p. 20), leading to an inequitable transition to more environmentally sustainable forms of production. Such interpretations exclude rural and resource-based communities from the narrative of change towards a sustainable society, and

perhaps assume that there will be no place for them in a sustainable future. This dissertation explores and challenges these assumptions, especially in Chapters 5 and 6.

Sustainability discourses in rural Newfoundland and Labrador

With just under 520,000 residents on a landmass of 405,720 km² – an area over 1.5 times the size of the United Kingdom (Government of NL, 2018b) – NL has a small population and the lowest population density of Canada’s provinces (Statistics Canada, 2016). Although its population is heavily concentrated in the capital city of St. John’s and surrounding metropolitan area, a larger proportion of residents lives in rural and small-town areas (47%) than in any other Canadian province (Bollman, 2016). Furthermore, 7.3% of the workforce is employed in natural resource sectors, nearly double the national average (Community Accounts, 2020h). The province’s history and identity are inextricably linked to rural fishing communities, since the majority of European settlements were established for proximity to in-shore stocks of Northern cod. This fishery was the lifeblood of most communities in the province for centuries, until the 1992 moratoria on cod and other groundfish species (e.g. plaice, flounder, haddock, redfish) were instituted in reaction to the devastation of the cod fishery in the late 20th century (Bavington, 2010; Fisheries and Oceans Canada, 2019). Almost overnight, a way of life upon which rural coastal communities depended came to an end (Davis, 2014).

In the nearly 30 years since the moratoria, rural NL continues to struggle in finding a new economic base both in natural resources and other sectors. Many coastal communities have since shifted to other fisheries resources like shrimp and crab, often using larger vessels and more technologically intensive methods than those used in traditional cod harvesting practices (Bavington, Grzetic, & Neis, 2004). On a provincial scale, oil and gas has replaced fisheries as

the dominant resource sector, constituting 15.6% of provincial GDP, and 20.6% to provincial government revenues, in 2019 (Government of NL, 2019a, 2019b). Rural workers participate heavily in oil and gas, particularly through long-distance commuting to oil production sites (Hewitt, Haan, & Neis, 2018); however, digitalization of oil extraction processes may reduce this activity. Mining and mineral processing is both a significant contributor to the provincial economy and the mainstay of rural communities like Baie Verte, Wabush, and Long Harbour (Government of NL, 2019b; Uthman, 2020). Although forestry has declined overall in provincial economic importance due to forces like falling demand for newsprint (Government of NL, 2016, 2019b), many rural regions still rely on harvesting and sawmill operations (Holisko & Vodden, 2015; Butters et al., 2016). The mechanization of natural resource industries, and implications for rural labour markets, are discussed further in Chapters 3, 5, and 6. In many rural areas, tourism has become an economic driver, with some of the province's most frequently visited sites like L'Anse aux Meadows and the Bonavista Lighthouse drawing visitors to rural regions (Government of NL, 2018c), although tourism activity is mostly concentrated in the summer season (May-September). In both rural and urban areas alike, however, the COVID-19 pandemic has exposed the province's economic vulnerabilities ranging from impacts of fluctuating oil prices on government revenues to depressed tourism volumes for the foreseeable future (Gushue, 2020; Cooke, 2020).

In this context, rural NL has often been pitted against urban centres in policy debates on the province's social and economic viability. The province's controversial resettlement program, which sought to centralize the dispersed rural population into larger communities to facilitate public service delivery, led to the dissolution of over 300 rural coastal communities in the 1950s-'70s and the displacement of over 27,000 people to so-called 'growth centres' (Withers, 2016;

Côté & Pottie-Sherman, 2020). Although few communities have resettled recently (e.g. Little Bay Islands in 2019) (Mercer, 2019), many observers continue to argue that residents in remote areas should relocate to larger, more centralized communities to reduce the cost of providing public services like transportation infrastructure and healthcare (Bartlett, 2016). In parallel, rural development institutions have gradually been dismantled, which previously offered territorially-based (rather than sectoral) capacity for regional economic development and planning (Hall, Vodden, & Greenwood, 2016). This stripping of regional institutional support has widened capacity gaps for rural municipalities, many of which have severely limited resources to provide basic services (Vodden, Lane, & Pollett, 2016). Discussions have long been underway on how regional governance could enhance capacity and promote cross-community and sectoral collaboration in rural areas – informed by models from other Canadian provinces and comparable jurisdictions like rural Ireland – but no decisions have been made to date (MNL, 2013; Gibson, 2014; Government of NL, 2020a). Another crucial governance challenge is the ongoing struggle for greater self-determination among Indigenous Peoples, who in Newfoundland only gained official status in 2011 under the Qalipu Mi'kmaq First Nation (Qalipu First Nation, 2016), with the exception of Miawpukek (Conne River) (Miawpukek First Nation, 2020). During the Qalipu registration process, many self-identified Indigenous people in both rural and urban parts of the island were excluded from obtaining status (Gale, 2019).

In these debates, socio-economic challenges facing rural communities are often used to tell an overarching narrative of decline about rural NL. Outside of the St. John's metropolitan area and larger regional towns, most rural economic zones of the province are experiencing demographic decline: between 2011-2016, the only rural zones that grew in population were in Labrador, due both to large-scale infrastructure development projects and higher population

growth in Indigenous territories like the Innu Nation and Nunatsiavut (Inuit Tapiriit Kanatami, 2018; Community Accounts, 2020j), while most other rural areas declined in population by 2.1-8.6% (Community Accounts, 2020g). In prevailing rural sustainability narratives, such indicators are used to paint a picture in which rural NL communities as economically stagnant, lacking in opportunities for young residents, and undeserving of further public and private sector investment. Roberts (2019) argues that “anywhere from 100 to 120 small communities are now beyond the point of no return because the educated youth are not staying in rural Newfoundland” (para. 26), highlighting youth out-migration as the major threat to rural viability. High unemployment is also used to question the economic vitality of rural communities, overlooking the intensely seasonal nature of rural sectors like fisheries and tourism which do not conform to the conditions of year-round, full-time work assumed by traditional employment indicators. These narratives often single out particular rural regions, like the Great Northern Peninsula of Newfoundland which was predicted in a 2016 population modelling study to have one of the highest rates of demographic decline by 2036 (Simms & Ward, 2016). Although these narratives offer clear prescriptions for allocating scarce public resources in the current political climate of economic uncertainty, they fail to address the underlying reasons why trends like youth out-migration or unemployment are occurring. They also overlook the very assets that rural communities possess to enhance their own well-being and ensure a more sustainable future, like cultural heritage and sense of place (St. Croix, 2015; Vodden, Baldacchino, & Gibson, 2015).

Summary of research problem

This dissertation intends to address the challenges discussed above, seeking to contribute both to scholarship and practical knowledge on the following inter-related research problems:

1. SD is a wicked problem, with ongoing debates on what specific goals it should achieve, how interventions should be designed in socio-ecological systems, and how it should be pursued at local, national, and international scales.
2. To progress towards SD, alternative forms of governance are needed that broaden the range of stakeholders involved in decision-making beyond state actors, which in turn call for transdisciplinary approaches to bridging knowledge and action.
3. Despite the widespread use of indicator-based tools to operationalize SD at the local level, it is widely debated how SIs should be used in governance to move towards SD and whether they can influence SD outcomes through direct or indirect processes.
4. Rural and natural resource-dependent communities and regions tend to be overlooked in SD theory and practice, which rather focuses on national and international-level implementation efforts and urban contexts.
5. Rural regions in Newfoundland and Labrador are responding to socio-ecological crises while often being subjected to deficiencies-based narratives that employ socio-economic indicators to call their very existence into question.

In the following section, I propose that these interconnected gaps can be resolved through a storytelling lens to sustainable rural development. The remaining chapters of the dissertation present how this storytelling approach was developed and apply it in the context of rural NL.

3. A storytelling approach for sustainable development in rural regions?

As outlined above, conventional notions of SCD tend to focus on urban contexts while overlooking rural and natural-resource dependent regions in the transition to a sustainable future.

Furthermore, SD indicators are often reflective of a linear theory of change that does not reflect the complex and dynamic nature of the socio-ecological systems that SD seeks to influence, or the transdisciplinary nature of the transition process required to move towards it. In contexts like rural NL, deficiencies-based narratives about rural regions draw on such indicators to exclude rural and resource-based areas from not only the narrative of change to a sustainable society, but also from the resources required to advance rural sustainability. In these contexts, an entirely different way of understanding sustainability and approaching its implementation in local governance may be required. This dissertation explores the role that storytelling, when combined with SI tools through a contextually rich and asset-based approach, might play in addressing these challenges in rural and resource-based contexts.

The art of storytelling is both a timeless practice for sharing diverse sources of knowledge and an alternative avenue for linking knowledge and action to mobilize individuals and groups. Storytelling approaches to policy and planning highlight how policy actors, both local and external, tell stories about communities both to reflect residents' visions for their communities and influence public perceptions about proposed developments (Sandercock, 2005; Jones, McBeth, & Shanahan, 2014; Bennett, Kadfak, & Dearden, 2016). The voices of marginalized groups are often the focus of critical Indigenous and de-colonization research, which use storytelling to represent ways of knowing that are often undervalued by Western science (Christensen, Cox, & Szabo-Jones, 2018; Wiebe, 2019). In other contexts, community planning has been viewed through a storytelling lens, in which planners and other actors tell stories to transform events and places as elements in an unfolding plot (van Hulst, 2012). Similarly, political myths can be told and re-told to motivate communities or social groups, explaining their origins to foretell their future and place in the world (Blumenberg, 1985; Bottici

& Challand, 2006). Planners and other development actors often draw on common archetypes to tell a community's story – the hero's tale, the rags to riches story, the tale of the Golden Age lost (Sandercock, 2005). The use of stories has been examined in planning tools like scenario-building, which can be carried out in a participatory manner that can be empowering for communities facing vulnerabilities (Bourgeois, Penunia, Bisht, & Boruk, 2017), but often relies on an expert-driven approach that presents scenario models in an apolitical manner to policy-makers and other actors (Twyman et al., 2011). Public policy research has similarly explored the power of stories in policy discourse through the Narrative Policy Framework, identifying narrative elements like the setting, characters (e.g. victims, villains, heroes), plot, and the moral of the story arising from a given policy intervention (Jones et al., 2014). See [Chapter 5](#) for a more detailed discussion on storytelling frameworks.

This storytelling lens has been recently applied to contemporary sustainability challenges to highlight the need for alternative ways to motivate stakeholders to take action for societal transformation. For example, climate change communication has been critiqued for perpetuating a linear 'information deficit' model of science, calling for compelling stories about climate action in which citizens feel that they can be the hero, rather than a villain or powerless observer (Veland et al., 2018). Incidentally, the rapid ascent of teenage climate activist Greta Thunberg and widespread climate change rallies has perhaps begun to change this dynamic (BBC, 2020). Storytelling has also been used to examine xenophobic narratives such as the 'clash of civilizations', which are often fueled by long-standing political myths and can become lethal when society no longer maintains an open forum to debate these stories (Bottici & Challand, 2006). Examining far-right movements in the United States, Hochschild (2016) proposes that political opportunists can capitalize on the 'deep story' of disenfranchised constituencies, tapping

into latent values and frustrations to mobilize voters in polarizing political movements. Reflecting on the state of SD 30 years after Brundtland, Hák et al (2018) challenge that advocates continue to struggle in telling an engaging story that can inspire widespread action towards a sustainable transition at both local and global scales. 10 years prior to this assessment, Bell and Morse (2008) presciently explored the parallels of stories and indicators in the following quotation:

“Why have we been so rooted in a mechanistic and inorganic vision of sustainability? Why have many tried to show that sustainability = 42? In part, the answer lies in a very human desire to understand and make sense of complexity, and this appears to arise with every new human vision of where we want to be. We want to achieve X, so let us first understand it, and to do this we need to measure it. An alternative and equally human approach would be: we want to achieve X, so let us first understand it by means of knowing how the story of it relates to the story of me or us; by knowing this story we relate and correlate the notion of X to our own self-notion. In this process the knower and the known are one – this is knowing beyond measurement”.

(p. 200-201).

In search of a middle ground between these seemingly conflictive approaches, could quantitative indicators be used alongside storytelling to reimagine the sustainability of rural and resource-based communities? Although SIs originate in top-down and technocratic approaches, they have gradually shifted in their design and use, becoming part of participatory processes of communicative exchange (Reed et al., 2006; Holden, 2013; Bell & Morse, 2018). Alternative models of governance based on multi-stakeholder collaboration, which are required to address the wicked problems inherent in SD (Rittel & Webber, 1973; Innes & Booher, 1999; Himmelmann, 2002; Bache et al., 2017; Loorbach et al, 2017), imply that a wide range of societal stakeholders must participate in defining sustainability goals and indicators to measure progress towards them (Lyytimäki et al., 2014). This pluralistic governance process is built on

open exchange between actors with diverse interests (Kooiman, 2003; Emerson et al., 2012), which Hermans et al. (2011) suggest can be supported by participatory SI initiatives that create a ‘common language’ to discuss SD (p. 6). In other words, this communicative approach to using SIs could be interpreted as a form of community storytelling. In rural communities and regions labelled as deficient by external actors, like rural NL communities seeking revitalization in the wake of the 1992 groundfish moratoria, this community storytelling must simultaneously address the widespread narrative of decline based in socio-economic indicators while mobilizing rural stakeholders in constructing an alternative story. This dissertation argues that rural stakeholders can create an alternative vision of SCD through self-directed narratives based in community assets. In this lens, SIs may be part of a broader communicative process in which rural communities and regions tell their own stories about SD.

4. Purpose of dissertation

In response to the research problem articulated in Section 2, and the proposed storytelling approach described above, this dissertation undertakes an exploratory study to identify the potential of a storytelling approach to SCD, particularly how storytelling could inform the design and use of SIs to support governance for SD in rural and natural resource-based regions. I examine SD in the context of rural NL, exploring whether a storytelling approach may help define SD and its implementation in these contexts. This approach envisions rural stakeholders as the narrators of their communities’ sustainability stories, centering rural perspectives and experience in a contextually rich manner that simultaneously engages quantitative indicators often used to question rural viability (Hutchins, n.d.; Bebbington, 1999a; Roberts, 2019). In this approach, I investigate how storytelling and SIs can be integrated to support rural stakeholders in

identifying and mobilizing local assets that are undervalued or difficult to measure, emphasizing its potential both to show the intrinsic value of rural community assets and harness untapped opportunities for community economic development.

This approach draws from the CCF as a holistic framework for identifying and using SIs (Emery & Flora, 2006; Zoeteman et al., 2016), which I incorporate with insights from ABCD (Kretzmann & McKnight, 1993; Mathie & Cunningham, 2005), multi-stakeholder governance frameworks (Kooiman, 2003; Emerson et al., 2012; Bache et al., 2017), and storytelling approaches to community planning and sustainability (Sandercock, 2005; van Hulst, 2012; Jones et al., 2014; Hák et al., 2018). The CCF has a number of compatibilities with these other theoretical frameworks. First, it takes a holistic and systems-based view to understanding SCD, stressing the interdependencies between ecological, economic, social, cultural, and political aspects of sustainability (Pearce & Atkinson, 1993; Roseland, 2012). Second, unlike many SD frameworks, the CCF is explicitly meant for local application, seeking to bridge global priorities with community-level concerns in a context-sensitive manner (Emery & Flora, 2006; Fraser et al., 2006). Third, due to its contextualized approach the CCF has been used in the development of SIs, including through methodological tools like the Dutch Sustainability Balance approach that offers strategies for moving from broad capitals to specific local goals and indicators and benchmarking tools (Zoeteman et al., 2016). Finally, the CCF has often been used in rural and natural resource-based communities and is conducive to an asset-based approach aimed at mobilizing actors and resources in communities labelled as deficient (Butler et al., 2005; Bebbington, 1999; Gutiérrez-Montes, 2005; Winkler et al., 2016).

The study is focused on the NL context, while simultaneously aiming to generate findings that are relevant for other rural and resource-based communities and regions in Canada and

elsewhere. In rural NL, a handful of attempts have been made to take stock of and assess local well-being and sustainability at different scales. Communities like Branch (Avalon Peninsula) and Tilting (Fogo Island) have used asset mapping to catalogue cultural heritage assets (St. Croix, 2015b), while regional approaches have been used to develop SI tools on the Bonavista Peninsula (Holisko & Vodden, 2015) and asset mapping in western Newfoundland and southern Labrador (Parill et al., 2014). These local initiatives have occurred against the backdrop of the System of Community Accounts, a public data tool maintained by the provincial government that provides an online database of social and economic indicators based on a holistic well-being framework (May & Hollett, 2008; Community Accounts, 2020a). These SI and asset mapping efforts have provided rural communities and regions with tools to demonstrate the value of their local assets and attract public and private investment, while exploring how to align local priorities with higher-level frameworks like Community Accounts (see [Chapter 4](#)). Some of these SI and asset mapping initiatives were created through community-involved research projects (e.g. Parill et al., 2014; St. Croix, 2015), but no research has been done since to determine the ultimate outcomes of these initiatives for community and regional development and whether these projects could inform future efforts to measure SD in rural NL or similar jurisdictions. The experiences of these local initiatives are further informed by the use of SI tools in other rural areas of Canada, which have conceptualized SD in a number of ways and have been used by local actors to play numerous roles in rural governance (see [Chapter 3](#)). Informed by these previous experiences, this dissertation demonstrates how the proposed storytelling approach can be integrated with SI and asset mapping tools to challenge deficiencies-based narratives and mobilize rural stakeholders in rural NL and other rural peripheral regions.

Research questions

In light of the theoretical frameworks and research problems discussed above, this study seeks to answer the following research questions:

1. What potential does a storytelling approach hold for contextualizing sustainable development in rural and resource-based areas and mobilizing local stakeholders in pursuing sustainable community and regional development?
 - a. To what extent do current approaches to using SI tools in rural communities and regions reflect a broad SD agenda, represented by multiple forms of community capital, and support multi-stakeholder governance?
 - b. Have rural communities and regions in NL used SI and asset mapping tools to challenge deficiencies-based narratives and explore multi-stakeholder forms of governance in pursuit of SD outcomes?
2. Can storytelling and SI tools be used alongside one another in a transdisciplinary approach to mobilizing rural stakeholders and informing community revitalization strategies along a holistic rural sustainability agenda?

Objectives

To answer these questions, the study seeks to fulfill the following objectives centered on filling the stated knowledge gaps surrounding sustainable rural development and the potential roles of storytelling and SI tools:

1. Understand how SIs have been used in other rural and resource-based regions of Canada by showing whether rural SI tools reflect broad SD priorities, across multiple forms of community capital, and articulating a typology of their intended uses in local governance.
2. Investigate previous attempts to use SIs and related tools in rural NL, including asset mapping initiatives that included a holistic set of rural sustainability assets, to determine how they were conceived and whether they led to any local governance outcomes.
3. Identify the limitations of existing approaches to measuring SD in rural communities and regions, proposing a storytelling framework for SD in rural and resource-based communities and exploring the potential roles of SI tools in this approach.
4. Develop and apply this storytelling approach in a rural region of NL to test its potential for articulating alternative sustainability visions in rural, resource-based communities and contributing to regional development through a community-based research approach that highlights regional SD assets across multiple forms of community capital.

These objectives and how they are met in the context of this manuscript-based dissertation are discussed more in-depth in [Chapter 2](#).

This chapter has provided a comprehensive overview of the research problem that is addressed in the subsequent chapters of this dissertation. Highlighting research gaps in the use of SIs in rural and natural resource-based areas, it simultaneously links this challenge with contradictions in the theory and practice of SD and the potential value of storytelling as an alternative way to interpret community-level realities and coordinate multi-stakeholder governance. In the following chapter, I turn to the methodological approach that is taken in the remainder of the dissertation and the layout of its empirical chapters.

Chapter 2: Methodology and structure of dissertation

1. Methodological approach

This dissertation employs a transdisciplinary methodology rooted in the well-documented wicked nature of unsustainability (Rittel & Webber, 1973; Hopwood et al., 2005), and the need for new ways of linking knowledge and action in pursuit of societal transformation (Funtowicz & Ravetz, 1993; Brandt et al., 2013; Veland et al., 2018). Informed by alternative research programs like sustainability science and the Integration and Implementation Sciences (Mauser et al., 2013; Bammer, 2016), it aims to generate knowledge that brings together academic and practical insights to come to a better understanding about complex challenges and provide meaningful outcomes for both research and practice.

This research approach is transdisciplinary (rather than interdisciplinary or multidisciplinary), intending not only to bring insights from one area of research into another, but develop a new theoretical and methodological approach at the intersection of these knowledge domains that could not be carried out within any one field (Mittelstrass, 2011; Brandt et al., 2013). These research areas, including SIs, storytelling, and governance, are themselves interdisciplinary fields drawing from disciplines like political science, sociology, geography, economics, environmental studies, planning, narrative analysis, and psychology. I further integrate these research areas by bringing the rationalistic worldview informing SIs and the interpretivist paradigm of storytelling into a unified approach informed by a problem-oriented complexity mindset (Patterson & Williams, 1998; Checkland, 1999; Loorbach et al., 2017). Its use of the Community Capital Framework (CCF) reinforces this multi-dimensional perspective

by approaching sustainable rural development at the nexus of interdependent socio-ecological systems (Emery & Flora, 2006; Winkler et al., 2016). Finally, it actively engages non-scientific stakeholders in the development of this approach, informed by principles of community-based research and participatory methods (McIntyre, 2008; Ochocka & Janzen, 2014). The study strives for respectful engagement of rural community members and prioritizes the mobilization and implementation of scientific knowledge among non-academic audiences to address practical needs identified by local stakeholders (Bammer, 2005; Halseth, Markey, Ryser, & Manson, 2016). I have also sought to practice reflexivity by understanding my own positionality, power imbalances between myself and community members, and potential biases in my selection and analysis of data (Rose, 1997; Pain & Francis, 2003). This reflexive process is described in my personal reflection in the preface to this dissertation, and informed the research phases that are outlined later in this chapter.

By combining community-based methods with a transdisciplinary approach, the dissertation provides methodological novelty while building on existing narrative research techniques (e.g. oral history, ethnography) (Mauser et al., 2013; Ritchie, 2014; Spradley, 2016). However, by working with rural community members (especially in Chapter 6) to tell the story in their words while co-designing the research goals and practical outputs, the study aims to embody co-creation between academic and community stakeholders through genuine collaboration (Himmelman, 2002; Bammer, 2019). This co-creative approach thus influenced the research phases and overall approach, in which I sought to respond to the priorities and concerns of community members. The study also offers theoretical novelty in its integration of SIs and storytelling (van Hulst, 2012; Hák et al., 2018). See Chapters 5-6 for more discussion on the transdisciplinary and community-based approach adopted in the research.

2. Nested case study approach

Within this transdisciplinary approach, the study employed a case study methodology consisting of several nested multi-scalar case studies that followed a non-linear and iterative approach. Case study research is an overarching research approach in which a multitude of methods can be employed (Yin, 2009), and is especially well-suited “when the boundaries between phenomenon and context are not clearly evident” (p. 18), due to its in-depth focus on phenomena that are not well-suited to experimental or survey-based methods. Case studies are useful for evaluating interventions at the local level, in this case community-based SI and asset mapping initiatives, by providing rich contextual understanding of the forces affecting how a given policy or tool is carried out and its outcomes. There are multiple ways to structure case studies, like maximum variation cases that show two extremes of a phenomenon and case studies that portray phenomena occurring at different scales (Flyvbjerg, 2006). Nested case studies not only examine the same phenomenon at multiple scales, but also across multiple units of analysis by moving iteratively between scales, such as Vodden’s (2015) study of watershed governance initiatives across rural Canada that studied these local organizations while examining their broader regional, provincial, and national contexts.

This dissertation uses multi-scalar nested case studies to meet the objectives stated in Chapter 1, examining rural SI and asset mapping initiatives at four scales including global, national, provincial, and local. Across these scales, the unit of analysis is SI and asset mapping initiatives occurring at either the community or sub-provincial regional level, which I examine to understand how they tell a particular story about their community or region, how local and external actors came together to design and carry them out, and whether the use of these tools led to any discernible outcomes in local governance. Although the unit of analysis manifests itself at

the local level, I examine these initiatives at different scales (e.g. local initiatives sampled from across rural Canada vs. a single initiative in one region). Across these overlapping scales, this dissertation uses the CCF as an analytical lens to evaluate rural SI and asset mapping initiatives within a multi-dimensional framework. These local initiatives simultaneously overlap with provincial or national frameworks and correspond to global SD imperatives and knowledge gaps in SI tools and SCD. Each of the four manuscript chapters examines these phenomena at a particular level of analysis, but these scalar foci often overlap and/or the analysis spans multiple scales according to the phenomenon at hand.

Although the four manuscripts each report on a distinct phase of the research, these phases were non-linear and iterative, highlighting the emergent nature of the storytelling framework that was developed during Phase 3, but simultaneously emerged from and informed the other phases in a recursive manner. As described in my personal reflection in the preface, this non-linear approach stemmed from critical re-evaluations that I made during the research process, both in reaction to the empirical findings and encounters with community members in rural Newfoundland that informed the research. In response to this shift, the four manuscript chapters each move along a concentric circle towards increasing depth of analysis, while exploring linkages and common patterns across global, national, provincial, and local contexts, as shown in Figure 1.

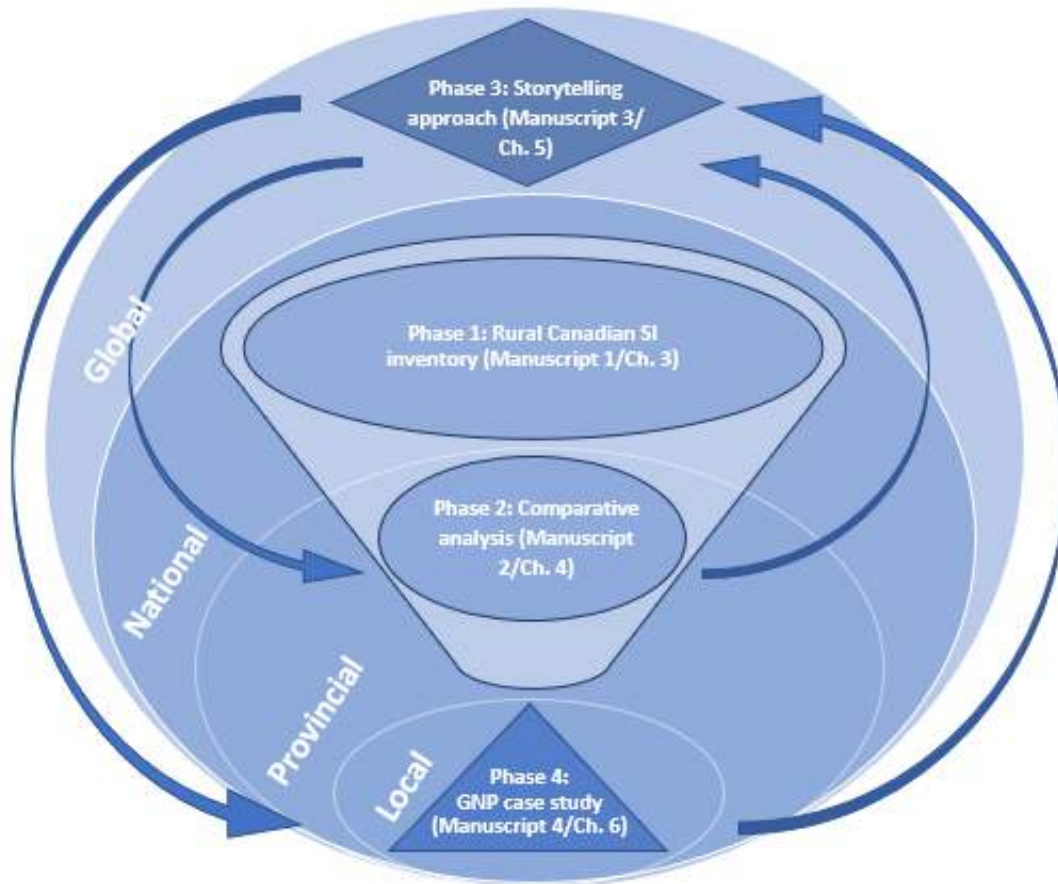


Figure 1. Nested case study methodology used across dissertation phases.

In this nested and iterative approach, Phase 1 (described in Manuscript 1/Chapter 3) compiles an inventory of SI initiatives across rural Canadian communities and regions, combining local (community and regional) and national levels of analysis. Next, Phase 2 conducts a comparative analysis of previous SI and asset mapping projects that have taken in rural NL at local and provincial levels (Manuscript 2/Chapter 4). Based on findings from these two empirical studies, Phase 3 proposes a storytelling approach to sustainable rural development that goes between global sustainability considerations and provincial and local contexts (Manuscript 3/Chapter 5). Finally, Phase 4 conducts community-based research on the GNP to further develop this storytelling approach (Manuscript 4/Chapter 6), remaining primarily at the

community and regional scale and conducting action research to build on one of the previous asset mapping initiatives examined in Phase 2. These phases are described in detail below.

3. Dissertation structure and overview of methodological phases

As outlined above, this dissertation is organized into four manuscripts, intended as stand-alone papers for peer-reviewed publication, while also contributing to the nested case study approach outlined above. Each manuscript/chapter aims to meet one of the objectives stated in [Chapter 1](#) while making a theoretical or empirical contribution to knowledge by helping answer the stated research questions. Although the four chapters are presented sequentially, the methods occurred in a non-linear timeline, with incremental findings from one research phase informing others along the way (particularly in the case of Chapter 5, which emerged from the research described in preceding chapters). Following these chapters, the dissertation concludes by integrating the findings of each paper, offering implications for future research, and providing recommendations to apply its outcomes in local and provincial policy and practice. The following section describes these manuscripts and the methodological phases they discuss.

Phase 1: Inventory of SI initiatives in rural Canada (MS 1/Ch. 3)

Following the research gaps and study objectives outlined in Chapter 1, and the methodological approach discussed presently, the dissertation continues by examining how SIs have been used in rural and resource-based regions across Canada. Chapter 3 is the most embedded in the SI field, intending to improve understanding of the relatively under-researched area of rural indicator tools, given that the SI field has predominantly focused on urban examples (Moreno Pires et al.,

2017). It also aims to extend current understandings of the role of SIs in governance, particularly whether rural communities might use these tools to respond to unique policy challenges and reinforce collaborative approaches (Hezri & Dovers, 2006; Lyytimäki, 2019; Vodden et al., 2019). I integrate individual cases of rural SI initiatives to compare how they conceptualize SD in terms of rural sustainability priorities, including whether they adapt existing indicator tools to fit their specific rural contexts and how these tools are used and/or intended to be used in local governance, thus contributing comparative findings to the SI field which tends to be dominated by single case studies (Bell & Morse, 2018). The Canadian context is relevant both for its diversity of rural contexts and experiences and the collaborative governance approaches being pursued in many rural regions to respond to the retrenchment of policy supports from many rural regions (Markey et al., 2015; Vodden et al., 2019).

To meet these goals, Chapter 3 examines how SD is defined in each community or region sampled and whether, to what extent, and how the chosen initiatives intended to be used in local governance by a variety of stakeholders. I compiled an inventory of rural Canadian SI initiatives, integrating qualitative and quantitative analysis to examine these initiatives across a wide range of rural and resource-based regions. The inventory was informed by qualitative meta-synthesis, a systematic method of meta-analytic research rooted in interpretivist analysis, employing inductive, purposive (rather than deductive, probabilistic) methods to sample a selection of cases and analyze them to elevate understanding in a field of study and propose new research directions (Schreiber, Crooks, & Stern, 1997; Walsh & Downe, 2005). It was also informed by more quantitative approaches like case surveys (Newig & Fritsch, 2009).

Using this approach, I followed a purposive sampling rationale aiming not to include all existing SI initiatives in rural Canada, but rather a wide range of indicator tools and community

circumstances. Three main selection criteria were used, including rural contextual factors (discussed below), types of SI tools employed, and governance contexts. First, given the diversity of rural experiences and realities in Canada, initiatives were selected to reflect a range of geographies and socio-economic contexts. This contextual analysis considered the variety of ways that rurality is defined both in official statistics and in more constructivist terms (du Plessis, Beshiri, & Bollman, 2001; Halfacree, 2007). Selection was based on: a) geographic context (including a variety of Canada's regions, level of adjacency to metropolitan areas, and Northern remote communities); b) local economic structure, reflecting a variety of natural resource-based communities in different sectors and communities that rely on more service-based economies; and c) rural demographic forces ranging from high-growth amenity regions to rapidly declining areas. This sampling process also sought to represent a variety of approaches to designing SI tools, including both projects that were part of a larger framework, like Vital Signs or the Canadian Index of Well-being, and grassroots tools based on locally designed indicator frameworks (Community Foundations of Canada, n.d.; Canadian Index of Wellbeing, 2016).

Finally, a diversity of governance contexts was considered by including initiatives carried out by a variety of actors at multiple scales. This sample included both initiatives conducted within a defined administrative region (e.g. municipality, region), and in regional designations not based on formal boundaries. I also searched for SI tools used by Indigenous Peoples to examine whether these initiatives conceptualized Indigenous ways of knowing in different ways or reflected specific governance challenges and opportunities in the Canadian context of reconciliation with Indigenous Peoples (Natcher & Hickey, 2002; Klinck et al., 2015; Penner, Baribeau, Neeposh, & Longboat, 2019).

Out of 56 initiatives identified, I chose a sample of 39 that displayed a diversity of rural contexts and SI tools, excluding 17 that were either single-issue/single-sector, included a metropolitan area, or occurred in the same community or region as another initiative included in the sample (see [Chapter 3](#)). For the 39 initiatives remaining, I conducted a content analysis on publicly available documents related to each initiative. These documents included both peer-reviewed studies and non-academic literature (e.g. project reports, websites), which were used in most cases due to the lack of scholarly studies conducted on most of the initiatives. I began by assessing how these initiatives conceptualized SD in their local context, using a three-capital model of the CCF based on the Sustainability Balance methodology (Knippenberg et al., 2007). Table 1 shows a sample of basic stocks used in the Sustainability Balance approach (adapted from Knippenberg et al., 2007), which then translates these stocks into local context based on stakeholder perspectives and relevant policy and planning priorities.

Table 1. Basic stocks used in a three-capital model of the CCF.

Socio-cultural	Ecological	Economic
Citizenship	Nature	Labour
Solidarity	Soil	Capital Goods
Safety	Groundwater	Infrastructure
Housing & Living Conditions	Surface Water	Economic Structure
Health	Air	Knowledge
Education	Minerals	
Identity & Diversity	Landscape	
Culture		

Informed by both these categories and emergent themes from the case documents, I blended inductive and deductive analysis to identify stocks of community capital and depict a

contextually rich portrait of rural SD informed by the CCF. I identified the key stocks of community capital that were measured by these indicator tools and compared how each initiative prioritized different dimensions of rural SD (Zoeteman et al., 2016). These stocks were identified using an iterative process, matching each indicator to a stock and then consolidating similar stocks and indicators. This set of stocks is shown in Table 2 and discussed in depth in [Chapter 3](#).

Table 2. Community capital stocks identified across rural Canadian SI initiatives.

Capital	Stocks
Ecological	<ul style="list-style-type: none"> • Agriculture • Air quality • Climate change & energy • Ecosystems • Land use • Natural resources • Waste reduction • Water
Economic	<ul style="list-style-type: none"> • Economic equity • Economic structure • Financial resources • Labour • Transportation
Socio-cultural	<ul style="list-style-type: none"> • Arts & culture • Community participation • Cultural diversity • Demography • Education • Food security • Gender equity • Housing • Mental health • Physical health • Political participation • Public safety • Recreation • Sense of belonging • Social inclusion

I then used descriptive quantitative techniques to identify which indicators (and associated stocks) were most commonly measured across all initiatives, and which were less prioritized. I also compared how SI initiatives prioritized different SD priorities across rural contexts (e.g. urban-adjacent vs. remote communities) and based on type of initiative (e.g. Vital Signs projects vs. grassroots initiatives).

Finally, to understand the intended role of these initiatives in local governance, I examined what kinds of actors were involved in the creation or implementation of the initiatives at various scales, as well as how these actors intended to use the SIs. This governance assessment was informed by models of collaborative, multi-level governance that envision a wide range of rural stakeholders (e.g. local governments, businesses, local development organizations, regional support agencies) engaging in shared decision-making with state agencies (Emerson et al., 2012; Gibson, 2019). In this context, I analyzed how initiative scale influenced what kinds of actors were involved, whether formal jurisdictional boundaries and related actors played a role in the initiatives, and whether the actors involved seemed to collaborate in designing and using the SIs. This analysis identified the range of actors from various sectors, evidence of multi-stakeholder collaboration, and intended uses of the indicators among different audiences. Based on the application of these analytical frames, this chapter identifies a typology of SI use in rural and resource-based areas while identifying overarching rural SD priorities to inform future research on SIs in similar contexts. These findings help inform the storytelling approach later developed in Chapters 5 and 6. This manuscript has been published in *Sustainability*, in a special issue on social and environmental sustainability in rural areas (Lowery, Dagevos, & Vodden, 2020).

Phase 2: Comparative analysis of rural NL asset mapping/SI initiatives (MS 2/Ch. 4)

Moving from the national to provincial scale, Chapter 4 investigates previous attempts to use SIs and related tools in rural NL, including asset mapping (AM) initiatives that included a holistic set of rural sustainability assets. This chapter conducts an in-depth assessment of governance factors to determine how these initiatives were conceived, which actors introduced them, how stakeholders at different scales participated in their design and use, the stories that they told about rural communities and regions, and their ultimate outcomes for regional development and governance. This analysis sought to provide rich insights into contextual factors that supported and hindered the incorporation of these initiatives into community and regional governance, thus expanding on the patterns identified in Chapter 3 and informing how future rural AM/SI efforts could enhance their policy relevance. It also examines how the narratives, or stories, relayed about the communities and regions where these initiatives took place are related to wider narratives used in provincial rural policy discourses.

To meet these objectives, I identified all known examples of rural AM/SI initiatives carried out in rural NL, choosing three such projects to conduct a comparative analysis. The NL context was chosen due to the unique experiences of rural coastal communities that were waylaid by the 1992 groundfish moratoria and the alarming rates of demographic decline that threaten rural sustainability in many areas (Schrank & Roy, 2013; Simms & Ward, 2017). I also chose NL due to the presence of several initiatives to address these challenges by taking stock of and mobilizing community assets, both at the local level and through the provincial System of Community Accounts which makes public data accessible at the community level (May & Hollett, 2008; Parill et al., 2014; Holisko & Vodden, 2015; St. Croix, 2015).

To examine these local initiatives and any community or regional policy outcomes they generated, I used Step Zero analysis, a technique originating in interactive governance theory which examines the pre-implementation phase in which governance instruments are conceived (Chuenpagdee & Jentoft, 2007; Chuenpagdee et al., 2013; Barragan-Paladines & Chuenpagdee, 2017). Step Zero analysis has been used in fisheries governance research to assess the inception phase of interventions like marine protected areas, providing an analytical framework to examine how entrenched policy structures can be reproduced in the implementation of a new policy or planning tool, based on how different actors participated in its conceptualization and introduction and which groups were excluded (Barragan-Paladines & Chuenpagdee, 2017). However, to my knowledge this method has not been used to assess well-being or sustainability indicator tools. In this lens, I approach AM/SI tools as a soft policy instrument (as opposed to hard instruments like laws or regulations), delving into the inception stage of three initiatives in rural NL to understand how these Step Zero factors influenced their ultimate policy outcomes. I considered both direct instrumental use of AM/SI tools by policy-makers (local, provincial, or federal) or other actors, and more indirect communicative uses of these tools in facilitating multi-stakeholder dialogue and reflection (Hezri & Dovers, 2006; Lyytimäki et al., 2014).

To begin this analysis, I identified all previous initiatives that have been carried out at the community or sub-provincial regional level in NL to evaluate assets relevant to local sustainability and well-being. The inclusion of both AM and SI tools allowed me to consider a wide range of initiatives, including ones that examined community assets that are important to SCD but may have not framed itself through a sustainability lens, as well as showing how well-being and sustainability, as discussed in Chapter 1, are conceived and interrelated in rural contexts. To identify these initiatives, I searched both scholarly databases (i.e. Scopus) and grey

literature (e.g. project summaries, reports to funders, websites), using NL-specific resources like www.ruralresilience.ca (maintained by a NL-based rural research group of which I am part) and the Centre for Newfoundland Studies (maintained by the Memorial University library). This initial scan yielded eight rural AM/SI initiatives conducted across the province that took place as far back as 1998 and (in one case) continue to the present day:

- Cultural Heritage Resources Inventory: 2011-2015
 - Branch (2011-2012)
 - Tilting (2014-2015)
- Clarenville-Bonavista sustainability indicators project: 2013-2016
- Western Newfoundland-Southern Labrador Asset Mapping Study: 2014
- Killick Coast Collaborative Integrated Community Sustainability Plan (towns of Flatrock, Pouch Cove, Bauline): 2008-2017)
- Western Newfoundland Model Forest Indicators (Corner Brook/Gros Morne region): 1998-2004
- Strategic Tourism for Areas and Regions asset inventory for Gros Morne region (2016)
- Trepassey asset mapping project: current

Although these initiatives displayed a wide variety of rural contexts and types of initiatives, I selected three such projects with the aim of representing a strong variation across rural contexts and approaches to designing and using AM/SI tools. Using similar selection criteria as in Chapter 3, I excluded initiatives that: a) did not consider a holistic set of SD assets (e.g. only forestry or tourism indicators), b) occurred in communities or regions that were not representative of wider rural experiences across the province, and c) very informal or nascent

initiatives that could not reasonably be expected to have any outcomes due to their early stage of development. On these grounds, I excluded the Killick Coast initiative (which occurred in communities that are within 30 km of the St. John's metropolitan area and are not representative of most other rural NL contexts), the Model Forest and Strategic Tourism for Areas and Regions initiatives (due to their focus on a single sector), and the Trepassey project (which appeared to be very nascent and informal). I also chose to exclude the Cultural Heritage Resources (CHR) initiative in Tilting since the same framework had been applied in the community of Branch three years earlier (St. Croix, 2015). While the CHR initiative focused on the single community level, the other two projects selected for the comparative analysis were regional in scope, including an SI tool developed in the Clarenville-Bonavista Rural Secretariat Region (Holisko & Vodden, 2015), which I discuss in the personal reflection in Section 2 of this chapter, and an AM project that employed the CCF to catalogue sustainability assets in western Newfoundland and southern Labrador (Parill et al., 2014).

To examine these three initiatives, I first conducted a content analysis of publicly available documents on these projects. This document review included an analysis of the socio-economic circumstances of each community or region, including local economic structure, rural geography, and the scale of the initiative and its relationship with past or present administrative regional boundaries. It also examined the frameworks used in each initiative, the range of indicators or assets considered, and the origins of the framework.

Next, I conducted semi-structured key informant interviews in each community or region, which are a powerful tool for gathering information relevant to qualitative case study research (Spradley, 2016), to understand how these initiatives were designed and carried out. These interviews were guided by Step Zero analysis, which informed the identification of actors

involved in the inception stage of the three initiatives and how their interactions with other stakeholders at various scales influenced their design and outcomes (Barragan-Paladines & Chuenpagdee, 2017). The interviews were based on this method, but also included questions about the community or regional context and whether local stakeholders saw any potential to build on these initiatives in the future. Interviews followed this structure while still allowing for flexibility in a conversational style. To understand these Step Zero dynamics, I interviewed both individuals who were involved in the initial conceptualization of the initiatives and local stakeholders who were not engaged in the process. For the latter, I selected a targeted sample of key community and regional stakeholders, like municipal councilmembers, business owners, and non-profit staff working in organizations related to community and regional development. In total, I conducted 14 interviews across the three initiatives (see [Chapter 4](#) for details on participants and interviewing procedures). These interviews identified both the motivations driving the individuals and groups that initiated these projects and perceptions about these initiatives held by other key local stakeholders.

Finally, I facilitated a workshop which engaged representatives from each of the three communities/regions involved in these initiatives. 19 individuals participated in the workshop (see [Chapter 4](#) for details on participants and methods), in which I presented preliminary findings from this phase of the study and collected additional input from key stakeholders in each region on the outcomes of the initiatives. This workshop helped to ground-truth the findings of the Step Zero analysis and inform subsequent phases of the research.

I analyzed all of these data to compare the governance processes surrounding the inception, design, and implementation of each initiative. This comparison included how each initiative was conceived, designed, and carried out, examining the relative roles of local

stakeholders versus external actors, the extent to which a broad range of community members were engaged in designing the AM/SI tool, and whether local stakeholders (both those who were involved and a wider group) perceived any lasting outcomes or potential for follow-up. This analysis highlighted the role of macro-level policy shifts that threatened the sustainability of the rural AM/SI initiatives, as well as a critical lack of regional capacity to build on the initial tools designed. This comparative analysis also identified a set of supports and barriers present in each initiative for long-term governance outcomes, recommending lessons for future AM and SI-based work in rural NL and for research on the use of these tools in similar contexts. This manuscript will be submitted to the journal *Community Development*.

Phase 3: Development of proposed storytelling approach (MS 3/Chapter 5)

The third phase of the study represents a radical reorientation of the overall research approach, responding to limitations of existing SI and AM-based tools in rural contexts revealed in Phases 1-2, and discussed in the preface to this dissertation. Therein, Chapter 5 provides a conceptual (rather than empirical) basis for the proposed storytelling approach. This chapter identifies the limitations of existing approaches to assessing SD in rural communities and regions, offering a novel storytelling approach to using SIs in such contexts. Building on the shortcomings of existing ways of using SI tools in rural areas, revealed in Chapters 3-4, this chapter shows how SIs are often employed in a mechanistic way that fails to reflect the transdisciplinary nature of knowledge and action for sustainability transformations (Hopwood et al., 2005; Brandt et al., 2013; Reid & Rout, 2020). It locates SIs within an overarching urban-centric narrative of SCD, calling for new ways to contextualize sustainability in rural and natural resource-based contexts (Bithas & Christofakis, 2006; Markey et al., 2010).

Thus, Chapter 5 proposes a storytelling approach for SD in rural and resource-based communities, offering a novel theoretical and methodological contribution to research by outlining how narrative interpretations to policy and planning could be integrated with more rationalistic indicator-based tools (van Hulst, 2012; Veland et al., 2018; Lyytimäki, 2019). In this approach, stories can provide guidance to local governance actors seeking to craft policy recommendations based on the information conveyed by the indicators, thereby simplifying complex data to offer a clear ‘moral’ of the story to inform policy development (van Hulst, 2012; Jones et al., 2014). Through this lens, Chapter 5 reframes the conceptual framework discussed in Chapter 1 in light of the findings of Chapters 3-4, highlighting the inadequacies of traditional means of using indicator tools to foment societal transformation towards SD. Based on these findings, Chapter 5 returns to the conceptual underpinnings informing the dissertation and critically evaluates the utility of SI tools for supporting rural SD, ultimately re-orienting the conceptualization of rural SI tools through a storytelling lens. To validate this storytelling approach, Chapter 5 calls for empirical work to examine how rural stakeholders can use stories and indicators together to measure and mobilize SD.

To conduct this analysis, I carried out a comprehensive review of scholarly publications in the SI field, building on literature review going back as early as 2015 but iteratively returning to scholarship in the field as the empirical research in Phases 1-2 was conducted. This review covers publications from 1996 to 2020, representing the last 25 years in SI research, including peer-reviewed scholarly publications and relevant grey literature. As in the other phases, I followed an interpretivist approach to deriving patterns and gaps in this literature using purposive sampling (Patterson & Williams, 1998), combining narrative and theoretical literature review techniques (Schreiber et al., 1997; Paré, Trudel, Jaana, & Kitsiou, 2015). This review was

also informed by the transdisciplinary approach outlined in [Chapter 1](#), particularly sustainability science and I2S (Brandt et al., 2013; Bammer, 2016). [Chapter 5](#) also builds on the CCF by demonstrating how storytelling as a theoretical and methodological approach can consider intangible rural assets, often associated with cultural capital, more effectively than indicator-based tools. Moving between the literature and empirical findings, I extended the review beyond the SI field to find concepts and tools that may help address gaps highlighted in the research, expanding into areas of research like narrative analysis and storytelling (Howard, 1991; Zilber, Tuval-Mashiach, & Liebllich, 2008). The outcome of this analysis is a novel contribution to both the SI field and research on rural sustainability, while offering new directions for research and practice on rural SD. This manuscript has been published in *Sustainable Development* (Lowery, Dagevos, Chuenpagdee, & Vodden, 2020).

Phase 4: Storytelling pilot on the Great Northern Peninsula (MS 4/Chapter 6)

Finally, Chapter 6 applies and further develops this storytelling approach through a community-based research process on the GNP (Ochocka et al., 2010; Halseth et al., 2016). Testing the potential of the storytelling approach proposed in Chapter 5 by providing empirical findings, this chapter also builds on Chapters 3-4 by further examining challenges identified in integrating rural AM/SI initiatives in local governance and their relationship with narratives of rural viability in NL. In keeping with its community-based research approach, the chapter also engaged in co-creation with stakeholders on the GNP through a regional asset inventory (see [Chapter 6](#)).

To conduct this research, I carried out an in-depth case study on the GNP. This phase was the most in-depth of the study, focusing primarily on the regional and community scale on the GNP while also considering the provincial context. I chose this region because it is often

highlighted in provincial rural development discourses for socio-economic challenges like population decline. The GNP is experiencing the most rapid demographic decline of any area in the province, shrinking by 7.6% between 2011 and 2016 (Community Accounts, 2020i); see Chapter 6 for more details on the regional context. Given the region's frequent attention in these deficiencies-based narratives (Simms & Ward, 2017; Roberts, 2019), it served as a paradigmatic case of rural sustainability stories that could provide valuable empirical findings to validate the claims advanced in Chapter 5 (Flyvbjerg, 2006).

While the case of the GNP offered potential for wider applicability, this phase was undertaken using a participatory and community-based research approach, striving both to contribute to scholarly knowledge and respond to community members' identified priorities (McIntyre, 2008; Halseth et al., 2016). The action-oriented and community-based nature of this case study, in which community members were actively engaged, also intended to make a practical contribution to regional development on the GNP, namely to further develop a regional asset inventory initially compiled during a previous AM study in the region (Parill et al., 2014b). This asset inventory is intended as a practical tool for regional stakeholders to use, thereby acting as an input to regional policy and development. This work thus builds on Chapter 4, which examined that asset inventory during its comparative analysis.

This process combined community and regional storytelling with AM and indicator-based tools through the CCF to tell the story of two communities on the GNP (Port au Choix and Conche), while identifying deep-seated regional sustainability narratives reflected by these communities' stories. I lived in Port au Choix during fall 2019, using participant observation to gain a rich understanding of local dynamics while also forming relationships with community members and leaders (DeWalt & DeWalt, 2011). Preliminary discussions with local stakeholders

began over a year before this fieldwork period, in which I met with key local leaders during multiple visits to the region to discuss the potential value of the research. I also interviewed a small subset of regional stakeholders (six key informants) on the GNP during Chapter 4, which provided me with initial impressions about regional narratives and suggestions for other key stakeholders to engage in the subsequent phase (see Chapters 4 and 6 for details). Based on this snowball sampling (Noy, 2008), as well as review of previous research and publicly available documents on the region, I identified a list of community leaders whom I engaged in semi-structured interviews to collect stories about the region's assets and share their perspectives on the value of AM for enhancing regional sustainability, conducting 30 interviews in total. I also held four focus groups in different sub-regions of the GNP, in which 23 local stakeholders participated. These focus groups were valuable both for generating new insights about regional narratives by gathering key stakeholders together and for engaging local residents directly in the action research component (Kamberelis & Dimitriadis, 2011).

I analyzed these interview, focus group, and asset inventory data using content analysis informed by the CCF and ABCD (Fuller et al., n.d.; Kretzmann & McKnight, 1993; Emery & Flora, 2006), as well as storytelling approaches to policy and planning (Sandercock, 2005; Jones et al., 2014; Hochschild, 2016). To fulfill the action research aims of the project, I also used stakeholder perspectives to update the regional asset inventory, which focus group participants also reviewed while contributing additional insights. The updating of this asset inventory occurred in an iterative process, in which regional stakeholders acted as co-creators of the resulting tool (and continue to provide feedback on its content and potential uses).

To construct the regional asset inventory and overall analysis, I used a six-capital model of the CCF in Chapter 6, which functioned as a storytelling device in two rural communities on

the GNP by intertwining the inductive identification of stocks with stories of community sustainability and indicators used by both local stakeholders and external actors to assess these stocks. This storytelling process engaged community stakeholders in expanding on the asset inventory, enriching the initial tool with stories of community and regional sustainability and resources that are undervalued or difficult to measure, thus informing the development of potential indicators to evaluate these assets. Thus, the first three research phases inform the use of a six-capital model in Chapter 6, particularly considering the importance of cultural heritage to community storytelling, the institutional barriers often facing governance in rural regions, and the importance of human capital stocks like demography and education for rural sustainability. Although these methods borrow from existing ethnographic and participatory research approaches (McIntyre, 2008; Halseth et al., 2016; Spradley, 2016), the incorporation of these techniques through a systems-based application of the CCF in a transdisciplinary approach, which actively engaged community members in its design, represents a novel methodological contribution to research on SCD. This community capital-based analysis is described in depth in [Chapter 6](#). An abstract of this manuscript has been accepted in a special issue of *Gateways*, an international journal focusing on community-based research and engagement, which community co-authors and myself will revise as part of the selected authorial team for the issue.

4. Knowledge mobilization

The translation and exchange of knowledge stemming from this dissertation has been a purposeful and continuous process throughout the study, characterized by the two-way flow of information and co-creation through a collaborative process between myself and non-academic stakeholders involved in the research. In addition to the scholarly research audiences inherent in

the manuscript-style dissertation format, I have also made efforts to communicate the study's findings to stakeholders including provincial policy-makers and development agencies, rural community leaders on the GNP, and stakeholders from other rural regions. With respect to non-academic audiences, foremost among which are community members on the GNP, I also aim to generate practical research outputs that emerged from the research process to help enhance capacity in the region (see [Chapter 6](#)). At the same time, some knowledge mobilization efforts overlapped with the storytelling methods employed in the study (as described in the previous section and below), in which I simultaneously shared incremental findings with various stakeholders and refined the approach used in later phases of the research. This overlapping process of knowledge sharing and reflection embodied the overall iterative nature of the study, reflecting the non-linearity of the four research phases. The following section discusses the efforts taken to disseminate the study's findings and engage local stakeholders in ensuring that it has the greatest impact in policy and practice.

The incremental sharing of research findings in communities involved in the research has been an ongoing part of the study while serving as a knowledge mobilization outlet. In Chapter 4, the workshop allowed me to share preliminary findings with a group consisting of both participants from interviews and other stakeholders from the case study regions and elsewhere in rural NL. The workshop also reflected two-way information flow in that participant perspectives helped inform later research phases, providing valuable insights on the value of AM and SI tools in contemporary rural sustainability efforts. In Chapter 6, knowledge mobilization occurred in a number of ways. During interviews and focus groups, I presented preliminary findings to residents along the way as a form of participant checking, often sharing my initial impressions with participants to invite their input. I have also continued working with a number of key

stakeholders on the GNP to explore alternative avenues for sharing the outcomes of the study, including co-authoring an article with local leaders which we plan to submit to the local newspaper, *The Northern Pen*. I am still working with these local stakeholders on preparing the article, ensuring that they have ample opportunity to contribute and tell stories about their communities and regions that can strengthen the key messages emerging from the research (while reframing its findings in the contemporary context of COVID-19), as well inviting them to serve as co-authors on the *Gateways* manuscript.

The ultimate knowledge mobilization effort on the GNP focuses on the regional asset inventory that was developed as an action research project. This tool, which was initially compiled in 2014 with some input from local residents and community leaders (Parill et al., 2014b), has now been augmented with extensive local stakeholder input from both interviews and focus groups. I am still in discussions with regional stakeholders on the best use of the asset inventory in regional development, including considerations like what capacity gaps must be filled before regional stakeholders would be able to take on the use and maintenance of the inventory, which local organization will ‘own’ it going forward, and how it can be used to inform specific development projects and regional planning and economic development.

To communicate the outcomes of the study to government audiences, I will target government officials at different levels to discuss the research and its potential policy relevance. These include meetings with elected officials and/or government staff to present the research, for which I will prepare a policy brief summarizing the research and its outcomes. I will also share the findings of the study with municipalities on the GNP, presenting to Town Councils (including municipal representatives who participated in the research). I will also present the regional asset inventory to the Atlantic Canada Opportunities Agency (ACOA), the agency

which funded the 2014 study upon which this phase of the research builds (and funded the research for Chapter 4 of this dissertation). Another national-level knowledge mobilization effort in which I am involved is a technical committee on rural data standards, in which I was invited to participate, wherein I am applying the lessons from Chapter 3 to inform national well-being indicators. I will also meet with staff at the NL Statistics Agency to discuss options for this research to be linked with Community Accounts and inform efforts to expand on it at the regional level. Additionally, I will meet with the NL Department of Tourism, Culture, Industry, and Innovation (TCII), a major funding body in rural NL, to relay the outcomes of the research related to cultural heritage and tourism development.

5. Conclusion

This chapter has outlined the overall methodological approach taken in the dissertation and summarizes the methods in each of its four manuscript chapters. Thus, it provides a broad overview of the methodology and structure that is not possible within the subsequent chapters, which are presented as stand-alone manuscripts. I have described the emergent nature of the storytelling approach outlined in these introductory chapters, expanding on the personal journey that informed the research process described in the preface to this dissertation and connecting it to transdisciplinary research programs to which this work aims to contribute. The following chapters now turn to the manuscripts, beginning with the national-level inventory of SI initiatives in rural Canada and continuing on to subsequent phases of the research.

Chapter 3: Goal-driven or data-driven? Inventory of sustainability indicator initiatives in rural Canada²

Abstract: This article seeks to address knowledge gaps on sustainability indicators (SIs) in rural and natural resource-dependent communities, considering how they are used to contextualize sustainable development priorities and support local governance. We build on recent scholarship on the potentials of SIs for stimulating societal transformation, extending this inquiry into rural and resource-based communities which have been under-represented in SI research. The governance challenges facing rural Canada, as well as its geographic and socio-economic diversity, provide a unique context for examining these issues. We provide relatively uncommon synthetic findings by compiling an inventory of SI initiatives across 39 rural communities and regions of Canada. Using the Community Capital Framework, we examine grey literature and academic publications related to each initiative spanning from 1999–2019 to determine the breadth of sustainable development priorities considered. Informed by collaborative and multi-level governance frameworks, we explore how these initiatives are used to support multi-stakeholder collective action. This article finds that rural Canadian SI initiatives prioritize socio-cultural capital, with relatively fewer economic and ecological indicators, while identifying a typology of SI use and inter-related governance dynamics informing how these priorities and indicators are determined. Although some initiatives display highly collaborative and bottom-up processes, many rural Canadian SI initiatives are characterized by a data-driven approach that, when met with local capacity gaps, fails to contextualize standardized datasets to reflect rural realities. We encourage more in-depth investigation of these findings and comparison of Canadian experiences to other jurisdictions.

Keywords: sustainability indicators; sustainable development; rural development; Canada; collaborative governance; regional development

² This manuscript was published open access in *Sustainability* on October 16th, 2020, and is available at <https://doi.org/10.3390/su12208601>

1. Introduction

Communities and regions worldwide have used indicators to monitor progress towards sustainable development (SD). Popularized by global calls to action such as Agenda 21 (UNCED, 1992), and more recently the Sustainable Development Goals (SDGs) (United Nations, 2015b), sustainability indicators (SIs) have been articulated at local, national, and international scales (Bell & Morse, 2018). However, SI research tends to focus on urban contexts (Moreno Pires, Magee, & Holden, 2017; Rodrigues & Franco, 2019), with relatively few studies in rural and natural resource-dependent areas. Recent entries in *Sustainability* have called for wider contextual variety in SI research and practice (Ramos, 2019; Berman & Orttung, 2020), which is needed to assess the unique sustainability conditions of rural areas (Vodden, Douglas, Markey, Minnes, & Reimer, 2019), while also reflecting global priorities like climate action and gender equity. The multi-dimensional goals of protecting natural capital while enhancing social equity and economic prosperity reveal conflicting stakeholder interests that must be addressed in pursuit of a holistic SD agenda (Serageldin, 1996; Roseland, 2012).

Researchers debate how stakeholders should use SIs to support sustainability transitions and influence governance at local, national, and global scales (Pinfield, 1997; Holman, 2009; Moreno Pires & Fidélis, 2015a; Hák, Janoušková, Moldan, & Dahl, 2018). Some have contended that SIs must be adopted by policy-makers in an instrumental fashion to have tangible impact (Brugmann, 1997; Hezri & Dovers, 2006); others argue that they should play more indirect roles like facilitating multi-stakeholder dialogue (Pinfield, 1997; Reed, Fraser, & Dougill, 2006; Lyytimäki, 2019). These debates relate to alternative perspectives on governance that highlight the complexity of sustainability challenges and call for collaboration between state and non-state actors at multiple scales (Ansell & Gash, 2008; Bache, Bartle, & Flinders, 2017; Florini & Pauli,

2018). SI tools may complement these collaborative governance arrangements when approached through a participatory process (Hermans, Haarmann, & Dagevos, 2011; Moreno Pires et al., 2017). However, it is unclear how local stakeholders can use SI tools to support such efforts in rural contexts.

Rural Canada has experienced government retrenchment resulting from neoliberal policy agendas, leading many communities to explore regional collaboration as a strategy for addressing sustainability challenges (Vodden, 2015; Gibson, 2019). Several tools have been developed at national, provincial/territorial, and local levels to measure well-being and sustainability (Community Foundations of Canada, n.d.; Canadian Index of Wellbeing, 2016; Peg, 2019), including SI case studies in rural areas (Parkins, Varghese, & Stedman, 2004; Holisko & Vodden, 2015; Uthman, 2020). However, to our knowledge no research has integrated insights from individual cases to understand if and how rural Canadian communities and regions have employed SIs, and whether these tools have aided rural stakeholders in responding to local governance challenges.

The primary goal of this article is to address these gaps by synthesizing knowledge of existing efforts to apply SIs in rural Canada, illuminating patterns across individual SI experiences and informing future use of these tools in rural contexts. We ask the following research questions:

1. Do SI tools in rural and resource-dependent Canadian communities and regions portray a holistic SD vision?
2. Do these initiatives support local governance in rural communities and regions, and if so, how?

To answer these questions, the article compiles an inventory of SI initiatives across rural Canadian communities and regions. We begin by outlining a holistic SD vision based in the Community Capital Framework (CCF) (Roseland, 2012; Winkler, Oikarinen, Simpson, Michaelson, & Gonzalez, 2016), considering that it can be defined and operationalized in various ways (see below), and describing how SIs have been used to advance this vision. We also discuss the knowledge gap around SI use in light of governance challenges facing rural Canada. Next, we outline the methods used to examine publicly available documents, including grey literature and academic publications spanning from 1999–2019, on 39 SI initiatives in rural and resource-based areas of Canada, using qualitative and descriptive quantitative tools to describe their characteristics and to what extent they reflect a holistic SD vision. Finally, we examine the role these initiatives are intended to play (and in some cases have played) in local governance, assessing various actors involved and to what extent they reflect collaborative and multi-level governance characteristics (Ansell & Gash, 2008; Bache et al., 2017), and presenting a typology of rural SI use and related governance dynamics to inform future research.

Need for a holistic SD vision

In rural and urban communities alike, SD occurs at the nexus of interconnected social, economic, ecological, and political systems (Berkes & Folke, 1992; Innes & Booher, 1999). This calls for a holistic approach to local development that considers multiple forms of capital, primarily to halt unchecked economic growth at the expense of ecosystems (Pearce & Atkinson, 1993; Serageldin, Steer, & Cernea, 1994). From a strong sustainability perspective, ecological capital has inherent value and should not be substituted by produced assets, implying a non-declining

stock over time (in contrast to weak sustainability, in which natural capital can be degraded as long as the total capital stock remains stable or grows) (Ekins, Simon, Deutsch, Folke, & De Groot, 2003). Social capital is crucial for maintaining bonds of trust between individuals and groups through both formal and informal networks and promoting equity (Putnam, 1995; Mathie & Cunningham, 2005). Human capital has long been acknowledged as an essential development priority, recognizing the importance of a healthy and educated population for economic productivity (Becker, 1995). Finally, cultural capital informs societal conceptions of sustainability and highlights the importance of diverse and inclusive societies (Berkes & Folke, 1992; Cochrane, 2006).

This community capital-based approach can be applied in a flexible manner to operationalize local SD priorities. Some articulations of the CCF identify up to seven forms of capital, assessing cultural, political, human, or physical capital independently (Butler et al., 2005). However, based on the three-legged stool approach to SD popularized by Serageldin (1996) and others, the CCF can also be arranged into ecological, economic, and socio-cultural capital, while reflecting the strong sustainability perspective to ensure that ecological integrity is not sacrificed for advances in other capitals (Knippenberg et al., 2007; Buriti, 2019). These forms of capital must be operationalized into local context by identifying their various sub-systems, or stocks, which are informed by the interdisciplinary research foundations of the CCF and local priorities. For example, natural capital may include stocks like ecosystems, soil, ground and surface water, air and climate, minerals, and landscape (Knippenberg et al., 2007). In this systems-based approach, the CCF envisions SD as a process that requires short-term trade-offs but builds on the interconnectedness between capitals and stocks to prioritize holistic

development in the long-term (Roseland, 2012; Zoeteman, Mommaas, & Dagevos, 2016). This three-capital model of the CCF is portrayed in Figure 2, including a sample set of stocks.

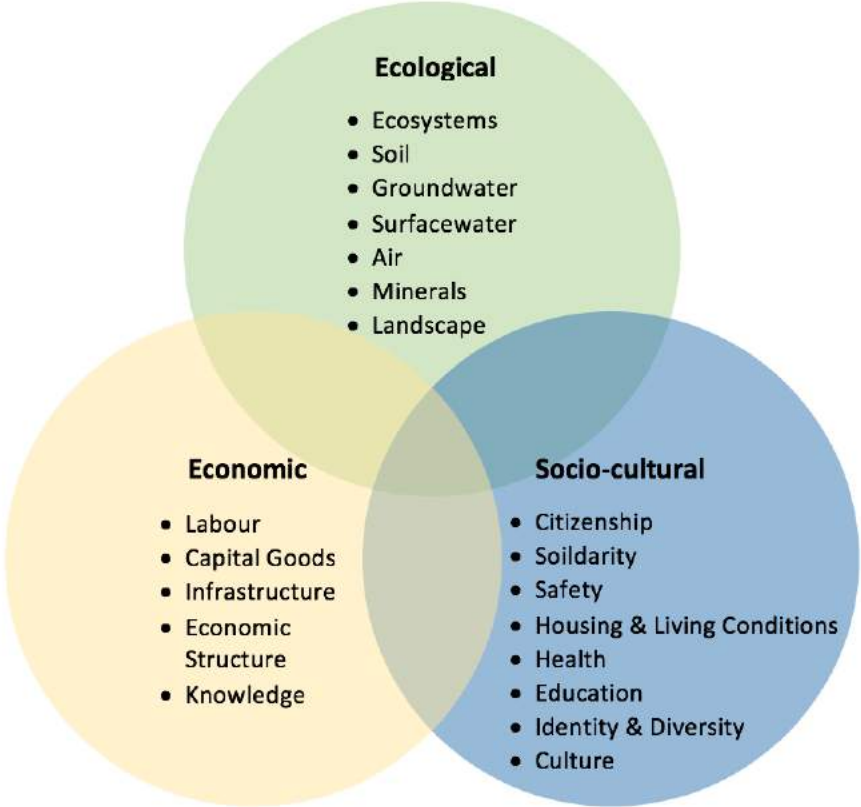


Figure 2. Three-capital model of the Community Capital Framework with sample stocks.³

The CCF has been widely used for understanding sustainable community development (SCD). For example, Bebbington (1999) examined sustainable livelihoods in Andean villages, contending that their unique capabilities could be harnessed to resist their labelling as ‘non-viable’ under neoliberal policy agendas. Emery and Flora (2006) discuss how the CCF aided rural

³ Adapted from Knippenberg et al. (2007). Note that these provide a basic framework to inform the identification of stocks at the local level, not a standard set of stocks that must be applied in all cases. See Section 2.4 for the process used to adapt this framework to reflect the most salient stocks across rural Canadian SI initiatives.

Nebraska communities in “identifying community capitals and strategically increasing capitals stocks” (p. 19). As mentioned above, these stocks and the specific sustainability goals linked to them must reflect key sustainability challenges in the local system while considering stakeholder perspectives (Butler et al., 2005). The CCF has been used in numerous contexts, from evaluating the sustainability of Dutch cities (Zoeteman et al., 2016), to forest community resilience in rural Mexico (Gutiérrez-Montes, 2005), and numerous other locales (Lowry, 2012; Lowery, 2013; Parill, White, Vodden, Walsh, & Wood, 2014; Fernando & Goreham, 2018; Uthman, 2020).

Using local indicators in collaborative governance for SD

This holistic approach often reveals conflicting development priorities that require a collaborative process to create mutual understanding and shared goals among diverse stakeholders (Susskind & Cruikshank, 1987; Innes & Booher, 1999). Governance frameworks call for multi-sectoral collaboration (Peters & Pierre, 2016; Bache et al., 2017), in which civil society, business, and local authorities work alongside upper-level governments in novel power-sharing arrangements (Ansell & Gash, 2008; Emerson, Nabatchi, & Balogh, 2012). This collaborative governance approach engages local residents meaningfully in co-designing decisions that affect them, rather than shallow forms of participation like tokenism or consultation (Arnstein, 1969), while striving for genuine collaboration that requires actors to devote time, develop trust, and relinquish some control over jurisdictional authority (Himmelman, 2002). Compared to conventional statist governance, this approach is considered more appropriate for addressing sustainability challenges that are complex in nature, embedded in dynamic socio-ecological systems, and affect diverse stakeholder groups (Vodden, 2015; Peters & Pierre, 2016; Florini & Pauli, 2018).

The need to balance diverse stakeholder interests (and differing priorities across community capital areas) requires a common understanding of what SCD means in context and tools for determining whether communities are moving towards it over time. International frameworks from Agenda 21 to the SDGs have called for sustainability indicator (SI) frameworks to guide communities towards SD (UNCED, 1992; United Nations, 2015b), for which countless tools have been developed (Ramos, 2019). Academic SI frameworks originated in expert-driven tools (Ferrarini, Bodini, & Becchi, 2001; Bell & Morse, 2008), but have increasingly emphasized stakeholder participation and local perspectives (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; Holman, 2009). Many local SIs have also encouraged social learning among diverse stakeholders through shared reflection and visioning (Reed et al., 2006; Buhonovsky & Jäger, 2013).

Nevertheless, researchers and practitioners continue to debate how SIs should be used in governance. Some have argued that indicators must be directly incorporated into formal, government-driven policy and planning decisions to influence SD outcomes (Brugmann, 1997; Gahin, Veleva, & Hart, 2003; Hezri & Dovers, 2006); others have broadened the focus beyond government actors by calling for multi-stakeholder engagement and transparency in indicator design (Pinfield, 1997; Holman, 2009; Hermans et al., 2011; Reid & Rout, 2020). Distinct uses of SIs have been delineated, namely *instrumental use* as direct policy inputs versus *conceptual use* in informing multi-stakeholder dialogue, which may in turn influence behaviors or policy and planning decisions over time (Hezri & Dovers, 2006). The former has been observed in cases like Portuguese municipalities that have embedded SIs into sustainability planning guided by European Union frameworks (Moreno Pires & Fidélis, 2015), and Dutch jurisdictions that have used a community capital-based process called the Sustainability Balance to monitor

regional sustainability (Knippenberg et al., 2007; Zoeteman et al., 2016). However, this direct policy use is rare in practice (Lyytimäki, 2019), and even when this occurs it is difficult to measure the ultimate impacts on SD outcomes. In a recent meta-analysis, Ramos (2019) identified ongoing knowledge gaps in institutionalizing SIs into governance and understanding how they may be used differently across community or cultural contexts.

Instead, Holman (2009) suggests that SIs are more commonly linked to facilitating multi-stakeholder discourse and encouraging shared understanding. SIs have often aided local actors in translating global imperatives like Agenda 21 into context-specific SD goals with significant citizen participation (Reed et al., 2006; Moreno Pires et al., 2017). Therein, indicators can ‘strike a chord’ with different audiences (Hezri & Dovers, 2006), providing local stakeholders with a “common language to talk about sustainable development” (Hermans et al., 2011, p. 6). Nonetheless, this evidence of ‘soft impacts’ has not clarified whether these participatory approaches lead to tangible SD outcomes (Reed et al., 2006; Bell & Morse, 2018). One challenge is the complex nature of societal transitions towards sustainability, which confront vested interests with a stake in preserving the status quo (Loorbach, Frantzeskaki, & Avelino, 2017), and take considerable time to develop a shared vision among diverse stakeholders (Himmelmann, 2002; Peters & Pierre, 2016). Bell and Morse (2018) call for meta-analytical work to integrate knowledge of SI use experiences and examine how they are formulated by various stakeholders, a call to which this article responds.

Under-representation of rural SI tools

Furthermore, SI tools tend to be developed and applied in urban contexts, with relatively few examples from rural communities and regions. Although some case studies have examined rural

areas (Bebbington, 1999; Emery & Flora, 2006), research in urban settings is much more common (Holden, 2013; Moreno Pires & Fidélis, 2015; Ramos, 2019). Recent studies have expanded the focus into areas like Arctic cities and remote regions (Berman & Orttung, 2020; Stepanova, Gritsenko, Gavrilyeva, & Belokur, 2020), and Indigenous contexts such as the Maori (Reid & Rout, 2020). However, a scan of recent literature reveals that, out of 87 worldwide SI case studies, only 22 focused on rural settings (25%), compared to 52 urban case studies and 13 focusing on regions including both urban and rural communities (which mostly included rural areas as part of a larger metropolitan area).⁴ This gap widens in North America, where only two studies were retrieved with a rural focus (9% of rural case studies).

Although rural communities are generally under-represented in indicator-based research, extant studies in non-metropolitan contexts have often examined communities that depend on natural resource industries (which describes many, although not all, rural communities). For example, forestry-dependent Canadian communities have been the subject of both academic SIs and federal forestry policies (MacKendrick & Parkins, 2004; Parkins et al., 2004), while community-based fisheries monitoring has complemented and even challenged official stock assessments (Kittinger, 2013). The mining sector has responded to criticism by undertaking corporate social responsibility reporting efforts and entering into Impact and Benefit Agreements (Jenkins, 2004; Caine & Krogman, 2010), with adjacent communities using SIs to anticipate the impacts of mining activity (Uthman, 2020). In these contexts, SIs may act as early warning signals for communities whose dependence on a single industry leaves them vulnerable to ecological and

⁴ We searched the Scopus database for the following keywords: “sustainability indicators”, “local”, and “communit*”, limiting the search to peer-reviewed articles and book chapters published between 2011-2020. From a total of 206 studies retrieved, 87 were determined to be SI case studies (focused on the community or regional scale) based on content analysis of study titles and abstracts, each of which were classified as either focusing on urban or rural contexts, or a combination.

economic shocks (Fraser et al., 2006). However, such research rarely spans across natural resource sectors (e.g., comparing indicators of forestry-based and mining communities), or considers sustainability challenges facing rural communities that do not rely on natural resource extraction.

The rural Canadian context

Canada features diverse geographic, economic, and demographic conditions in rural and natural resource-based places (Markey et al., 2015). Rural Canada also faces considerable governance challenges stemming from the withdrawal of upper-level government support, forcing local actors to explore alternative governance arrangements based in cross-community and sectoral collaboration (Gibson, 2019). There is also a variety of SI tools at various levels that rural stakeholders may be able to adapt (Community Foundations of Canada, n.d.; Canadian Index of Wellbeing, 2016).

Diversity of rural geographies

Rurality is a socially constructed and context-dependent concept (Halfacree, 2007), with the only commonly agreed-upon factors being low population density and distance from high-density settlements (Lauzon, Bollman, & Ashton, 2015), which vary across national and regional scales. It is also shaped by rural citizens' subjective experiences and attachments to place (Halseth, Markey, Ryser, & Manson, 2016), as well as identities imposed by urban residents onto rural people (Avery & Fortunato, 2016). In Canada, quantitative benchmarks exist like the 'Census rural' designation (including all residents outside of communities of 1,000 or more with a population density below 400 inhabitants per km²), or the 'rural and small town' (RST) designation

which also includes communities beyond population centers of 10,000 or more (du Plessis, Beshiri, & Bollman, 2001). However, many communities that fall outside of these thresholds may be considered rural in their regional contexts or have histories of resource dependence linking them to rural regions through manufacturing activities like pulp and paper production or agri-foods. Depending on the definition used, Rural Canada comprises between 17–19% of the overall population (6–6.5 million residents) (Bollman, 2016; Statistics Canada, 2019c).

Rural Canada experiences considerable diversity across these criteria. Approximately 2/3 of Canada's population lives on only 4% of the country's landmass along the southern border, creating geographic disparities between southern and northern regions (Statistics Canada, 2017; Vodden et al., 2019). Northern residents predominantly live in rural and remote communities, with few cities above 100,000 residents (the cut-off for Census metropolitan areas, or CMAs), although what constitutes a Northern or remote community varies across provinces (with Canada's three territories all in the North). Canada's North is also largely populated by Indigenous Peoples, who were often forced into permanent settlements from nomadic lifestyles by colonial policies (Christensen, 2017). In contrast, more southerly rural communities are often highly interdependent with nearby cities, linked by regional sustainability issues like food systems (Reimer, Barrett, Vodden, & Bisson, 2019), and labour markets (Freshwater, Simms, & Ward, 2014). Some rural areas have become sought-after destinations for urbanites seeking amenities like low-cost housing and the therapeutic and recreational benefits often associated with rural landscapes (Chipeniuk, 2004; Cross, 2015; Columbia Basin Rural Development Institute, 2016). In contrast, remote communities are often connected to urban centers only through natural resource extraction activities (Innes, 1995) —in which companies with largely urban headquarters extract resources from remote regions—and policies set by decision-makers in urban-based government institutions.

Shifting role of natural resource economies

Canada's history has been shaped by primary resource extraction, from early European mercantilist colonization to subsequent nation-building and resource-based development policies (Innes, 1995; Breen, Markey, & Reimer, 2019). Although primary industries have gradually declined in national economic importance, and in many rural communities, they remain important economic generators. In 2018, natural resources contributed 11.3% to Canada's gross domestic product, with the fossil fuel-based energy sector contributing 7.6%, mining 2.4%, and renewable resources (i.e., agriculture, forestry, fishing, and hunting) 1.3% (Statistics Canada, 2019e). Natural resources constitute 49% of national export revenue (Government of Canada, 2019c), and contribute heavily to government revenues in many jurisdictions.

Natural resources are also important at the local level, with over 900 Canadian communities directly depending on at least one resource sector (Government of Canada, 2019c). Across Canada's over 1,800 rural and remote communities (the majority having fewer than 10,000 inhabitants), 30% on average of labor force income is derived from natural resource-based activities (Vodden et al., 2020), and recent data show that 11% of the workforce in RST areas is employed in these sectors (Bollman, 2020).⁵ Nonetheless, primary sector employment has declined in many areas due to overharvesting, automation, global competition, and other factors. Resource-based communities could lose more jobs due to automation, with many communities that depend on natural resources and manufacturing at high risk of having local jobs automated out of existence (Younglai, 2017).

⁵ Statistics Canada divides resource-based occupations into two categories: 1) agriculture, forestry, fishing, and hunting; and 2) mining, quarrying, and oil and gas extraction.

Uneven demographic landscape

Demography reflects several important factors of community sustainability. Firstly, the retention (or attraction) of youth and young families in rural communities indicates that entrants to the workforce see opportunity in the local labor market, while the working population is generating tax revenue to sustain local services (Irshad, 2013). Conversely, a high proportion of retirees suggests that the economically productive population is dwindling, creating an imbalance between tax-generating economic activities and rising demands for services like healthcare and housing. Thirdly, in-migration of urbanites could be linked to an appealing set of local amenities (Johnson, 2012), while the influx of immigrants may suggest that there is a range of services for welcoming, settling, and retaining newcomers (Lauzon et al., 2015), but may also reveal local labour shortages and can be linked to the discrimination of visible minorities.

Like most industrialized countries, Canada's population has gradually urbanized, with the rural population (according to the Census rural definition) shrinking from 87% in 1851 to 19% in 2016 (Statistics Canada, 2015, 2019c). Nonetheless, the rural population grew by 1.5% between 2011–2016, but at a slower rate than cities (6%) (Bollman, 2016). These demographic trends vary considerably across provinces and regions. For example, between 2011-2016 the rural population of Atlantic provinces declined by between 2-3%, while rural Alberta's population grew by 4% (Statistics Canada, 2019c).

The need for collaborative approaches to rural governance

Rural Canada is adapting to the retrenchment of upper-level government support. Beginning in the 1980s, cutbacks to the welfare state meant that services to rural populations were often the first to be reduced (Breen et al., 2019). Furthermore, rural policy often takes a sectoral approach, rather

than following a holistic agenda (Markey et al., 2015). For example, rural development in Ontario is the mandate of the Ministry of Agriculture, Food, and Rural Affairs, while in Newfoundland and Labrador (NL) it fell under the tourism ministry until 2016, when the word ‘rural’ disappeared from the department’s title (Hall, Vodden, & Greenwood, 2016; Government of Ontario, 2020). After the federal Rural Secretariat was dismantled in 2013 (Wilson, 2013), there was no coherent national policy until a new rural economic development strategy and ministry was announced in 2019 (Government of Canada, 2020).

In the face of retracting senior government support, many rural communities have strengthened local governance capacity through collaborative approaches (Vodden et al., 2019). Although Canada has no uniform level of government between municipal and provincial/territorial levels, rural communities are increasingly working at the sub-provincial regional scale to share services through cross-community and sectoral collaboration (Breen et al., 2019). Regional approaches allow rural communities to pool resources to enhance often-limited municipal capacity (Vodden, Lane, & Pollett, 2016), while providing an appropriate scale to address issues like water management and economic development (Breen & Markey, 2015; Chireh, 2018; Gibson, 2019). In some provinces, these efforts are supported by regional government structures like BC’s regional districts and Québec’s *municipalités régionales de comté* (Breen et al., 2019). In contrast, NL has experienced the dismantling of rural development institutions that once provided key regional capacity to small municipalities (Hall et al., 2016).

Within collaborative regional approaches, a critical question is how rural Canadian communities can engage with Indigenous Peoples (First Nations, Inuit, and Métis) in a mutually respectful manner. Given the current agenda for reconciliation between Canada and the Indigenous Peoples who lived there before colonization (and into current times), including federal

commitments following the Truth and Reconciliation Commission (Government of Canada, 2019d), rural regions can be important sites for collaboration and knowledge-sharing between Indigenous nations and nearby communities (Penner, Baribeau, Neeposh, & Longboat, 2019). These efforts must acknowledge that Indigenous Peoples have their own unique rights, responsibilities, and ways of knowing, which have informed a number of indicator-based tools (Natcher & Hickey, 2002; Smith, Symington, & Allen, 2010; Klinck, Bradshaw, & the Naskapi Nation, 2015). Since these SI projects are informed by an entirely different worldview from those stemming from Western science and policy, the ways in which Indigenous Peoples define and measure sustainability must be considered.

Canadian SI tools

Several indicator-based tools have been developed in Canada at various scales that may inform local efforts in rural areas. The Canadian Index of Well-being (CIW) provides an alternative measure of national welfare (Canadian Index of Wellbeing, 2016), including applications at provincial and local levels (Saskatchewan Index of Well-being, 2019). Another platform is Vital Signs, coordinated by a national non-profit organization that supports community foundations across the country in developing local indicator reports on quality of life and SD (Community Foundations of Canada, n.d.). The federal government's environmental assessment process, which involves the analysis of ecological and socio-cultural indicators to evaluate major development projects, was revised in 2018 (Government of Canada, 2019a). The Genuine Progress Indicator, an alternative to Gross Domestic Product with numerous applications at national and state/provincial levels, has been advanced by its use in Nova Scotia and Alberta (Wilson & Tyedmers, 2013). At the provincial level, also, the System of Community Accounts was introduced

in NL to make official data more accessible to the public, allowing for retrieval of data at various aggregation levels (May & Hollett, 2008). At the community and regional scale, which is the focus of this article, several SI case studies have been also conducted in rural areas areas (Natcher & Hickey, 2002; Parkins et al., 2004; Holisko & Vodden, 2015; Klinck et al., 2015; Uthman, 2020). However, echoing Bell and Morse's (2018) critique of the case study-dominated SI field, to our knowledge no research has looked across individual rural Canadian SI experiences to compare their design and use at the local level. Furthermore, considering the governance challenges facing rural Canada and interest in collaborative approaches, there is a need to understand whether, and how, SIs can support collaborative arrangements in rural regions.

2. Materials and methods

This study compiled an inventory of rural SI initiatives based on available secondary information, drawing from both grey literature and academic publications. Its methods were informed by qualitative meta-synthesis, a systematic form of interpretivist research that seeks not to aggregate existing findings through deductive statistical procedures (as with quantitative meta-analysis), but contribute to research by illuminating patterns and proposing new directions (Schreiber, Crooks, & Stern, 1997; Walsh & Downe, 2005). We also draw from quantitative research synthesis tools such as case surveys (Newig & Fritsch, 2009).

Identifying rural SI initiatives

We began by identifying a broad array of rural Canadian SI initiatives. Using purposive sampling, this process intended not to exhaustively identify all SI initiatives in rural Canada, but represent a

diversity of rural contexts and approaches to indicator development and use. Intentionally excluding initiatives at the provincial/territorial scale, we focused on the community and sub-provincial regional level while considering how these local initiatives linked to higher-level frameworks. We began by searching scholarly databases, but after noting few studies on rural Canadian SI initiatives in available academic research (see above), we also consulted non-academic resources like Vital Signs (<https://www.communityfoundations.ca/vitalsigns/reports/>) and the Community Indicators Consortium (<https://communityindicators.net/>), locating grey literature such as project reports and websites. Case study documents were located in English, using keywords like “sustainability indicators”, “rural”, “well-being”, “monitoring”, and “Canada”. We searched for documents dated between 1999–2019, but since many initiatives had produced multiple documents (e.g., updated indicator reports), we examined the most recently produced document in-depth for each project. Limited French abilities among the research team prevented in-depth investigation of materials from Francophone areas (e.g., Québec); a provincial SD indicator system was found (Government of Quebec, 2020), but no local iterations of this framework were identified.

To classify the rurality of each initiative, we were informed by the RST classification (as discussed above), but applied it in a flexible manner considering the variability in conceptions of rural identity across provinces and regions. This process consisted of identifying whether a given initiative fell within an RST area, a census agglomeration (CA, or smaller population center between 10,000–100,000 residents), or was on the fringes of a CMA, while simultaneously assessing whether project documents self-described the community or region as rural. We also considered small cities (population < 100,000) which either depended historically or presently on natural resource sectors and were not adjacent to a CMA. We initially identified 56 initiatives in

seven of Canada's ten provinces (no initiatives found in the territories). Of these, 39 were Vital Signs initiatives (69%), two were derivations of the CIW, and the remaining 15 were not affiliated with any national SI tool.

Exclusion criteria

Next, we applied several exclusion criteria to refine the initially identified set of rural SI initiatives. The first goal of this process was to reduce the number of cases in the sample to allow for more in-depth analysis of each case, while still following a meta-synthetic approach that prioritized breadth over depth. Informed by the rural contextual factors discussed above, we sought to limit the sample to a set of initiatives that represented a diversity of rural geographies (e.g., small city, urban-adjacent, and remote), regional economic structures (including both highly natural resource-dependent areas and ones without significant resource activity), and demographic trends (growing vs. declining). Thus, initiatives in communities or regions that overlapped geographically or were heavily concentrated in one region (e.g., southwestern Ontario, coastal British Columbia) were excluded to avoid over-representation of one context, while still including at least one from the same area. We included regions located partially in a metropolitan area to represent communities on the urban fringe (e.g., Selkirk, MB), but excluded regions that included an entire CMA (e.g., Kelowna, BC), since this scale would be more appropriately considered a metropolitan region. We also sought to represent SI initiatives developed by Indigenous Peoples in reserves or upon their traditional territories, and initiatives occurring in Northern or remote communities (which often overlap).

The exclusion process was also informed by the consideration of geographical scale, both to identify at what level rural SI initiatives are most commonly conducted and how scale relates to

local governance factors. We sought to include both initiatives in formal administrative regions (e.g., municipality, county) and in areas not based on formal boundaries (see Section 3.3). This process ensured that the sample included initiatives at both the single community and regional scale, representing a variety of ways that regional scope can be defined. Simultaneously, we wanted to ensure that all initiatives focused on sustainability at the community or regional level, rather than taking a sectoral or issue-based focus. Thus, we excluded initiatives that focused on a single topic (e.g., agriculture, forestry, schools), since these initiatives would not likely be comparable to others that considered a wide range of local issues.

Based on these criteria, we excluded 17 initially identified cases, including 12 Vital Signs and five grassroots initiatives; of these, seven initiatives were in Ontario, five in BC, three in Alberta, and one each in NL and Nova Scotia. (See supplementary material for a list of excluded initiatives and their locations). Most excluded initiatives were geographically close to a project that was included for further analysis, meaning that the geographic distribution of all identified cases was similar to those represented in the selected cases (Figure 3). Of the 39 remaining, 15 (38.5%) were in BC, 10 in Ontario (25.6%), six in Nova Scotia (15.4%), three each in Alberta and Manitoba (7.7%), and one each in Québec and NL. As shown in Figure 3, most were located in southern Canada, with only three located in self-identified northern regions. 27 (69.2%) were Vital Signs initiatives, 10 (25.6%) grassroots, and two (5.1%) CIW.

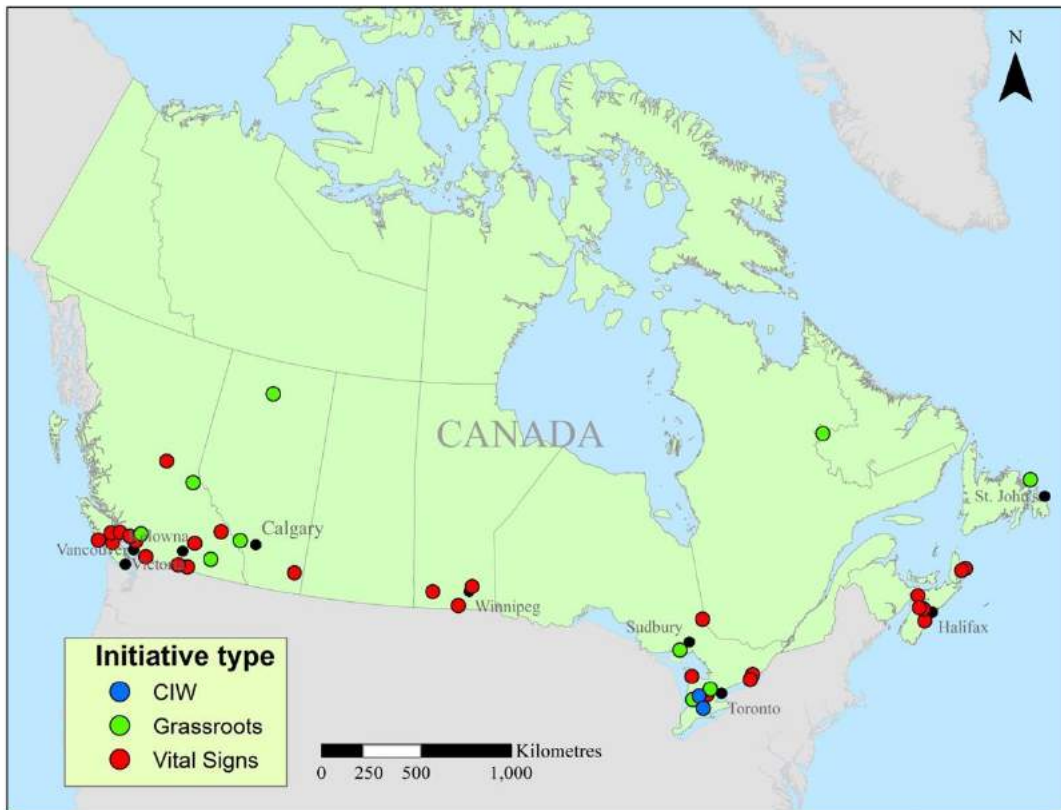


Figure 3. Map of rural Canadian SI initiatives included in the inventory.⁶

Comparing community and initiative characteristics

Next, to better understand the rural contexts in which the SI initiatives occurred, we compiled descriptive quantitative trends, including: demographic factors (i.e. population size, rate of growth/decline); major employment sectors, including the proportion of natural resource occupations; and, using Statistics Canada classifications to identify the nearest CMA, level of rurality. Based on thresholds identified by Freshwater et al. (2014), who used commuting distances of 100 km or less to define functional economic regions in Atlantic Canada, and

⁶ Map prepared by Myron King, Environmental Policy Institute, Grenfell Campus of Memorial University.

considering regional variations in factors like road quality and topography (which can greatly affect transportation conditions), we classified all communities within 150 km of a CMA urban-adjacent, those over 150 km as non-urban adjacent, and noted areas which self-identified their community or region as Northern and/or remote (which is conceived differently across provinces).

Community capital analysis

To assess whether these initiatives represented a holistic SD agenda, we used the CCF (Bebbington, 1999; Winkler et al., 2016), approaching the indicators used in each SI initiative as a set of stated sustainability priorities and examining how they reflected different forms of community capital. This assessment used a three-capital model informed by the three-legged stool concept (Serageldin, 1996), starting with a basic set of stocks (see Figure 2), but adapting them considerably to fit salient SD priorities described in project documents. We drew from the Sustainability Balance approach, which offers tools for operationalizing SCD by linking capitals, stocks, and indicators (Knippenberg et al., 2007; Zoeteman et al., 2016). Figure 4 shows how this method uses aggregation and data visualization tools to score all indicators related to a given stock, with each indicator's score contributing to the overall status of each stock and capital (represented by the smaller triangle that shows each capital's performance in relation to an ideal state).

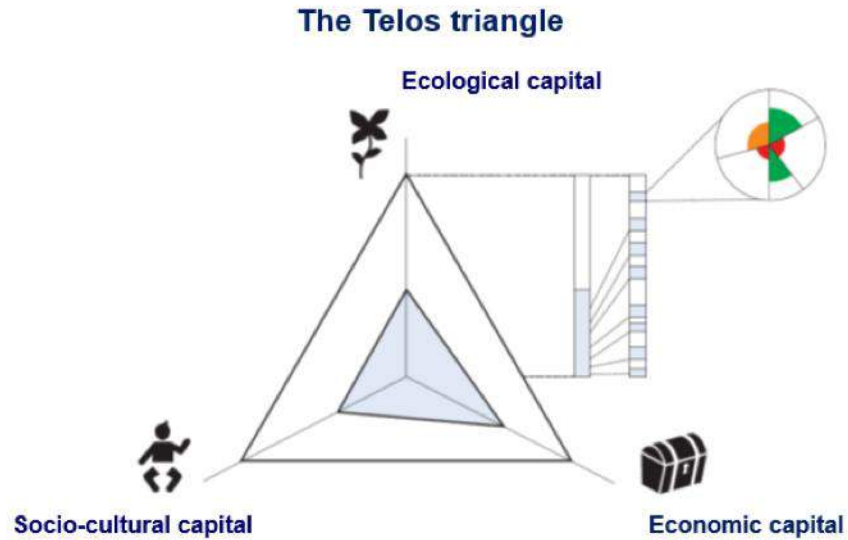


Figure 4. Community capital model used in the study.⁷

Between these stocks and the indicators used to measure them, local sustainability goals must reflect the priorities that are most important in the community or regional context; this process can occur through participatory (and lengthy) multi-stakeholder visioning and planning, or using a pre-determined set of goals and indicators (Knippenberg et al., 2007). Finally, the indicators are evaluated against benchmarks based on normative assessments of the state of each indicator (represented by the radial diagram in Figure 4). Figure 5 shows this process step by step.

⁷ Image provided by the Telos Brabant Centre for Sustainable Development, Tilburg Netherlands.

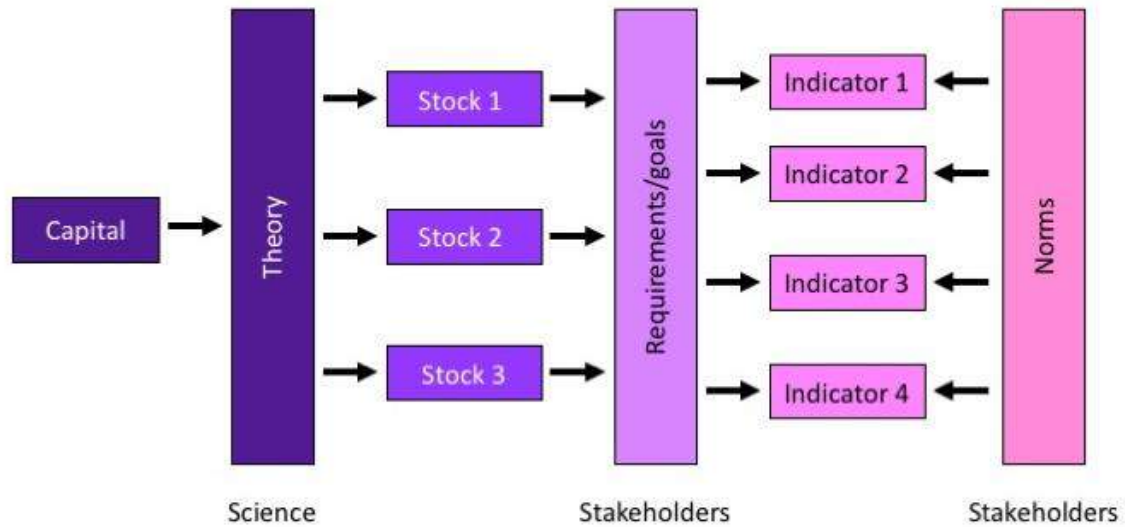


Figure 5. Identification of capital stocks & indicators through the Sustainability Balance.⁸

This analysis was organized according to the above approach, which guided our identification of key stocks based on the indicators used across the 39 SI initiatives, rather than evaluating the state of local indicators based on benchmarks. To determine key stocks among the SI initiatives, we used a blend of inductive and deductive content analysis (Stan & Stan, 2010), aggregating each initiative’s goals and indicators and comparing them to these stocks. We initially identified a large number of inductive priorities, then refined them in comparison with the CCF stocks. Through this iterative process, we combined indicators that were duplicative (e.g., number of seniors vs. percent senior population), as well as similar stocks. We analyzed the frequency with which they appeared across initiatives, comparing stock-and indicator-level emphasis between initiatives, revealing what kinds of indicators were used to define SD in context and whether certain kinds of initiatives prioritized different stocks and indicators over others.

⁸ Image adapted from Zoeteman et al. (2016).

Governance analysis

Finally, we examined case documents to determine the role of the initiatives in local governance. This assessment was informed by theories of shared decision-making, public participation, and collaborative and multi-level governance (Arnstein, 1969; Susskind & Cruikshank, 1987; Ansell & Gash, 2008; Bache et al., 2017; Florini & Pauli, 2018), insights on regional collaboration in rural Canada (Vodden, 2015; Gibson, 2019), and SI literature (Pinfield, 1997; Hezri & Dovers, 2006; Lyytimäki, 2019). Using QSR Nvivo™ software, we assessed case documents based on the following criteria:

- Range of governance actors involved at different scales
 - Lead actor
 - Range and level of involvement of other actors
 - Initiative duration and age
 - Engagement of local residents
 - Scale and overlap with formal government jurisdictions
- Level of embeddedness in local SD priorities and related governance processes
 - Linkages with municipal or regional SD strategies
 - Linkages with national/international frameworks
 - Incorporation of local priorities and perspectives
- Intended role in shared decision-making
 - Intended (or actual if applicable, depending on the initiative stage) uses of SI tool among different audiences
 - Depth of collaboration (in practice and/or envisioned) among actors

3. Results

Community and initiative characteristics

The SI initiatives identified in the inventory varied considerably in their community and regional contexts. Across all cases, the average population was 48,017 residents, ranging from a community of 601 residents to a region of 167,425 (see [Appendix 1](#) for a full list of case locations and related contextual factors); 19 initiatives (48.7%) were in Census RST areas (<10,000 residents). Of areas including a CA as their largest community, 25.6% had a town between 10,000–39,999 inhabitants, 15.4% had a CA of 40,000–69,999 people, 5.1% encompassed a small city between 70,000–99,999, and 5.1% were on the fringes of a CMA. Figure 6 shows the distribution of initiatives across these census classifications and the average population of each grouping.

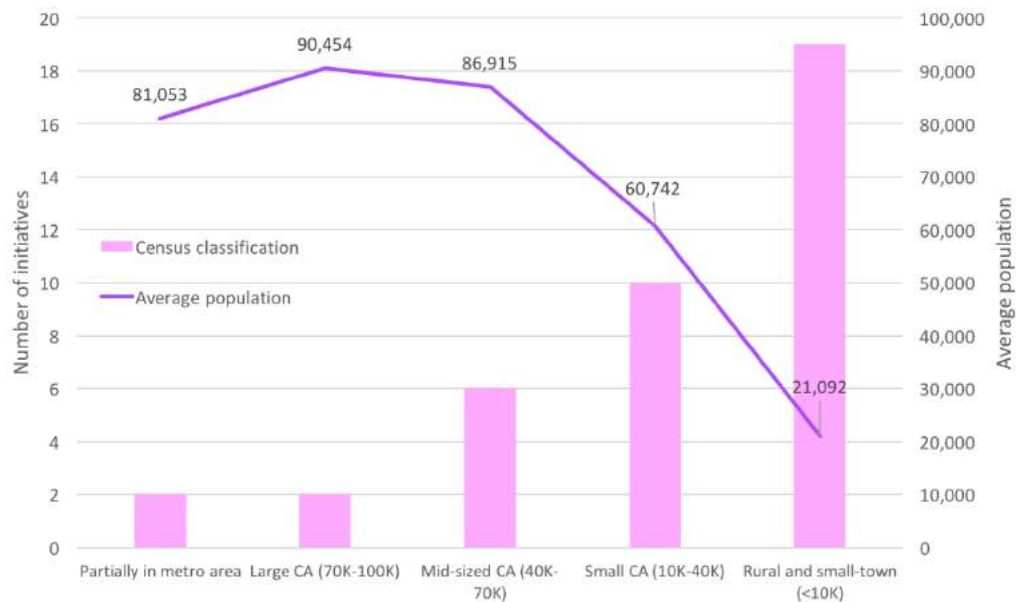


Figure 6. Distribution of initiatives across census classifications with average population.⁹

⁹ Average population refers to the total population of the community or region considered in each initiative, not of the largest community (e.g. CA) included in that area.

The sample varied in demographic change between 2011–2016, ranging from -4.6% (Temiskaming, ON) to +20.7% (Whistler, BC). However, the majority of communities and regions (71.8%) were growing, with an average 5-year growth rate of +3.5% across all cases. The prevalence of natural resource occupations ranged from 1.3% (Whistler) to 20.9% (Robson Valley, BC), with an average of 7.4% of the local workforce based in these sectors. The average distance to a CMA was 183 km, with 21 initiatives (53.8%) less than 150 km from an urban center, 30.8% in non-urban-adjacent areas (>150 km from a CMA), and 7.6% each in small cities and remote Northern areas. Many communities with low resource dependence were heavily tourism-dependent (e.g., Whistler) or urban-adjacent (e.g., Headwaters, ON). In contrast, the most resource-dependent areas tended to be non-urban-adjacent, with communities that had over 10% natural resource dependence located an average of 291 km from the nearest CMA.

Considering these factors, the initiatives were clustered within a particular range. Most communities were relatively urban-adjacent, had a low level of dependence on resource sectors, and stable or growing populations, as shown in Figure 7.

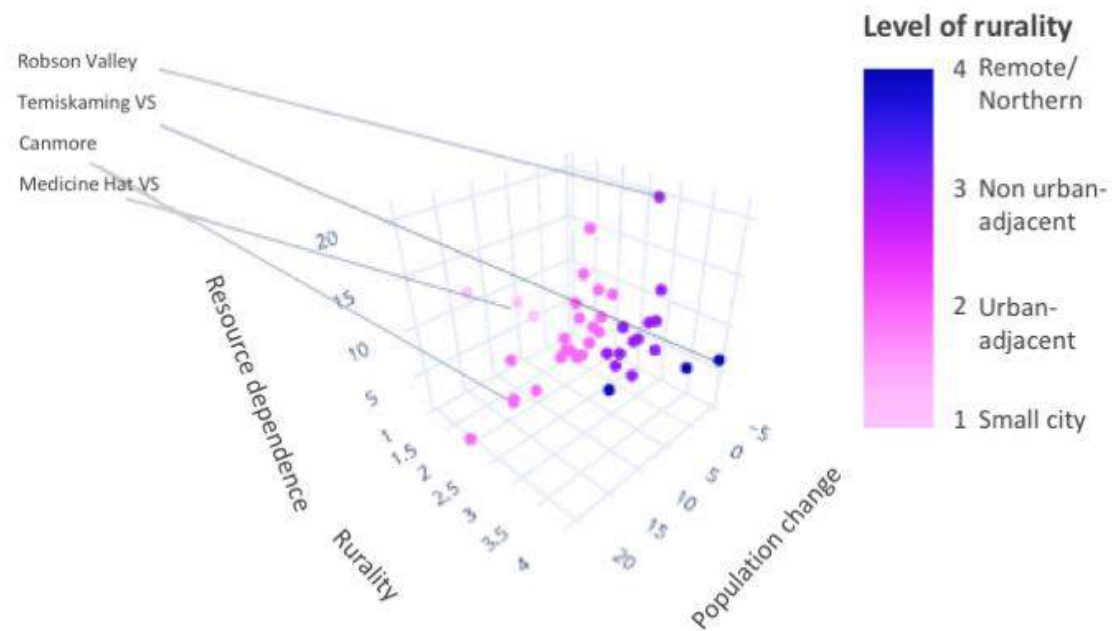


Figure 7. Distribution of initiatives across geographic and socio-economic factors.

There were several outliers, like the Robson Valley, a relatively remote region in BC's interior that is heavily forest-dependent and declining demographically, and Canmore, AB, a tourism-dependent community near Calgary facing rapid growth. Two of the three remote/Northern initiatives were conducted by Indigenous Peoples in very remote areas (discussed below), with the remaining initiative a Vital Signs (VS) initiative from Northern Ontario. These stood in contrast to small cities (VS projects in Medicine Hat, AB, Prince George, BC, and Brandon, MB), all of which depended historically on natural resources or continue to do so.

Rural SD priorities and indicators

We identified 1,073 indicators across all initiatives, beginning with 20 basic stocks (see Figure 2) but adapting them substantially to reflect 28 overarching priority areas in which these indicators were organized across project documents. The initiatives placed the greatest emphasis on socio-cultural capital, using 681 indicators (63.5%); prevalent socio-cultural stocks included physical health (109 indicators total), education (82), and housing (66). The second-most emphasized capital was economic (222 indicators, or 20.7% of total), prioritizing economic structure (72 indicators), labor (63), and transportation (50). Ecological capital was measured by 170 indicators (15.8% of total), emphasizing ecosystems (56 indicators), waste reduction (22), and climate change and energy (22).

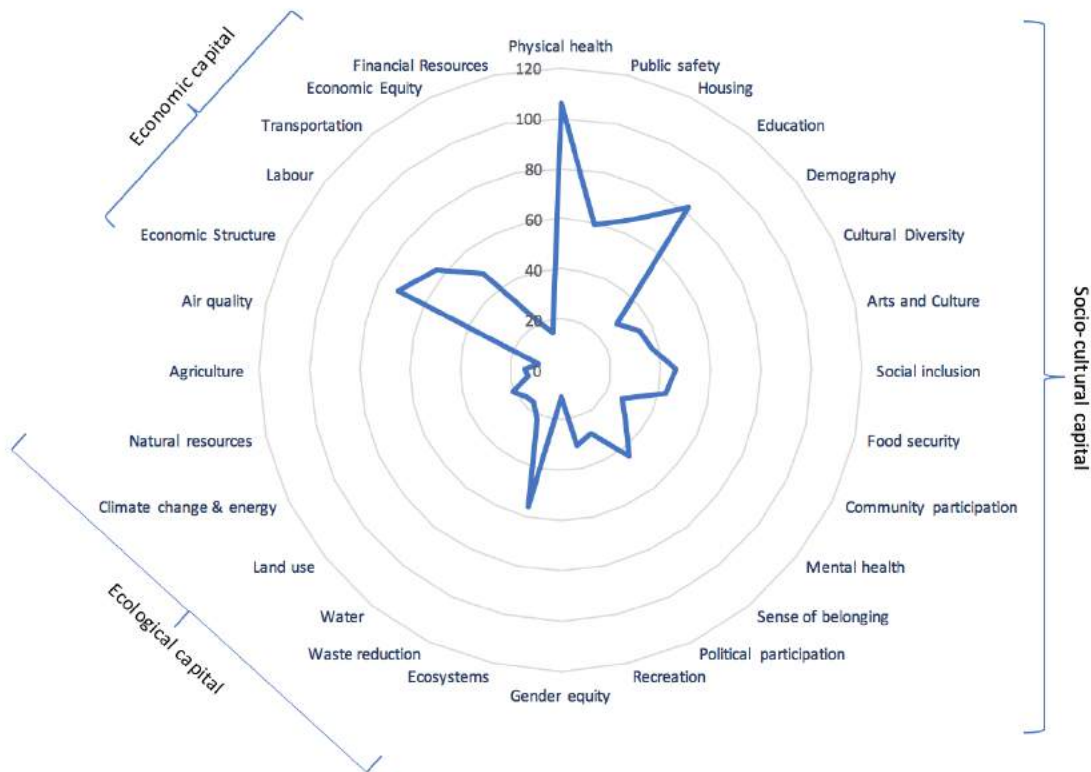


Figure 8. Stock-level emphasis on community capital (number of indicators per stock).

Figure 8 reveals the most prioritized areas of rural SD and those that were under-emphasized. Of the latter, ecological stocks like air quality and natural resources were relatively under-prioritized, as well as financial resources in economic capital and gender equity in socio-cultural capital. Comparing stock-level emphasis by level of rurality, Figure 9 below shows how factors like urban adjacency or remoteness affected the SD priorities considered. Since two of these categories (small city and remote/Northern) had only three cases, we applied a uniform weighting (calculating the proportion of indicators per stock across geographic types) to compare their prioritization of stocks.

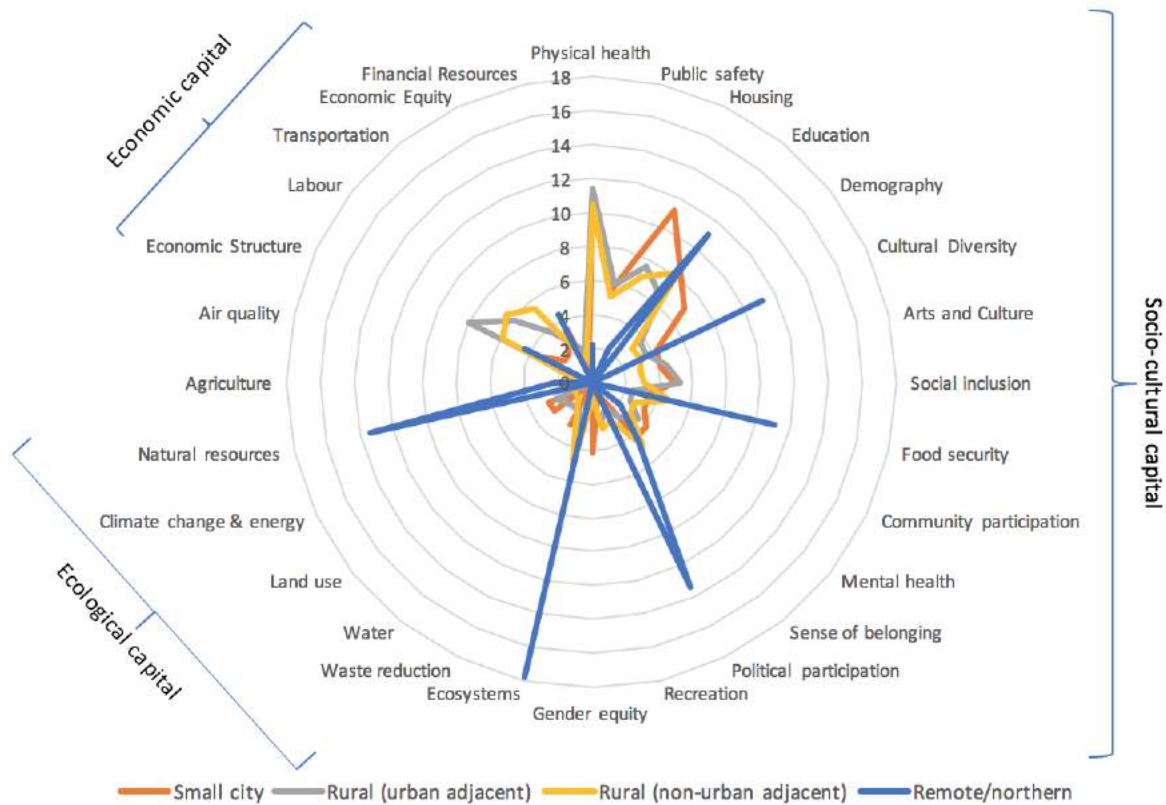


Figure 9. Stock-level emphasis by level of rurality (weighted to 100).

As shown above, remote/Northern areas were the only geographic category that departed considerably in their stock-level emphasis. Two of these initiatives were led by First Nations, whose indicators were informed by Indigenous cultures and worldviews. For example, the Little Red River Cree Nation (LRRCN) articulated indicators like “community elders receive the meat harvested from trophy hunts” (Natcher & Hickey, 2002), which simultaneously related to natural resources, ecosystems, food security, and cultural diversity (see Section 4).

These initiatives used several kinds of indicators. Official indicators (typically collected by government agencies like Statistics Canada) provide standardized statistical values to represent the current state of a given issue, contrasted to indicators measuring inputs of administrative or financial resources or survey responses gauging resident attitudes. For example, vehicular

accidents may be low according to Census data or local police records, but residents (or a subset of the population like seniors) may still perceive that local driving conditions are unsafe, while policy inputs like municipal budgets for traffic calming measures may be increasing. These indicator types often overlap, (e.g., the inclusion of many perceptual indicators in official data collected by Statistics Canada). We coded all indicators using these categories and compared their frequency across stocks (Figure 10), also identifying aspirational indicators which were framed as sustainability goals describing the direction in which indicators were intended to move. For example, an aspirational indicator like “assist with the retention and expansion of local businesses” was only used in one initiative (Huron County, ON), contrasted with official indicators like the number of new businesses licenses per year (used by seven initiatives). Living wage was the most popular aspirational indicator (used by 10 initiatives), aiming to bring average wages to a livable level, often based on local living wage studies.

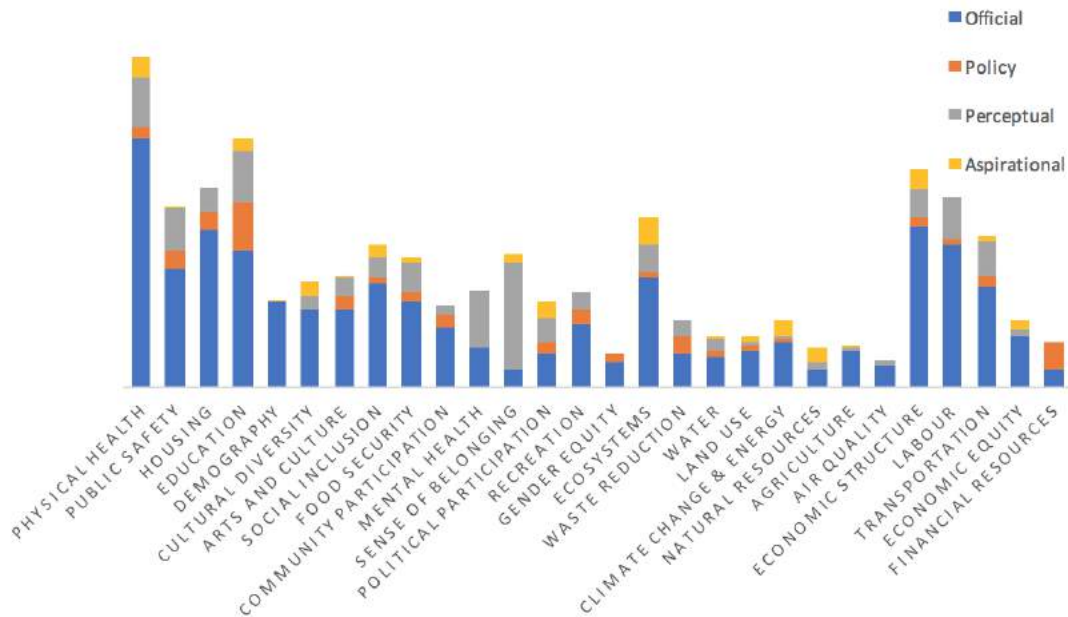


Figure 10. Indicator types across initiatives (percentage of total indicators per stock).

The most common indicator type was official data (65.6% across all initiatives), followed by perceptual (19.9%), policy (8.2%), and aspirational (6.3%). Policy indicators were common among education (e.g., public spending per student), housing (e.g., number of affordable housing units built by local authorities), and financial resources (e.g., property tax rates). Unsurprisingly, many policy indicators fall within the jurisdiction of local authorities. Conversely, some stocks (e.g., mental health, sense of belonging) relied heavily on perceptual indicators, reflecting the nature of these issues. Perceptual and official indicators were often paired, especially those collected by Statistics Canada (e.g., measuring self-perceived sense of belonging to community alongside community members' average length of residency). A small number of initiatives blended these four indicator types, but the majority predominantly relied on official and perceptual indicators.

A major reason for the predominance of official indicators was their common use in VS projects, which were often organized in a uniform list of priority areas like Health, Learning, Economy and Work, and Environment (adapted from CFC, 2018); see [Appendix 2](#) for a list of these priority areas and standard indicators). This framework directly influenced the indicators used in local VS reports. For example, of the 15 most common indicators across VS reports, many are sourced from this standard indicator set. Most of the common indicators used by both VS and non-VS initiatives (including grassroots projects (10) and CIW (2)) correspond to socio-cultural capital. Although many of these indicators were used by both groups (e.g., unemployment rate, perceived sense of community belonging), non-VS projects prioritized some indicators not often used by VS. For example, waste diversion rate was used by 41.6% of non-VS initiatives (5/12), the only ecological indicator to appear in their top 15 list, whereas only 22.2% (6/27) of VS reports included this indicator. Similarly, the number of business licenses issued annually was used in

33.3% of non-VS projects (4/12), but only 11% of VS reports (3/27). See [Appendix 3](#) for the 15 most commonly used indicators in VS and non-VS initiatives.

The large number of VS initiatives influenced the stocks prioritized across the sample (e.g., physical health, education, housing). In contrast, non-VS initiatives placed greater emphasis on ecosystems and economic structure, while converging on labor, housing, and of sense of belonging, and slightly weighting social inclusion and political participation higher than VS initiatives. Figure 11 compares the holism of these initiative types, accounting for the over-representation of VS initiatives by applying a uniform weighting so that each stock’s weight is converted to a proportion of the total number of indicators across initiative type.

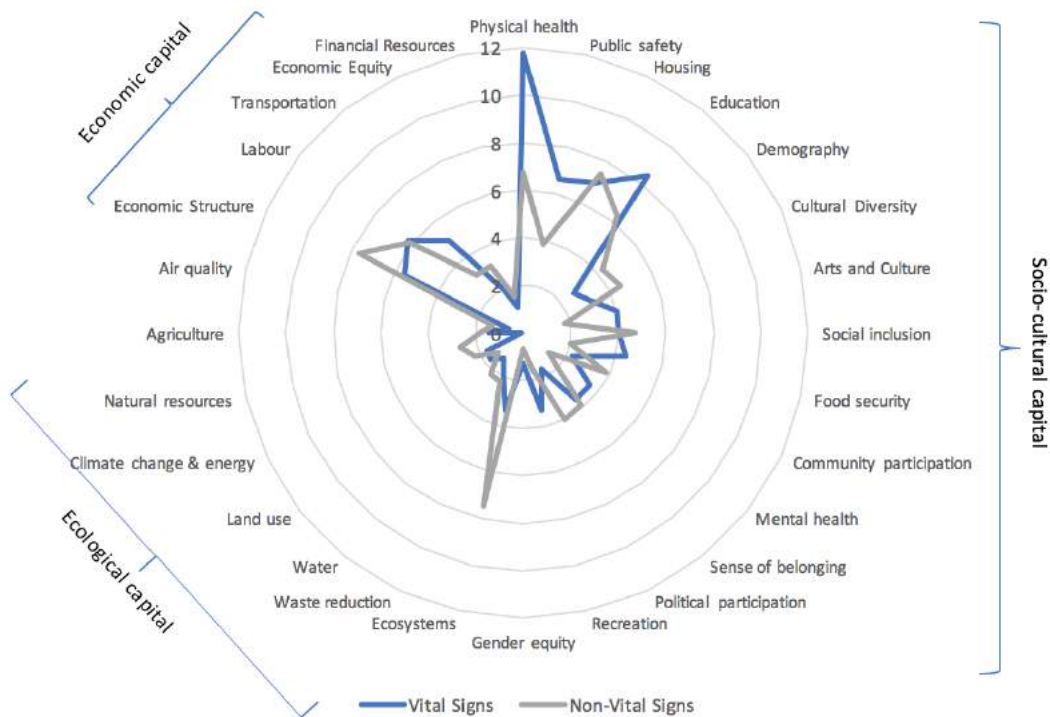


Figure 11. Stock-level emphasis by initiative type (weighted to 100).

Among non-VS initiatives, grassroots projects also differed considerably from CIW initiatives. Only two CIW projects were included in the inventory (Oxford County and My Perth-Huron), which prevented a meaningful analysis of differences across stocks and indicators due to the low sample. However, at the capital level, these initiatives had very little variation from VS projects, while grassroots initiatives had a stronger emphasis on ecological and economic capitals. Figure 12 shows the relative emphasis on forms of community capital, applying a uniform weighting by converting the number of capital-based indicators into a proportion of the total indicators per initiative type.

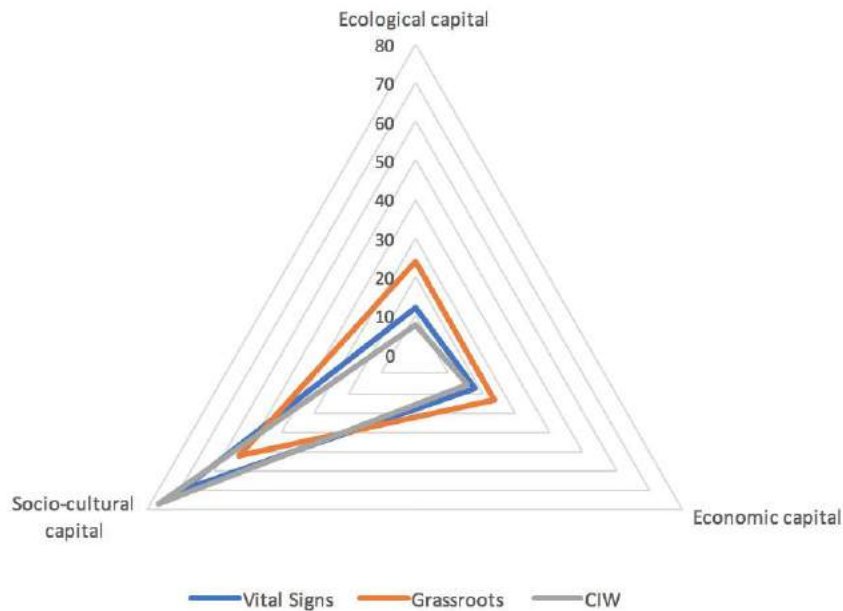


Figure 12. Capital-level emphasis of initiative types (weighted to 100).

Socio-cultural capital takes precedence across all initiative types, although grassroots initiatives were somewhat more balanced than VS and CIW (which were almost identical in capital-level emphasis) due to more frequent use of ecological and economic indicators. Returning

to the stock level, some stocks (e.g., gender equity, air quality, and financial resources) were under-emphasized across all initiative types, potentially revealing gaps in a rural SD agenda.

Governance assessment

Leading actors

The approach that each initiative used to measure local SD was strongly influenced by its lead organization. The VS project, to which 69% of the sample belongs, is a national project coordinated by Community Foundations of Canada (CFC), which supports community foundations (Community Foundations of Canada, n.d.), a specific type of charitable organization that accepts donations and distributes grants to other charities within a defined geographic area (Philanthropic Foundations of Canada, n.d.). Thus, the lead actor for most initiatives was a non-profit organization (29 initiatives, or 74.3%), including two initiatives not affiliated with VS Other lead actors (representing 25.7% of the sample) included municipalities, regional governments (e.g., county, regional district), Indigenous nations, or academic researchers. Among non-VS projects, lead actors were spread relatively evenly across initiatives. The lead actors across initiatives are shown in Table 3, along with their scale (discussed below).

Table 3. Distribution of SI initiatives by lead actor and scale.¹⁰

Lead actor Scale	Non-profit	Municipality	Regional governing body	Indigenous nation	Academic
Municipal	5	2	0	0	0

¹⁰ Cell coloration is based on a heat map, with darker cells indicating a higher frequency.

Lead actor Scale	Non-profit	Municipality	Regional governing body	Indigenous nation	Academic
Metropolitan area	2	0	0	0	0
Administrative region	10	0	2	0	1
Multi-county	3	0	0	0	0
Non administrative region	9	0	1	0	2
Indigenous territory	0	0	0	2	0
<i>Total</i>	29	2	3	2	3

3.3.2 Scale and jurisdictional overlap

These driving actors were directly related to the scale at which initiatives were carried out. The most common scale was a designated administrative region (e.g., county, regional district), representing 33.3% of initiatives. In contrast, the second most common scale (30.8%) was a region based not on administrative or metropolitan boundaries, but some other regional scope. Often, these areas were based on eco-regions (e.g., Columbia Basin-Boundary region of BC, Lacloche Foothills in ON). Less frequent scales included municipal boundaries (seven initiatives, or 17.9%), multi-county regions (7.6%), metropolitan areas of a small resource-based city, and Indigenous territories (5.1% each). Incidentally, these designations also represent aggregation levels for which Statistics Canada data are readily available (except for non-administrative region and Indigenous territory), implying that the availability of data at the appropriate geographic scope is also closely related to the chosen scale. Table 3 reveals two main clusters at the regional level, but in both administrative and non-administrative regions these initiatives were driven primarily by non-profit organizations (community foundations in all but one of 19 cases). A similar pattern is seen at the

municipal scale, which instead of being driven by the municipality were led by community foundations in 5/7 cases.

Initiative duration and age

To assess each initiative's duration, we examined how many iterations of the indicator tool had occurred, the overall length of time that the project has existed, and the frequency with which it has been updated (e.g., new report). Since in many cases it was unclear based on publicly available documents whether an initiative was still active (especially older initiatives), we calculated each initiative's duration based on the length of time between the first iteration (e.g., inaugural indicator report) and the most recent available. For example, if a VS released its first report in 2011, and its most recent in 2018, we noted a duration of seven years (as opposed to nine, which could incorrectly assume that the initiative was still active when it may have gone inactive since 2018). We considered documents going back to 1999 and as recent as 2019.

The average initiative duration was 4.5 years, with the two longest-running initiatives also the only municipal-led projects (Canmore, AB at 19 years and Whistler, BC at 13). Conversely, 11 initiatives appeared to have only had one iteration, including relatively new initiatives (e.g., Selkirk VS, launched in 2018), and projects that occurred over 10 years ago (e.g., Robson Valley). This project, along with another academic-led initiative (Oxford County, ON), appeared to have no follow-up (contrasted to an academic-led project in the Kootenays region of BC that had regular updates over a five-year period). Overall, 20.5% of initiatives started between 1999–2009, 43.6% between 2010–2014, and 35.9% between 2015–2019. The average frequency of updates was 3.1 years. Figure 13 compares average initiative duration across lead actor types, highlighting the marked longevity of municipal-run projects among other initiative types.

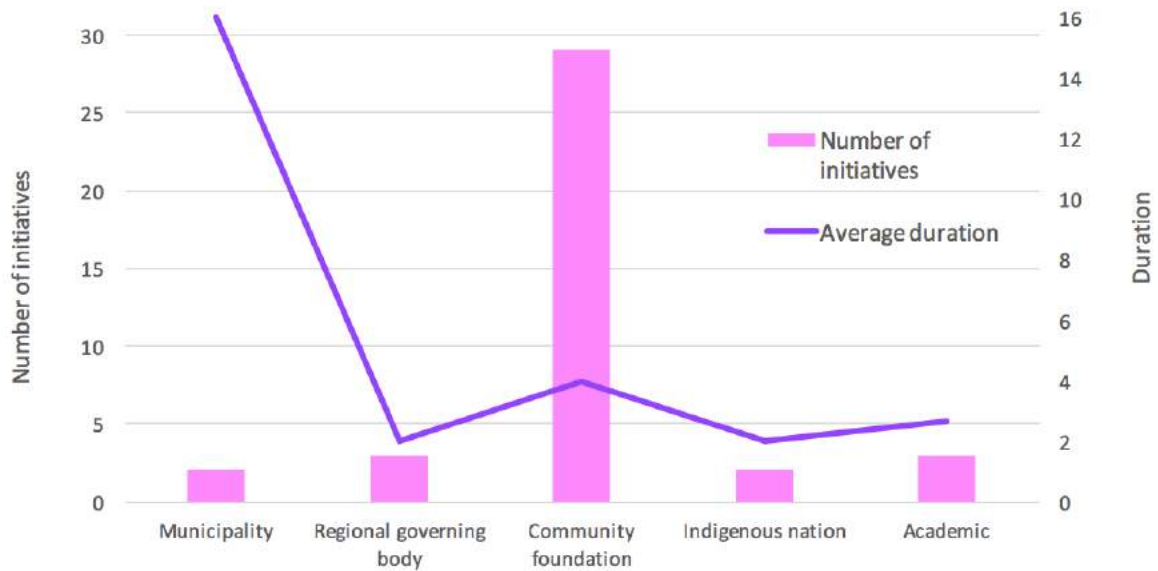


Figure 13. Average initiative duration by lead actor.

Stakeholder engagement

All initiatives discussed engaging the general public, such as community foundations communicating to potential donors or local governments aiming to involve citizens in decision-making. 66% of initiatives intended to engage local governments, both by informing municipal or regional decision-making and working with governments as partners. 30.8% of initiatives aimed to engage the private sector (e.g., informing tourism investment or resource development projects), while many more mentioned local businesses as sponsors or engaged consultants and think tanks to conduct the project. Only 15.4% of initiatives discussed engaging provincial or federal government agencies, often as a funding agency or a source of policy decisions that affect local conditions. We discuss the nature in which these stakeholders were involved more in-depth below.

The initiatives varied widely in efforts taken to involve local residents. Overall, 56% of initiatives surveyed local residents, which is a common practice in VS projects and is sometimes

paired with other engagement methods like meetings with subject matter experts or group consultations. Of the initiatives, 25.6% combined surveys with consultation sessions, and only 12.8% used workshops without a survey. Some surveys provided rich perceptual data to complement (or contrast) official data, like the Columbia Valley VS which gauged resident perceptions about regional amenities ranging from natural beauty to employment opportunities. In a few cases, these in-depth consultation methods were part of community-based research projects in which extensive data collection enriched the depth of engagement (e.g., LRRCN, Naskapi Nation, Clarenville-Bonavista).

Embeddedness in local priorities and perspectives

To gauge how embedded the initiatives were in local SD priorities, we considered both whether grassroots initiatives were informed by high-level priorities and if national-level frameworks referenced local policy and planning priorities. Using qualitative rankings (high, medium, low), we assessed to what extent each initiative discussed local (municipal or regional) policies and plans, national frameworks or policies (e.g., VS, CIW), and international agendas (e.g., SDGs).

The initiatives occurred along a spectrum of balancing top-down and bottom-up approaches. Seven initiatives (17.9%) were heavily embedded in local policies and plans, including both municipal-led initiatives (which were part of the municipalities' sustainability planning processes), both Indigenous-led initiatives, two led by regional governing bodies (Clarenville-Bonavista and Huron County), and one academic-led project (State of the Basin). Several of these initiatives also used aspirational indicators, like Huron County, which phrased all of its indicators as policy goals. 26 initiatives (66.6%), in contrast, minimally engaged local policy priorities (including 24 VS and two academic-led initiatives). Six initiatives (15.3%) took an

intermediate approach, engaging local perspectives while remaining aligned to higher-level priorities and frameworks, including three VS projects, one led by a regional governing body, and two by other non-profits. For example, Lennox and Addington County reorganized the VS framework around the SDGs while using local resident consultations to identify which of the global goals were most salient for the region.

This assessment revealed a data-driven approach to measuring local sustainability priorities. As discussed above, many VS initiatives relied on a standard set of categories and indicators derived from the national framework (see [Appendix 2](#)). Since initiative scale so often overlapped with administrative boundaries (and thus data aggregated at the appropriate geographic level), the standard VS framework also seemed to be connected to data availability. As will be discussed in Section 4, local VS projects also rely on the national organization (Community Foundations of Canada, or CFC) for access to these data, which are presented in the standard framework. For example, the North Okanagan VS report describes that “[m]uch of the data within this report was collected by the CFC’s data partner, the International Institute for Sustainable Development” (Community Foundation of the North Okanagan, 2017, p. 3). In total, 55.6% of VS initiatives followed this data-driven approach, applying a standard framework and indicators with minimal incorporation of local perspectives. In these data-driven VS projects, there appeared to be little effort to contextualize this standard framework and dataset within local priorities and perspectives.

Nonetheless, other VS initiatives took a more contextualized approach. Clayoquot Sound, BC included extensive conservation indicators from recent ecological studies and transportation indicators relevant to the region’s island geography, as well as traditional knowledge from First Nations living in the region and local resident surveys. In an intermediate range, a handful of

initiatives balanced official data with local resident perspectives, often derived from consultation sessions or surveys. These intermediate initiatives often incorporated stories to enrich the information portrayed by the indicators, like local residents' anecdotes and examples of community initiatives aimed at addressing identified needs. The Medicine Hat, AB project described the narrative style of its 2017 report:

“This year, you will discover that our publication looks a bit different from years prior. Our new layout is still informative, inspiring, and tells people the story of Medicine Hat and Southeastern Alberta. We’ve highlighted some powerful stories this year, focused on our theme of ‘Belonging: Connection to Community’ and are intrigued to hear what you think that means”

(Community Foundation of Southeastern Alberta, 2017, p. 3).

Governance uses of indicators

We identified five overarching forms of intended SI use across the initiatives: informing the public, influencing governmental decision-making, informing economic development, encouraging multi-stakeholder dialogue, and demonstrating the need for (or impact of) granting activity. All initiatives expressed some desire to inform or engage the public, although the nature of this engagement (as discussed below) was envisioned very differently across initiatives.

Due to the large number of VS initiatives, the majority (71.8%) described the instrumental use of supporting the granting activities of the community foundation, both by highlighting needs among the population and demonstrating the impact of previous grants. Eleven initiatives (28.2%) expressed a desire to influence economic development, intending to inform decisions about economic opportunities and threats related to key sectors like natural resource industries and tourism. For example, the two Indigenous initiatives were concerned about resource extraction activities (i.e., forestry and mining), aiming to use the indicators to influence management

decisions, while highly tourism-dependent municipalities like Whistler, BC sought to guide future tourism investment and economic development planning. Only two VS initiatives had a clear economic development focus (Clayoquot Sound and Columbia Valley), both of which expressed concern over managing growth in a sustainable manner in light of tourism activity and immigration. An inter-related use was informing government decision-making, which was discussed by 58.9% of initiatives. 58.9% of initiatives also expressed an interest in facilitating discussion among multiple stakeholders in the community or region. Figure 14 shows these intended uses, represented as the percentage of initiatives (weighted to 100) by stakeholder type that described each form of use.

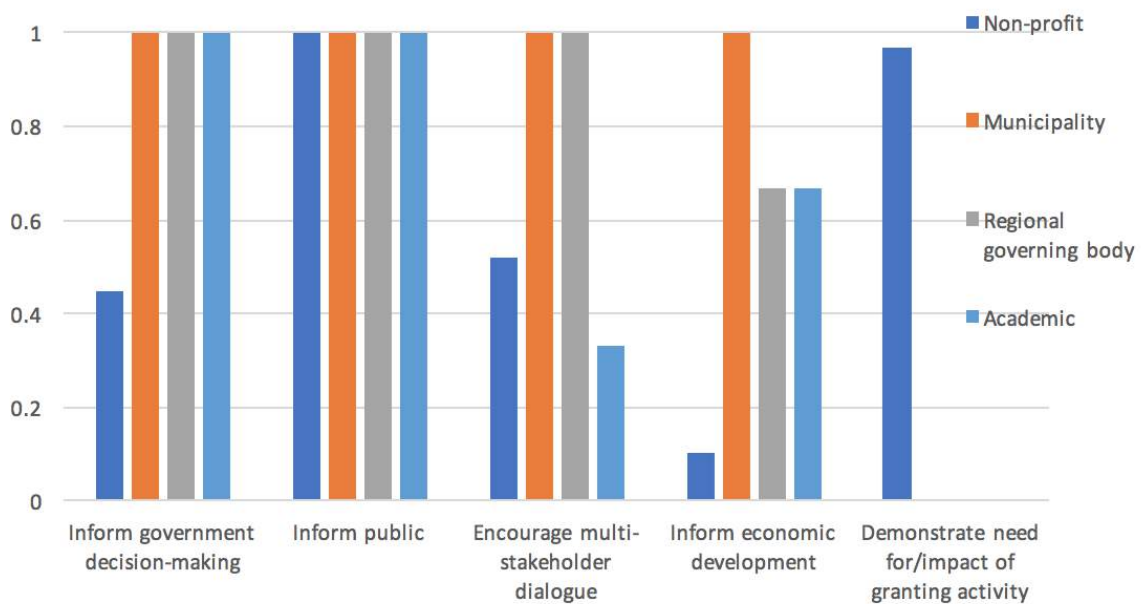


Figure 14. Intended uses of initiatives by lead actor (weighted to 100).

These intended uses varied considerably between non-profits (dominated by community foundations) and other stakeholder types. The former were often interested in using the SIs to justify their granting activity and inform residents of these efforts. In some cases, this was expressed in strategic terms, like the Brandon, MB report which stated that “[preparing] a Vital

Signs report is an excellent way to begin to build our profile and role in our community” (Brandon Area Community Foundation, 2019, p. 2). In contrast, initiatives led by municipalities and regional governing bodies (e.g., counties, Indigenous nations) were interested in using the indicators to inform their own decision-making and increase public participation. For example, the Canmore Community Monitoring Report aimed to “...increase citizen participation in local government, create opportunities for economic development, and inform decision making in both the private and public sectors” (Biosphere Institute of the Bow Valley, 2018, p. 4). Academic initiatives featured both a broad set of intended uses across stakeholder groups (i.e., State of the Basin) and projects that seemed not to consider how local actors would use the indicators after the project ended (i.e., Oxford County).

These priorities also relate to the use of aspirational indicators by the Indigenous initiatives and a handful of other actors, which were often linked to existing local policy and planning priorities. For example, LRRCN used exclusively aspirational indicators, designed both as a planning tool for the Band government and to represent the cultural importance of caribou and forests for its members in support of Indigenous self-determination.

Finally, there was a common interest among all initiative types to use the indicators to facilitate multi-stakeholder dialogue, although they placed differing emphasis on this goal and envisioned it in multiple ways. Many VS projects expressed the shallow aim of starting conversations among residents, often with an exclusively individual focus. For example, the Strait Region, NS project expressed that:

“We hope that this report serves as an ‘At A Glance’ information source to stimulate vital conversations among community members, support the important work that is being done, and reinforce efforts and investments needed”

(Community Foundation of Nova Scotia, 2019, p. 4).

In contrast, more locally-driven VS projects called for different stakeholder groups to come together to discuss their goals for a sustainable community or region, articulating clear conceptual and instrumental uses. The Columbia Valley report articulated this goal in the following way:

“Vital Signs provides an opportunity to delve deeper into issues of concern by inspiring and informing community conversations and testing prototypes. Vital Signs is more than a one-off snapshot of our communities; it provides a benchmark against which to measure our progress and results in the future”

(Columbia Valley Community Foundation, 2016, p. 2).

Such initiatives described meaningful community engagement as a crucial element in using the indicators to bring together diverse stakeholder groups like forestry companies, property developers, seasonal residents, municipalities, and First Nations to discuss solutions to identified challenges. These more bottom-up initiatives also envisioned the indicators as a way to track the impact of collective efforts over time and influence new projects and policies.

Depth of stakeholder collaboration

Similarly, initiatives occurred across a spectrum of collaborative practices. On one end, initiatives driven by strategic instrumental goals tended to engage with other stakeholders in a relatively shallow manner. Many VS reports claimed to embody collaborative principles but only discussed the involvement of other stakeholder groups in terms of resources they provided to the project (e.g., funding, data). VS reports often discussed local agencies that provided data, like school districts, police, libraries, and homelessness support groups, but rarely described whether these groups informed the design of the project beyond data provision. Furthermore, some initiatives

seemed not to consider these groups in the ongoing role of the tool itself, reflected in this quotation from Lunenburg County VS:

“Through this report, we are giving all community members the facts in a clear and unbiased fashion about how our community is faring. Let this report assist and inspire us to bring about changes that will improve the quality of our lives now and in the future”

(Community Foundation of Nova Scotia, 2013, p. 3).

This excerpt is reflective of VS projects that primarily addressed individual residents, recommending actions at the household level but overlooking collective responses or the role of local agencies that provided data to the project. 23 VS projects (85.2% of VS and 58.9% of the overall sample) took this non-collaborative approach, as did the two CIW initiatives.

In contrast, 10 initiatives (26%) enshrined multi-stakeholder dialogue and collective action. Led by a wider variety of lead actors (including one VS), these projects engaged a similarly broad range of stakeholders, including local residents, provincial and federal government, businesses and business support agencies, think tanks, consultants, and social services. Reports discussed the roles played by such stakeholders in project design (which were often significant and ongoing), and collective action to improve the indicators. Examples include participation in meetings, project management, data collection and analysis, and providing feedback on the indicators. One particularly collaborative initiative, Headwaters Communities in Action, discussed this process:

“HCIA, our grassroots citizen group, wanted to know what community well-being meant to you, so we asked and residents answered us. This report reflects upon what we heard and, we hope, will initiate conversations that move us to collective action for vibrant, just and sustainable community living”

(Headwaters Communities in Action, 2016, p. 2).

On an intermediate level, four VS initiatives embodied some of these collaborative principles, engaging a similarly wide group of stakeholders but often relegating these partners to more limited roles and conducting less in-depth community engagement methods.

Based on the governance features discussed above, we grouped all initiatives into a typology that differentiates their approaches to SI design and use. Informed by Arnstein's (1969) ladder of participation, Himmelmann's (2002) continuum of collaboration, and collaborative and multi-level governance theories (Emerson et al., 2012; Bache et al., 2017), we delineate a range of collaborative practices, considering whether multi-stakeholder engagement efforts featured genuine collaboration versus more shallow interactions like networking or information-sharing, and the level of meaningful public participation. Finally, we articulate different forms of SI use, borrowing from Hezri and Dovers' (2006) typology and subsequent discussions on instrumental and conceptual SI use (Bell & Morse, 2018; Lyytimäki, 2019), as shown in Figure 15.

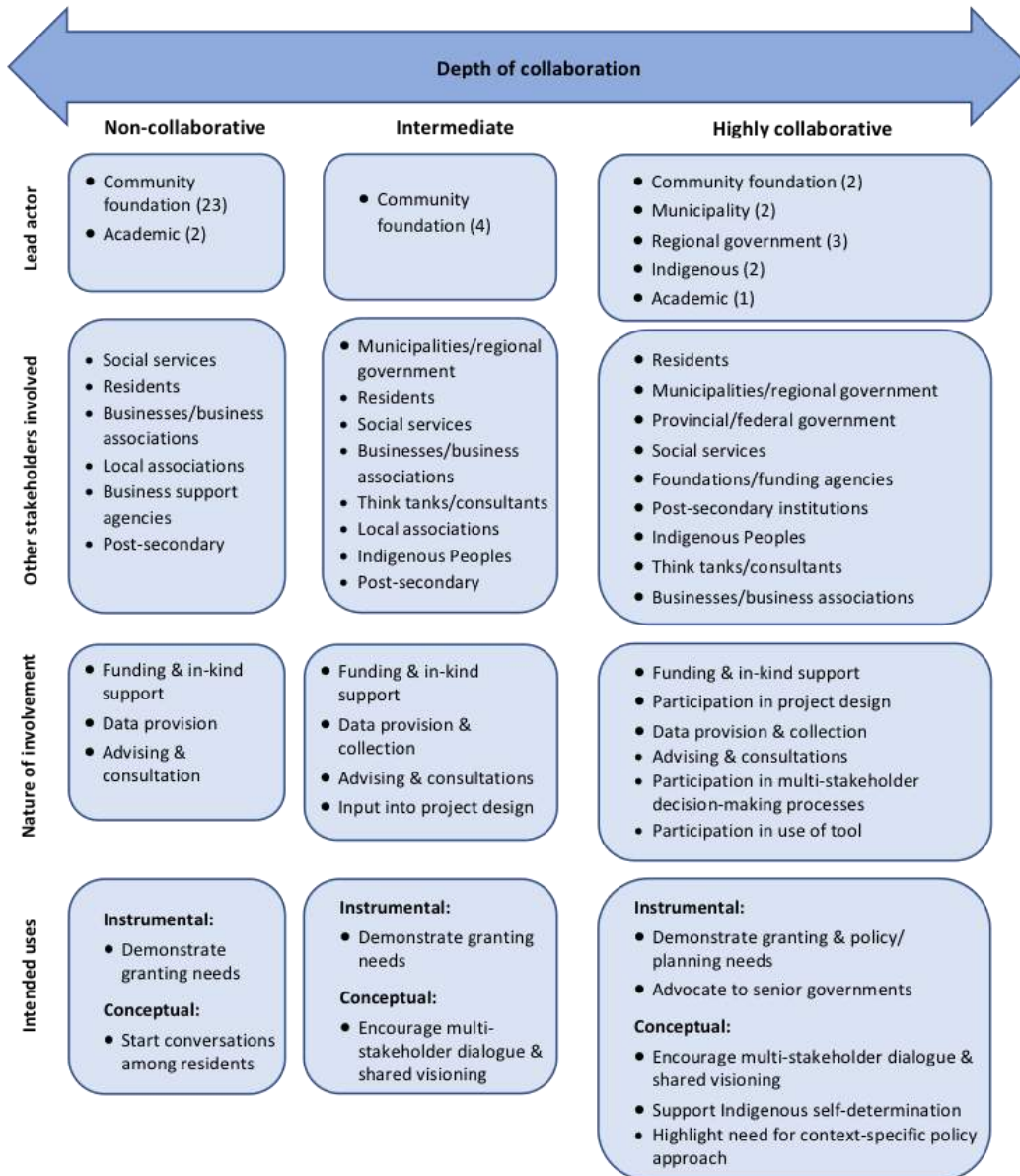


Figure 15. Typology of SI use and governance dynamics in rural Canadian SI initiatives.

4. Discussion and conclusions

This study helps address important gaps in understanding the context-specific nature of rural SD, highlighting patterns in how current indicator-based tools represent these priorities. By examining SI initiatives from across rural and resource-based areas of Canada, we identify overarching rural SD priorities, including areas of emphasis and gaps, while addressing the need for more contextual diversity in SI research and integrative findings of individual experiences (Bell & Morse, 2018; Ramos, 2019). Furthermore, the typology above provides novel insights on how rural stakeholders use SIs in local governance and how these uses occur along a spectrum of collaborative practices (Himmelmann, 2002; Hezri & Dovers, 2006; Emerson et al., 2012; Reid & Rout, 2020). Here we offer three key lessons learned, acknowledging the study's limitations, and embed its findings in current literature to suggest further SI research in rural and resource-based contexts.

Geographic divide in SI initiatives and priorities

Rural Canada features disparate regional geographic circumstances, demography, and socio-economic forces (Markey et al., 2015). However, our analysis found that SI initiatives tend to be carried out in communities that are close to urban centers with relatively stable populations and low levels of natural resource employment. There were several exceptions in highly resource-dependent and remote areas, supporting the well-established use of SI tools to strengthen resilience in communities that depend on resource sectors like forestry and mining (MacKendrick & Parkins, 2004; Klinck et al., 2015; Uthman, 2020). However, this clustering of initiatives is not reflective of many rural Canadian realities. For example, the average amount of dependence on primary industry employment in the sample (7.4%) is lower than across rural Canada, which was 11% in

September 2020 (Bollman, 2020), and which contributes up to 30% of labour force income in 1,800 rural and remote communities (Vodden et al., 2020).

Regarding the first research question, which investigated the extent to which SI tools portray a holistic SD vision, the community capital-based analysis reveals both divergent rural SD priorities and common interests across these geographic contexts. A high priority was placed on socio-cultural priorities like healthcare, education, and housing affordability. This finding supports that of Hallström et al. (2017), who identified social sustainability as a strong feature of municipal sustainability plans in rural Canada, while reflecting many policy issues over which municipal and regional authorities have jurisdiction (e.g., housing, education). As discussed above, these socio-cultural indicators were heavily influenced by the standard framework and indicators often used by VS projects. Nonetheless, across both VS and other frameworks, we observe a common interest in sense of belonging, social inclusion, and equity, reflecting the importance of associative relations in many rural Canadian communities (Reimer, 2005; Markey et al., 2019). However, socio-cultural stocks like gender equity and the participation of residents in community life were under-emphasized. Further research should examine these areas of lower emphasis in particular rural SI initiatives, for example by examining the gender balance on community foundation boards and whether public engagement efforts sought to engage women's advocacy groups.

Rural Canadian SI initiatives also reflected concerns about economic threats and opportunities, particularly the need to sustain key sectors and anticipate changes that may affect the local labor force and exacerbate inequalities. Especially in urban-adjacent communities experiencing rapid growth, indicators emphasized concerns over development pressures like increasing tourism volumes and in-migration. These concerns underline the growing trend of amenity migration, which present rural communities with both opportunities, like increased

demand for goods and services and tax revenues, and threats like gentrification and loss of local cultural identity (Chipeniuk, 2004; Columbia Basin Rural Development Institute, 2016). As the long-term socio-economic consequences of the COVID-19 pandemic materialize, many rural communities face a possible wave of ex-urban migrants seeking to escape quarantine conditions and avail of locational flexibility in work arrangements and low-cost housing (Hall, Gibson, Markey, & Weedon, 2020). Financial resources were under-emphasized, perhaps reflecting the fact that relatively few initiatives were led by the local governments that collect taxes and allocate budgets that affect public services.

Ecological considerations ranged from the desire to preserve landscapes for recreational and aesthetic purposes to ambitious conservation and climate action priorities. In more amenity-based communities, landscape was often emphasized as a contributor to quality of life, reinforcing the role of natural assets in sense of place (Beckley et al., 2007), and amenity migration strategies. We noted a particular gap in natural resource indicators, likely stemming from the low level of resource dependence across the sample; however, more remote communities (including the two Indigenous-led initiatives) placed stronger emphasis on natural resources. These findings highlight the need for consideration of the many contextual differences between urban and rural communities (Markey et al., 2010), and different kinds of rural contexts, in future research on sustainable rural development and SI tools.

Data-driven approaches and rural capacity gaps

Turning to the second research question, which examined whether rural SIs support local governance, these initiatives often followed a data-driven approach with minimal stakeholder participation or attention to local context. Rehashing the long-observed tension between top-down

vs. bottom-up methods in SI tools (Fraser et al., 2006; Holman, 2009; Bell & Morse, 2018), most initiatives took a uniform approach, applying a standard framework and dataset to measure local SD conditions, sometimes augmented with local data sources. From a perspective of collaborative, multi-level governance (Ansell & Gash, 2008; Bache et al., 2017), this approach fails to engage a wide range of rural stakeholders, relying on instrumental exchanges like information-sharing and one-way knowledge dissemination rather than genuine collaboration. In contrast, several initiatives were highly collaborative, engaging multiple actors in indicator design and ongoing efforts to use them, such as Indigenous self-governance and resource management, input to regional policy development, and planning (including the two longest-running initiatives which were incorporated into municipal planning processes).

This data-driven approach was strongly related to the nature of Vital Signs, which appears to follow an expert-driven format that provides local community foundations with a pre-determined framework and set of indicators which must then be translated into local contexts (see [Appendix 2](#)). A number of local VS reports described this relationship, as well as CFC's website:

“CFC’s role in the program, among other things, is to provide Canadian community foundations access to national data sets, which foundations typically complement with local surveys, public programming and events that mobilize community knowledge and help identify local priorities. From housing, to transit, to safety, the environment, the arts and gender equality, the reports offer invaluable insights across more than 70 indicators of quality of life at the community level”

(Community Foundations of Canada, n.d., para. 5).

This quotation outlines a process in which the basic indicator set is organized according to CFC's framework and provided to local community foundations. In local VS reports, these priority areas (e.g., housing, safety, the environment) are rarely explained in terms of local sustainability

concerns or justified with any coherent conceptual framework. Rather, they seem to be taken for granted as universal quality of life and sustainability concerns. According to a webinar released by CFC for local community foundations, this framework "...truly encompasses a 360° view of the community" (CFC, 2018), striving for a holistic approach but in practice heavily weighting socio-cultural indicators over other priorities. In addition to this less-than-holistic framework, its strong reliance on Statistics Canada data implies that these indicators may not adequately reflect rural realities; for example, data in small communities may be suppressed for confidentiality reasons or not available at the appropriate aggregation level (Main et al., 2019).

A related issue with VS is that it was originally designed for urban contexts, then later adapted to rural communities and regions. Holden (2013) describes that:

"While Vital Signs is now led by the Community Foundations of Canada, it originated as a local project of the Toronto Community Foundation (TCF) in 2001, where the TCF was identified by other local leaders as the organization best situated to track and report on key metropolitan trends at a critical juncture for that city" (p. 91).

Although VS has since been adapted to rural contexts, as demonstrated here, these urban origins most likely influenced the priorities and indicators it uses.

With little available information on the rationale for the VS categories and indicators, it is difficult to disentangle the framework from the data it provides. Since CFC provides access to national-level data from Statistics Canada, which are often supplemented with locally-sourced data from agencies like school boards and health authorities, there appears to be a 'chicken and egg' problem: do the data dictate the framework, or vice versa? Given this study's reliance on secondary sources, future research on the VS program should delve into the relationship between CFC and local community foundations to examine these dynamics in-depth.

In contrast, grassroots initiatives had a more collaborative approach, engaging a wider range of stakeholders and considering a broader set of sustainability priorities, including ecological priorities like ecosystem health and economic goals like small business development. These initiatives, as well as a few VS projects, interwove standard indicators with qualitative stories, resident perceptions, and local data sources to provide a more nuanced portrait of rural sustainability.

In light of the governance challenges facing rural Canadian communities, including often-limited human resource capacity (Beckley, Martz, Nadeau, Wall, & Reimer, 2008; Vodden et al., 2016), the VS approach seems to predispose local actors with less capacity to adopt its framework in a cookie-cutter manner. Designing and using SI tools impose significant human resource burdens (Moreno Pires, 2011), including expertise in data collection and analysis and familiarity with official data sources such as Statistics Canada, which are not accessible to non-experts. Given the CIW's reliance on similar data sources, and the non-collaborative nature of the two CIW projects examined in the inventory, this framework seems to place similar demands on local actors. Regarding VS projects, CFC itself suggests that community foundations hire a project manager specifically to oversee the process (CFC, 2018). After CFC provides community foundations with its basic framework and indicators, any additional effort taken to contextualize these data to fit local concerns and engage stakeholders depends entirely on the capacity and intentions of the foundation. This situation puts smaller foundations (including ones serving a lower population base) at a disadvantage to those with greater staff and financial resources.

This capacity gap also relates to the study's findings regarding the geographic distribution of SI initiatives across rural Canada. As discussed above, most initiatives identified (both in the initial scan and the sample chosen for analysis) were in communities or regions enjoying stable or

growing populations and located within 150 km of a major city. These conditions support local governments in acquiring sufficient tax revenue to undertake the work of designing grassroots SI tools, and provide community foundations with a stable donor base. The two longest-running initiatives were in municipalities that are both rapidly growing in population, close to metropolitan areas, and supported heavily by tourism activity. In contrast, more remote communities facing demographic decline or resource industry closures likely have limited capacity to sustain these efforts. These capacity gaps echo previous research on so-called lagging (vs. leading) rural regions, which experience disparate economic development challenges and potentials (Godeschalk, Post, Terluin, & Bollman, 2004).

Considering these gaps, it appears that rural Canadian SI initiatives tend to take place in a geographic and socio-economic ‘comfort zone’, raising considerable equity considerations. Although urban-adjacent communities are experiencing multiple development pressures ranging from housing affordability to tourism labor crunches, the clustering of initiatives in these contexts suggests that SIs, like many other sustainability strategies, may be seen as a luxury only accessible to communities with adequate resources. In remote regions that depend on a small number of natural resource sectors, where the need to anticipate socio-ecological shocks is pressing, it is ironically prohibitive to use SIs to support holistic sustainability planning. Future research should examine how existing SI methods can be made more cost-effective for capacity-limited rural actors while foregrounding local priorities and data, surveying whether remote regions in other parts of the world have used SIs or similar tools in ways that effectively leverage existing local capacities.

One promising avenue for addressing rural capacity gaps is the growing focus on regional collaboration. Many rural Canadian regions are exploring collaborative solutions to local service-sharing, economic development, and resource management (Chireh, 2018; Gibson, 2019),

including how roles and supports previously performed by senior governments can be fulfilled by a broader range of stakeholders. As discussed in Section 1.4, some provinces have regional governance structures to facilitate these collaborations and provide essential capacity to local actors, while others lack such regional supports (Vodden et al., 2019).

This inventory of SI initiatives reinforced the importance of regional approaches to rural development, given that the vast majority of initiatives occurred at a regional scale. Interestingly, initiatives were more commonly done within some kind of administratively defined region (e.g., county, regional district, multi-county; 46.2% of initiatives) than in a region drawn by non-administrative lines (30.8%). This trend also relates to the data-driven nature of most initiatives examined, since Statistics Canada data are already aggregated at these regional scales and can be easily retrieved. In contrast, SI initiatives carried out in regions that do not correspond with administrative boundaries may be linked to emergent forms of cross-community collaboration highlighted by previous research in self-identified regional designations like eco-regions (Breen & Markey, 2015; Vodden, 2015).

Whether conducted within administrative or non-administrative regions, these findings highlight the need for SI initiatives to engage a wider range of rural actors. Although the strong role of community foundations expands the focus beyond governmental actors which have often been the focus of SI literature (Hezri & Dovers, 2006; Moreno Pires & Fidélis, 2015), while supporting recent research on the importance of philanthropic organizations for rural sustainability in Canada (Levett, Markey, Gibson, Vodden, & Furst, 2020), the data-driven approach discussed above suggests that VS may not be appropriate for foundations with limited capacity. Future research and practice should explore whether collaborative regional governance arrangements occurring in rural Canada could provide the needed capacity to initiate and sustain SI tools within

such settings (Gibson, 2019), using multi-stakeholder approaches that engage key actors like foundations, municipalities, and regional government bodies. These efforts should explore the potential for more integrative approaches that blend participatory methods like citizen science with standard datasets provided by VS or other high-level frameworks, prioritizing adaptable approaches like the Sustainability Balance to foreground locally-crafted sustainability goals while striving for effective use of existing frameworks and data (Knippenberg et al., 2007).

Need for culturally relevant sustainability assessment in Indigenous communities

Finally, this study underlines the need for greater acknowledgment and support of Indigenous approaches to conceptualizing sustainability. Previous research on Indigenous-led SIs has highlighted that the knowledge systems of Indigenous Peoples differ from Western science-informed worldviews, including those informing the SI initiatives examined here (Natcher & Hickey, 2002; Smith et al., 2010; Klinck et al., 2015). For example, the mechanistic approach prevalent in many SI tools has been identified as antithetical to Maori knowledge and perspectives (Reid & Rout, 2020). In the context of Canadian-Indigenous relations and implementation of the recommendations of the Truth and Reconciliation Commission (Government of Canada, 2019d), the examination of planning and policy instruments on Indigenous lands (including SIs) should foreground Indigenous Peoples as experts in interpreting their experiences while decolonizing these practices and supporting self-determination (Hudson & Vodden, 2020).

From this perspective, the two Indigenous initiatives examined here are not fully comparable to the other SI tools. Many indicators used in these initiatives were difficult to group into a single area of community capital, such as caribou which simultaneously represented food security, cultural continuity, ecological integrity, and spirituality. This holistic and relational

worldview contrasts prevailing Western conceptions of natural resources which often reduce their value to economic terms (Tagalik, 2018), implying that it may be inappropriate to compartmentalize them into distinct indicators. Another key difference was the conceptualization of SI use in policy, which was strongly influenced by goals of Indigenous self-determination and control over resources and economic activities. For example, the Naskapi Nation initiative was intended to anticipate potential benefits and threats from nearby mining activity, while LRRCN intended to use the indicators on an ongoing basis both within Band governance and in a multi-stakeholder forestry management board. These goals are informed by a very different policy context than that of non-Indigenous local governments.

Future research and practice should acknowledge the differences between Indigenous and Western knowledge systems in relation to indicator tools and continue exploring potentials and challenges faced in seeking to assess and monitor Indigenous community well-being and sustainability. Such explorations must be driven by Indigenous priorities and understandings, including conceptions of data and measurement within these knowledge systems and potential mistrust of official data collected by non-Indigenous government sources (Penner et al., 2019).

Limitations

This study's primary limitation stems from its reliance on secondary data in a synthetic methodology that inherently sacrifices depth for breadth. This methodological choice prevented the detailed analysis required to understand questions like why initiatives chose the indicators they used, how those relate to salient regional development issues, or detailed local governance dynamics. These kinds of questions would better be addressed by in-depth case study research to examine these and other rural SI initiatives in the future.

The study was also limited by our purposive sampling approach, which differed from formal meta-analytical research in that we did not include all existing examples of rural Canadian SI initiatives, but selectively chose a sample intended to reflect the diversity of rural Canada and a variety of approaches to SI design. However, this selectivity may have inadvertently excluded relevant insights from initiatives that fell outside of the exclusion criteria (e.g., single-sector projects) or over- or under-represented certain geographic contexts or types of initiatives.

Another limitation stems from ambiguities in the definitions of rurality and remoteness, which complicated the classification of cases. Although statistical classifications like Census rural and RST exist in Canada, in practice what is considered rural differs greatly across provinces and territories based on a variety of social and geographic factors. This issue also affected the literature scan in Section 1, since international definitions of rurality are even more variable and we used keywords that may have inadvertently excluded rural case studies that did not use these terms. As noted in Section 2, academic publications on rural Canadian SI initiatives were scarce, requiring the search for grey literature sources. We considered how initiatives described their communities (e.g., rural, remote, Northern) while comparing them to the RST classification. Variable notions of rurality across these contexts could be examined further through comparative case studies or survey-based research.

The sample was also heavily weighted towards VS projects and the geographic context of urban-adjacent rural communities. This over-representation influenced the indicator-based analysis due to the tendency for VS projects to prioritize socio-cultural capital indicators. The strong presence of urban-adjacent contexts also weighted the indicator-based analysis towards concerns like tourism growth and amenity migration (discussed above), while development issues in more remote communities were under-represented. For example, natural resource indicators

received relatively little attention, despite the continued importance of resource sectors in many rural communities.

Finally, we were limited by a language barrier that prevented a thorough examination of initiatives in Francophone areas of Canada. Although we located a provincial SI framework in Québec (Government of Quebec, 2020), we could not identify any local initiatives or derivations of the provincial tool. Future bilingual investigation should compare local SI tools in these areas with those examined here.

Conclusion

This article contributes to ongoing efforts to clarify the value of SI tools, expanding the focus into rural and resource-based areas and synthesizing local experiences in these contexts. The inventory presented here identifies that in rural Canada, SI initiatives have often been conducted in communities benefitting from favourable geographic and socio-economic conditions, reflecting pre-existing capacity gaps across rural contexts. This capacity issue is closely related to the prevalence of data-driven approaches that mask local contextual priorities behind standardized indicators, which are more likely when local actors have limited human resources and expertise. In contrast, a number of rural stakeholders have used these tools in more participatory ways, highlighting potential overlaps between these approaches and collaborative regional governance efforts (Vodden, 2015; Gibson, 2019). These more nuanced approaches to measuring rural SD conditions often drew on local knowledge and stories, supporting recent research proposing that storytelling can be used to enrich local SI tools and mobilize rural stakeholders (Lowery, Dagevos, Chuenpagdee, & Vodden, 2020). Demonstrated in our typology of rural SI use, this collaborative

approach can engage a diverse range of stakeholders in setting a locally grounded sustainability agenda while providing essential context to interpret quantitative indicators.

Future research can compare the experiences of rural Canada to other jurisdictions, such as in the European Union where strong rural development supports under the Community-Led Local Development program could be examined to identify linkages with local SI experiences (The European Commission, 2017). Although relatively few initiatives examined here were in highly resource-dependent areas, more in-depth investigation could compare these projects to a wider set of SI case studies in single-resource communities, both in Canada and internationally. In the context of ongoing efforts towards regional collaboration in rural Canada (Vodden et al., 2019), further investigation is also needed to examine how SI tools can be used to engage a wider range of rural stakeholders. Our analysis aims to inform new pathways for employing indicator tools to support rural communities and regions in pursuing a holistic and ambitious sustainability vision in Canada and other contexts.

Chapter 4: From shelf to centre stage? A governance assessment of asset mapping and sustainability indicator initiatives in rural Newfoundland

Abstract: This study seeks to address the need for greater understanding of how rural actors can foster sustainable community and regional development and unique governance challenges facing its contextualization in these settings. Focusing on the province of Newfoundland and Labrador, it examines local initiatives to describe and assess rural sustainability conditions through asset mapping and sustainability indicators. We approach such tools as soft policy instruments embedded in local stakeholder dynamics and macro-level policy structures to understand their role in rural governance. Since these tools (especially indicator-based interventions) often end up ‘on the shelf’, we seek to understand how they are conceived, including the role of internal and external actors in their design, and in turn how these factors may relate to their governance outcomes. This study employs Step Zero analysis, a method that delves into the inception stage of governance instruments to determine the underlying factors that affect their later outcomes. Through this approach, we conduct a comparative analysis of three asset mapping and indicator-based initiatives in rural Newfoundland. These findings extend the Step Zero approach and offer insights on the development of these tools in hierarchical and neocolonial policy environments, informing future rural development and policy in NL while providing relevant insights for rural regions in similar jurisdictions.

Keywords: regional development; rural development; governance; asset mapping; sustainability indicators; Newfoundland and Labrador

1. Introduction

The pursuit of sustainable development strategies at the community and regional level must be informed by local context. This process entails tempering global sustainability agendas to wide-ranging local aspirations and challenges while understanding how these goals can be achieved in existing governance structures (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; Peters & Pierre, 2016). When local stakeholders use soft policy instruments like sustainability indicator (SI) suites (Wurzel, Zito, & Jordan, 2013; Lyytimäki, 2019), they do so in a complex governance environment influenced by forces like hierarchical state oversight or the presence of more horizontal relations (Kooiman, 2003; Emerson, Nabatchi, & Balogh, 2012). As stressed by Ramos (2019), “SIs should not be ‘context-free’” (p. 823), but rather incorporate local priorities while engaging stakeholders in both measuring sustainability and designing strategies to improve it (Hermans, Haarmann, & Dagevos, 2011). In contrast, asset-based approaches to describing and mobilizing local resources for development often foreground communities’ strengths and capacities, including those that are difficult to measure with official indicators (Fuller, Guy, & Pletsch, n.d.; Kretzmann & McKnight, 1993). The latter may be particularly appropriate in peripheral regions experiencing path-dependent socio-political developments resulting from hierarchical structural conditions, and where standard indicators may inadequately consider place-based local assets (Tonts, Plummer, & Argent, 2014; Vodden, Baldacchino, & Gibson, 2015; Grillitsch & Sotarauta, 2019).

The sustainability of rural regions is an ongoing source of debate in Newfoundland and Labrador (NL), Canada’s youngest province and an area recovering from socio-ecological crisis. Nearly three decades since the groundfish moratorium that devastated the province’s ecological, economic, and social systems (Schrack & Roy, 2013), rural coastal communities continue to

struggle in redefining their local economies while establishing a more sustainable basis for development. Meanwhile, regional governance institutions have been gradually dismantled, leaving many rural communities with limited capacity to pursue new development opportunities (Hall, Vodden, & Greenwood, 2016). In a provincial political climate of economic uncertainty, now heightened as the short and long-term impacts of the COVID-19 crisis unfold - often with differential impacts on rural areas (Hall, Gibson, Markey, & Weedon, 2020) - rural communities are under pressure to demonstrate their long-term viability to secure public and private sector investment. In this context, a number of rural communities and regions have used asset mapping and indicator-based tools to take stock of their existing resources and capacities (St. Croix, 2012; Parill, White, Vodden, Walsh, & Wood, 2014; Holisko & Vodden, 2015). However, it is unclear whether any lasting outcomes resulted from these initiatives for sustainable rural development, and how local and provincial governance factors affected their design and ultimate impact.

The present study seeks to fill these gaps by conducting a comparative analysis of asset mapping (AM) and SI initiatives in rural NL. After identifying all known efforts to assess local factors of sustainable community and regional development through the use of SIs and/or AM, it examines three such initiatives that used divergent approaches to employing these tools and engaging internal and external stakeholders. Using Step Zero analysis, a method for evaluating the pre-implementation stages of governance interventions (Chuenpagdee & Jentoft, 2007; Barragan-Paladines & Chuenpagdee, 2017), we assess how these AM/SI initiatives were introduced, what kinds of actors initiated them, to what extent they engaged relevant stakeholders, and what supported or impeded their governance outcomes. By situating these tools in their complex governance dynamics, we highlight how the NL context offers insights for developing these instruments in other rural regions facing hierarchical policy structures. We also

find that such tools, when developed in a participatory manner, can help communities challenge deficiencies-based narratives by preserving and promoting intangible assets like cultural heritage and sense of place.

2. Conceptualizing sustainable development in rural communities and regions

Bridging well-being and sustainability frameworks

At both local and global levels, sustainable development aims to advance human well-being while remaining in ecological limits. Conceptualizations of well-being have been informed by fields like development economics and psychology, with a common interest in understanding multi-dimensional factors of happiness at individual and collective levels (Stiglitz, Sen, & Fitoussi, 2009; OECD, 2013). These well-being dimensions consider both tangible entitlements like resources and political rights (Sen, 1985), and more abstract components of life satisfaction like a sense of purpose and flourishing, or *eudaimonia* (Ryff, 2018). Much well-being research has sought to demonstrate that human welfare goes beyond narrow measures like income or material living standards (Stiglitz et al., 2009), including efforts to move ‘beyond GDP’ in measuring societal well-being (Costanza, Hart, Posner, & Talberth, n.d.). Well-being is also informed by considerations such as how landscape contributes to health and wellness (Abraham, Sommerhalder, & Abel, 2010), the role of cultural heritage and identity in subjective well-being (Bui & Lee, 2015), and how well-being is conceived differently across cultural contexts, like among Indigenous Peoples whose knowledge systems may be more holistic and relational than Western conceptualizations (Tagalik, 2018).

In contrast to the largely human-centered focus of well-being frameworks, sustainability seeks to ensure that human systems do not exceed planetary limits (Rockström et al., 2009), while preserving stocks of natural capital (Dietz & Neumayer, 2007). From a strong sustainability perspective, natural capital stocks like a functioning climate, ecosystems, or renewable resources cannot be substituted by human-made capital (unlike in weak sustainability in which these are substitutable) (Pearce & Atkinson, 1993), since they are necessary for human existence and have inherent value that cannot be replaced (Pelenc & Ballet, 2015). More pragmatic variations of this perspective acknowledge that some natural capital will inevitably be depleted to fuel the economy and satisfy human needs (ideally through the sustainable harvesting of renewable resources like soil, forests, and fisheries) (Dobson, 1996). This strong sustainability perspective aims, however, to preserve critical stocks of natural capital whose destruction would cause irreversible harm to the biosphere and human welfare (Buriti, 2019).

Sustainable development represents a bridging concept by integrating well-being and sustainability considerations. Early debates contrasted the ideals of human development (often interpreted as economic growth) and environmental conservation (Du Pisani, 2006), which the famed Brundtland report tried to reconcile with an explicit focus on poverty alleviation (WCED, 1987). Human needs and environmental quality have since been acknowledged as inter-dependent, wherein relational conceptions have sought to integrate well-being and sustainability frameworks (Helne & Hirvilammi, 2015), and the complexities of socio-ecological systems have been linked to well-being dimensions (Armitage, Béné, Charles, Johnson, & Allison, 2012). Subsequent global SD strategies focused more on the specific goals of SD and their implementation, like Agenda 21 which spawned a wave of local SD strategies worldwide (Moreno Pires, Magee, & Holden, 2017). More recently, the Sustainable Development Goals

have provided 17 goals, 169 targets, and over 240 indicators to guide national implementation (United Nations, 2015b; Biermann, Kanie, & Kim, 2017).

In contrast to these global-level agendas, sustainable community and regional development (SCRD) seeks to balance these universal aims with local priorities in a defined local territory (Roseland, 2012; Jovovic, Draskovic, Delibasic, & Jovovic, 2017). Through a systems-based perspective, SCRD seeks to consider multiple forms of community capital and the interdependence of local economic, social, ecological, and cultural capital stocks, crafting policies and programs that enhance these resources (Butler, Emery, Fey, & Bregendhal, 2005). It also requires that community and regional stakeholders define SD in their own terms, requiring meaningful community engagement to craft a locally-driven vision that is also consistent with global agendas like climate action and gender equity (Fraser et al., 2006; Bowen et al., 2017).

In rural communities and regions, SCRD must take into account the contextual differences between urban and rural contexts to ensure that SD is not defined in a ‘one size fits all’ way (Markey, Connelly, & Roseland, 2010). Although rural contexts vary greatly across communities, widely observed rural realities like the often-strong sense of community and social capital (Reimer, 2005), or limited institutional capacity of local governments (Vodden, Lane, & Pollett, 2016), must be considered when devising rural SCRD goals and policies. These forces often manifest themselves not only at the community level, but also in rural regions, which are shaped both by socially constructed regional identities and (sometimes conflicting) formal administrative boundaries (Allen & Cochrane, 2007; Paasi, 2010). Regional systems and identities often cross rural-urban divides and reveal ecological, economic and socio-political interdependencies between communities (Reimer, Barrett, Vodden, & Bisson, 2019). From a systems-based perspective, rural communities and regions can often be understood as vulnerable

to socio-ecological shocks stemming from events like the loss of natural resource-based industries, which can simultaneously deplete ecological, economic, social, and human capital stocks (Winkler et al., 2016), particularly in peripheral regions that have experienced path-dependent outcomes resulting from historical patterns of uneven development (Tonts et al., 2014). Many rural communities also have strong sense of place rooted in residents' identities and attachments that are linked to social connections, livelihoods and biophysical features like landscape (Beckley, Stedman, Wallace, & Ambard, 2007). These notions have informed place-based development approaches in rural and peripheral areas (Vodden, Baldacchino, & Gibson, 2015), including the concept of place-based leadership that considers how leaders from various stakeholder groups can harness region-specific opportunities for integrated development (Grillitsch & Sotarauta, 2019). In such contexts, an asset-based lens of local development can consider how communities or regions often labeled deficient by external actors can identify and build on their existing strengths to enhance local development (Kretzmann & McKnight, 1993; Bebbington, 1999; Mathie & Cunningham, 2005).

Evaluating sustainable community and regional development

Both international frameworks and community-based development strategies have called for assessment tools to measure and mobilize local assets for SCRD (Fuller, Guy, & Pletsch, n.d.; UNCED, 1992; Hák, Janoušková, & Moldan, 2016). One such approach is the use of community-level sustainability indicators (SIs) to measure the state of capital stocks and monitor the impacts of policies and programs (Bell & Morse, 2008; Ramos, 2019). Although many SI tools have been developed for national or international scales (Costanza et al., n.d.; Lyytimäki, 2019), community and regionally-focused SI tools are often contextually embedded, seeking to

balance high-level frameworks with local priorities and knowledge (Holman, 2009; Moreno Pires, Magee, & Holden, 2017). This community-based approach seeks to devise holistic suites of indicators to represent key local ecological, economic, and social systems, often based in extensive stakeholder engagement and participatory processes (Hermans, Haarmann, & Dagevos, 2011; Bell & Morse, 2018).

However, there have often been tensions between community-based and expert-driven approaches in the application of local SI tools. Early approaches in the 1990s were highly technical and expert-led (e.g. MCDA) (Ferrarini, Bodini, & Becchi, 2001), with more recent SI research and practice emphasizing the need for citizen participation in identifying local priorities to guide the choice and evaluation of indicators (Reed et al., 2006; Bell & Morse, 2018). A related challenge is how to ensure that community-based SI tools lead to tangible outcomes in the sustainability conditions that they measure, with much debate on whether indicators must be integrated into formal policy and planning processes to avoid ending up ‘on the shelf’ (Gahin, Veleva, & Hart, 2003; Holden, 2006; Lyytimäki, 2019). In contrast to this direct instrumental use, the so-called ‘soft impacts’ of SIs have been well-documented (Holman, 2009), like social learning, community empowerment, the preservation of traditional and local knowledge, and improved communication among stakeholders (Terry, 2008; Hermans et al., 2011; Buhonovsky & Jäger, 2013; Moreno Pires et al., 2017). This way of employing SIs has been described by Hezri and Dovers (2006) as ‘conceptual use’, and by Lyytimaki (2019) as a ‘thermometer’ of societal values and priorities, rather than a thermostat for directly influencing them. Despite these more participatory ways of employing SI tools, Ramos (2019) highlighted the need for greater contextual diversity among local SI studies. Responding to this call, Chapter 3 of this dissertation identified that a number of rural Canadian communities and regions have used SIs,

but they tend to take a data-driven approach based in standardized datasets, often masking contextual differences between diverse rural geographies.

SI tools have long been compared to community-based AM, a divergent but potentially complementary approach to assessing SCRD capacities (Fuller et al., n.d.; Champagne, 2005). Originating in Asset-Based Community Development, an alternative approach to local development that focuses on community strengths and capacities rather than solely on deficiencies (Kretzmann & McKnight, 1993), AM emphasizes local assets that may be overlooked in mainstream development strategies, particularly in marginalized communities (Russell, 2016). AM can be done in a number of ways, including: a scalar approach that begins with the capabilities of individuals, then moves up to examining the role of local associations in community life, and finally examines more formal institutions (Kretzmann & McKnight, 1993); a storytelling approach based in collecting local stories that highlight community hope and pride, which has parallels to the change management strategy of appreciative inquiry (White & Lynch, 2012; Hammond, 2013).; or a whole assets approach that considers all relevant local assets, often through a community capital-based framework (Bebbington, 1999; Butler et al., 2005). In both SI and AM tools, this community capital-based approach can range from three forms of community capital (ecological, economic, and social) to up to seven (considering cultural, human, political, or physical capital assets separately) (Emery, Fernandez, Gutierrez-Montes, & Butler Flora, 2007; Zoeteman et al., 2016). AM tools have been used in a wide array of contexts including the inner city, Global South contexts, and rural and remote areas (Mathie & Cunningham, 2005; Read, 2012; Taliep et al., 2020).

Interactive governance and the Step Zero approach

Although AM and SI approaches are often different in practice, both techniques intend to inform development decisions by identifying and assessing local conditions and engage stakeholders in designing interventions to improve them (Mathie & Cunningham, 2005; Holman, 2009; Zoeteman et al., 2016). Thus, AM/SI tools may be considered ‘soft’ policy instruments, which include non-coercive measures like voluntary agreements, auditing schemes, or information and advice, as opposed to ‘hard’ measures like regulations or taxes (Kooiman, 2003; Wurzel, Zito, & Jordan, 2013). Contemporary governance frameworks seek to identify interventions that are amenable to multi-stakeholder approaches to public policy that broaden decision-making beyond the central state (Salamon, 2002; Peters & Pierre, 2016). Given that complex problems inherent in sustainability transitions require a multi-dimensional approach to designing policy solutions, these alternative governance models strive for collaborative arrangements between central governments and non-state actors like civil society, the private sector, academics, and everyday citizens (Innes & Booher, 1999; Emerson, Nabatchi, & Balogh, 2012; Loorbach, Frantzeskaki, & Avelino, 2017).

One approach to understanding policy instruments in more multi-stakeholder arrangements is the theory of interactive governance (Kooiman, Bavinck, Jentoft, & Pullin, 2005; Edelenbos, van Schie, & Gerrits, 2010; Chuenpagdee & Jentoft, 2018). Introduced in Jan Kooiman’s book *Governing as governance* (2003), this framework highlights the complexity, diversity, and dynamics of systems devised to govern complex modern policy issues at multiple scales, and how they interact with the systems they are designed to govern (Kooiman, 2003). The theory delineates between three different ‘orders’ in which governing interactions take place: *meta-governance*, or the latent myths, metaphors, and principles that motivate individuals and

groups through governing images; *second-order governance*, in which institutions are created and maintained through which actors make decisions; and finally, *first-order governance*, including the everyday governing instruments that include both hard and soft policy tools (Kooiman, 2003). Interactive governance also examines how different *modes* of governance influence policy outcomes, like hierarchical state-controlled bureaucracies or co-governance arrangements shared between the state and communities (Kooiman et al., 2005).

The interactive governance approach has been developed extensively in the area of fisheries governance (Jentoft & Bavinck, 2014; Jentoft & Chuenpagdee, 2015; Daly & Chuenpagdee, 2020). It has revealed the interplay between these governing orders, for example by examining principles informing fisheries policies in Newfoundland and Labrador (Song & Chuenpagdee, 2015), and the relationship between the Sustainable Development Goals and national fisheries policies (Said & Chuenpagdee, 2019). This approach has recently been re-interpreted through a transdisciplinary lens, highlighting the need for boundary-spanning knowledge and action that engage non-scientific stakeholders in designing novel interventions for effectively governing complex fisheries systems (Chuenpagdee & Jentoft, 2018).

Stemming from interactive governance, a form of inquiry known as Step Zero analysis seeks to understand how governance instruments are influenced by underlying contextual factors and pre-implementation choices (Chuenpagdee et al., 2013; Barragan-Paladines & Chuenpagdee, 2017). Step Zero analysis considers the dynamics of path dependency in policy design and implementation, examining how choices made at the inception stages can influence subsequent outcomes (Chuenpagdee & Jentoft, 2007). In the design of policy instruments (in this case AM/SI tools), various factors can lead to these path-dependent outcomes, including how an intervention is introduced, which actors are perceived to be behind the idea, their relationships

with other stakeholders, how consultations with key stakeholders were carried out (including who was included or excluded), and how pre-existing power dynamics and institutional structures influenced the process (Chuenpagdee et al., 2013). Step Zero has been used to examine policy tools in diverse contexts including voluntary fishery closures in Newfoundland (Olson, 2011), the influences of colonial policies in the establishment of the Galapagos Islands conservation zone (Barragan-Paladines & Chuenpagdee, 2017), and the dominance of ecological considerations over socio-political context in the design of Brazilian marine protected areas (Giraldi-Costa, Medeiros, & Tiepolo, 2020).

Although Step Zero analysis has had limited application outside of fisheries governance contexts (e.g. legal studies (Seifter, 2014)), its emphasis on rich contextual understanding offers a useful approach for examining why policy instruments succeed or fail at achieving their intended outcomes. In the context of societal transitions towards sustainability, Step Zero calls for governance interventions to fully consider the complexities of socio-ecological systems in which they are designed, which manifest themselves in dynamic, multi-scalar ways and often implicate multiple levels of government or overlapping jurisdictions (Innes & Booher, 1999; Loorbach et al., 2017). In assessing soft policy instruments like AM/SI tools, delving into these complex dynamics can provide novel insight into the crucial stakeholder interactions surrounding the use of these tools. Particularly in rural communities and regions, where asset-based approaches may be more appropriate than standard indicators for understanding contextual realities, the Step Zero approach has potential to show whether AM and SI tools are applied in a participatory manner that engages a wide range of local stakeholders and how local interventions are influenced by provincial or national indicator frameworks and policy structures.

Searching for sustainable development in rural Newfoundland and Labrador

The province of NL is a unique context for examining socio-ecological transitions and the use of AM/SI tools to guide rural community and regional development. It is Canada's youngest province (joining Confederation in 1949), and has a relatively small population of approximately 520,000 residents (Statistics Canada, 2016), of which nearly half (47%) live in rural and small-town areas (Bollman, 2016). This development pattern traces back to the province's origins as a colonial fishing outpost centered around the harvesting and processing of Atlantic cod, a fishery that was the province's lifeblood until the dramatic decline of cod stocks in the late 20th century led to federal moratoria on cod and other groundfish species in 1992 (Bavington, 2010). The cod moratorium shook the province's social, economic, and ecological foundations (Schrank & Roy, 2013), immediately putting thousands of fish harvesters and processors out of work in what is often called the greatest layoff in Canadian history (Heritage NL, 2008). In 1991, 32,197 people worked in fish harvesting and processing, compared to only 15,425 in 2018 (NL Statistics Agency, 1994; Fisheries and Oceans Canada, 2020). Nearly 30 years later, NL communities continue to seek sustainable livelihoods within a provincial economy that now relies more heavily on oil and gas, which contributes 15.6% to provincial GDP, and mining (12.5%), contrasted to fish harvesting and processing which contribute only 2.2% and 2.3%, respectively, and a tourism sector that (prior to COVID-19) was steadily growing, comprising 2.9% of GDP in 2019 (Government of NL, 2019b).

This period of socio-ecological crisis and transition has been particularly challenging for rural coastal regions. Since most communities in the province historically depended on cod, rural NL largely lost its economic base when the moratorium was called (Davis, 2014). In the following decades, rural communities have shifted within the fishery – now mainly targeting

high-value crustacean species like shrimp, crab, and lobster (Bavington, Grzetic, & Neis, 2004; Government of NL, 2019b). For example, Anchor Point (on the Great Northern Peninsula) has transitioned to shrimp harvesting and processing, which together employ 58% of the local workforce (Thomas, Vodden, Chuenpagdee, & Woodrow, 2014; Community Accounts, 2018a). Nonetheless, most rural regions have experienced considerable out-migration, with working-age people moving to other provinces or urban centres. Outside of St. John's (the province's only metropolitan area) and secondary centres like Corner Brook and Gander, the only rural economic zones that grew between 2011-2016 were in Labrador (due in large part to infrastructure developments and higher population growth rates among Indigenous Peoples like the Inuit of Nunatsiavut (Inuit Tapiriit Kanatami, 2018)), while other rural regions declined between 2.1% and 8.6% (Community Accounts, 2020g). Aging populations are also common, with most rural regions (with the exception of parts of Labrador) having a median age between 46 and 55 (Community Accounts, 2020g).

However, not all rural regions have dealt with these changes in the same way. A number of rural areas have experienced considerable growth in tourism, like the Bonavista area and Fogo Island (Riche, 2015; Adey, 2019). For example, Economic Zone 15 (which includes the Bonavista Peninsula and the larger community of Clarenville) received 7.5% of total room revenue generated in the province in 2017, bolstered by popular sites like the Bonavista Lighthouse which nearly tripled in visitation between 2013-2018 (NL Department of Tourism, Culture, Industry, & Innovation, 2017, 2018). Many other rural regions are struggling to reinvigorate their local economies and improve quality of life to encourage new migrants and retain existing residents. In the province's current fiscal climate of ever-increasing deficits and declining provincial oil royalties, rural communities are often targeted for potential austerity

measures (Roberts, 2019). Services like ferry operations to remote and island communities are often cited as costly expenditures which could be cut to shore up cash-strapped provincial coffers (Butler, 2020). The province's controversial resettlement program was most active in the 1950s-70s when over 20,000 people were relocated from hundreds of outport communities to 'growth centres', but still evokes traumatic memories for many rural residents and looms over isolated communities (Withers, 2016; Côté & Pottie-Sherman, 2020). The socio-economic vulnerabilities of rural NL have been exacerbated by the COVID-19 crisis and related economic shocks (Gushue, 2020), which are anticipated to have differential impacts on rural regions through forces like the shortening of supply chains and changes to rural tourism activity (Bailey et al., 2020; Hall, Gibson, Markey, & Weedon, 2020).

Meanwhile, rural NL has gradually experienced the withdrawal of formal institutional support for regional planning and development (Hall et al., 2016). Since the formation of Rural Development Associations (RDAs) in the 1960s – many of which were organized at the grassroots level and eventually included 59 regional associations covering most of NL – a series of regional development institutions have come and gone, each one introducing a set of geographically larger regions that were smaller in number (Vodden, Hall, & Freshwater, 2013). The RDAs were replaced by the Regional Economic Development Boards (REDBs), introduced in 1995 by an economic recovery commission that re-drew the provincial map into 20 economic zones through which provincial and federal development funds started flowing (Hall et al., 2016). Eight years into the REDB model, a new Conservative provincial government introduced the Rural Secretariat (Keenan & Whalen, 2010), which existed in parallel with REDBs until 2012 when the federal government withdrew REDB funding support. In 2016, a newly elected Liberal government dismantled the Rural Secretariat. Since then, there has been neither

consistent nor strategic institutional support for regional development, with rural communities facing a disjointed array of competitive provincial and federal funding programs (Government of NL, n.d.; Atlantic Canada Opportunities Agency, 2020). There is also no level of government between the Province and municipalities, many of which have extremely limited capacity to provide basic services (Vodden et al., 2016). The provincial government (under the Department of Municipal Affairs) conducted a series of consultations on regional government in 2017 (Government of NL, 2020a), but no decisions have been made since.

In this tumultuous socio-political climate, one key support for informing community and regional well-being is the System of Community Accounts. This tool was designed to make official (but unpublished) data from provincial and federal agencies easily accessible to residents while expanding the factors considered in accounting for provincial well-being (Community Accounts, 2020a). Community Accounts was born out of a government initiative called the Strategic Social Plan (SSP), launched in 1998 to complement the province's Strategic Economic Plan and guide social policy reform (Government of NL, 1998). The Province initiated the SSP to shift social service provision from an individually-focused to a place-based approach informed by the needs and strengths of communities and regions (Powers, Locke, Felt, & Close, 2006). It took an integrated approach to social policy, aiming to assess how effectively programs like education, healthcare, and family services were meeting the needs of communities (Government of NL, 1996), informed by a cross-departmental approach (Powers et al., 2006). After an extensive province-wide consultation process guided by a multi-stakeholder advisory committee (Locke, Close, Powers, & Felt, 2007), the SSP was released with a promise to conduct a comprehensive audit of social well-being in the province (Government of NL, 2003), and SSP committees were formed in regions across the province (Powers, Locke, Felt, & Close, 2006).

This social audit gave rise to Community Accounts, which was developed around a holistic framework informed by both theories of welfare economics and production and different frameworks for assessing community well-being (May & Hollett, 2008). Community Accounts makes available a wide range of data on social, demographic, economic, and cultural factors that can be retrieved at levels such as single communities, various regional aggregation levels, or the provincial level (Community Accounts, 2020a). Although the SSP was subsumed into the Rural Secretariat (and later disbanded) after a change in government (Keenan & Whalen, 2010), Community Accounts is still maintained by the NL Statistics Agency (NLSA). Other provinces and territories (i.e. Nunavut, Nova Scotia, and Prince Edward Island) have explored creating their own versions of Community Accounts, while the Northern Policy Institute has piloted a similar initiative for Northern Ontario with support from NLSA¹¹ (Lowery & May, 2019).

At the local level, a number of tools has also been developed in rural NL to take stock of local development assets. Some of these initiatives have been very localized, like a cultural heritage asset mapping project carried out in the community of Branch in 2011-2012 (St. Croix, 2012), which was followed by a similar initiative in the Fogo Island community of Tilting (St. Croix, 2015). Other initiatives have taken a regional scope, including an SI project on the Bonavista Peninsula that identified key sustainability factors in that region (Holisko & Vodden, 2015). A more formal AM process led by federal and provincial government agencies is the Strategic Tourism for Areas and Regions (STAR) program, which has been employed in areas like Gros Morne National Park through the creation of a tourism asset inventory and strategic tourism plan (Broad Reach Strategies, 2016).

¹¹ The Northern Policy Institute's Community Accounts is available at <https://npi.communityaccounts.ca/>

These initiatives suggest that there is interest at different levels for understanding the assets that contribute to community and regional development in rural NL. Especially given the accessibility of community data through Community Accounts, and the commitment of provincial government resources to maintain this tool, communities in NL have improved access to public data to inform local planning and development. However, it is not clear how rural actors have used these tools to identify and measure local sustainability assets, or the role that such efforts play in rural governance. In exploring the utility of AM/SI tools in other rural regions, especially those facing the withdrawal of rural institutional supports, there is value in understanding how they have been deployed in rural governance contexts, how different stakeholders have interacted to design these tools, and whether provincial policy structures supported or impeded these local initiatives. Given the provincial political climate of economic uncertainty – which have been inflamed by the COVID-19 crisis – these dynamics may also be relevant for other communities coping with pandemic-related impacts or other socio-ecological shocks to which rural and remote regions are particularly vulnerable.

3. Purpose of study

This article seeks to understand how local stakeholders have assessed SCRD in rural NL by using AM and SI tools to take stock of local assets. Using Step Zero analysis, we explore underlying contextual factors at the inception and design stages of these initiatives, examining how they affected their design and long-term role in local governance. This analysis situates these local instruments within provincial governance dynamics to reveal supports and barriers for the realization of their intended outcomes. This contextual understanding highlights how local AM/SI initiatives in rural NL are related to provincial frameworks like Community Accounts

while still reflecting local priorities, and how they combined asset-based and indicator-based tools to assess SCRD. This article aims to address the following research questions:

1. How have rural stakeholders carried out AM/SI initiatives in rural NL, and at what scale?
2. What frameworks were employed to identify and evaluate local assets?
 - To what extent did local perspectives and priorities influence the design or application of these frameworks?
 - How were the frameworks operationalized, and what kinds of information did they use?
 - How did the resulting assessments portray the state of SCRD in each community or region?
3. Which individuals or groups initiated these projects, and who else was involved in the early stages alongside these initiators?
4. To what extent were community members engaged in their inception and design?
5. What role did actors or policy structures external to the local area play in these initiatives?
6. What lasting outcomes, if any, resulted from these initiatives for local governance, community economic development, or regional sustainability?
 - Were the AM/SI tools used subsequently? If so, by which actors?
 - Have any efforts taken place to follow up on the initial design process or update the tools?

4. Materials and methods

The study sought to identify all existing AM/SI initiatives carried out in rural NL, then conducted a comparative analysis of three such initiatives. Informed by Step Zero analysis, we used both document review and consultations with key informants in communities and regions where these initiatives took place. The study was conducted in 2019, including the preliminary identification of existing initiatives (both current and past) in the province, content analysis of initiatives based on publicly available documents, semi-structured interviews with key stakeholders in each region, and a workshop which presented preliminary findings and engaged community members from these communities and regions.¹²

Initial scan of province-wide initiatives

We began by conducting an environmental scan to identify all known AM/SI initiatives in rural NL. This scan considered any project that had used indicator and/or AM tools at the community or sub-provincial regional level to assess local assets relevant to sustainability and/or well-being. Initiatives were identified using both scholarly databases (i.e. Scopus) and NL-specific research resources like the Centre for Newfoundland Studies (maintained by the Memorial University library) and the research repository of Rural Resilience, an NL-based research network (www.ruralresilience.ca). We located documents related to each project to assess whether

¹² This study was funded by the Atlantic Canada Opportunities Agency (ACOA), a federal government department which is a major funder of community development initiatives in NL and the other Atlantic provinces (see Lowery & Vodden, 2019). The research was granted ethics clearance under Memorial University's Interdisciplinary Committee on Ethics in Human Research (see [Appendix 7](#)).

initiatives focused on a single sector or type of asset, or seemed to take a more holistic approach. At this stage, informal initiatives were included alongside more formalized projects or studies. Since we were interested in understanding how local actors use these tools in the context of high-level frameworks like Community Accounts or the SDGs, provincial-level initiatives were excluded. We identified eight initiatives in total, spanning from as early as 1998 to one initiative that was currently underway:

- Cultural Heritage Resources (CHR) Inventory: 2011-2015
 - Branch (2011-2012)
 - Tilting (2014-2015)
- Clarenville-Bonavista sustainability indicators project: 2013-2016
- Western Newfoundland-Southern Labrador Asset Mapping Study: 2014
- Killick Coast Collaborative Integrated Community Sustainability Plan (towns of Flatrock, Pouch Cove, Bauline): 2008-2017
- Model Forest Indicators (Corner Brook/Gros Morne region): 1998-2004
- Strategic Tourism for Areas and Regions (STAR) asset inventory for Gros Morne (2016)
- Trepassey asset mapping project: current

Out of these initiatives, we applied several selection criteria to choose three to examine in-depth. Firstly, we sought to ensure a diversity of community and regional contexts so that the findings could be applicable to a wide variety of rural areas in both NL and similar jurisdictions. For example, socio-economic indicators like population growth/decline, median age, and unemployment were compared, leading us to exclude the Killick Coast initiative since these communities are within 30 km of St. John's and have social indicators that are dissimilar to most

rural NL regions.¹³ Secondly, we wanted to examine initiatives that had sufficient time to develop outcomes for local governance, leading to the exclusion of the Trepassey initiative which appeared to be very informal and in its initial phases¹⁴; while initiatives like the Western NL AM study were completed in 2014, and Clarenville-Bonavista in 2016 (Parill et al., 2014; Regional Council of the Clarenville-Bonavista Region, 2016). Finally, we wanted to compare initiatives that conceptualized rural well-being and sustainability using a variety of frameworks, leading us to choose only one of the CHR initiatives (i.e. the one carried out in Branch since it predated the Tilting project). Finally, although we considered single-sector or issue-based initiatives, we opted to include Branch CHR over the Model Forest and STAR projects because the latter are part of government-led programs administered across Atlantic Canada or nationwide,¹⁵ potentially leading to Step Zero factors that would not be comparable to more locally-driven projects (den Otter & Beckley, 2002; Broad Reach Strategies, 2016). This selection process left us with three initiatives representing a range of rural socio-economic and geographic realities, (described in Section 4). Figure 16 shows the locations of all eight AM/SI initiatives identified, including the three communities and regions selected for in-depth analysis.

¹³ For example, the Town of Pouch Cove experienced 11% population growth from 2011-2016, has a median age of 41, 13.2% unemployment, and 91% of workers commuted outside of the community for work (Community Accounts, 2018).

¹⁴ Based on communication with the Memorial University Centre for Social Enterprise (N. Helwig, personal communication, February 13, 2019).

¹⁵ STAR was introduced by ACOA and is currently being carried out in selected regions across Atlantic Canada (ACOA, 2017), while the Canadian Model Forest Program was developed by the Canadian Forest Service (Hall, 1997).

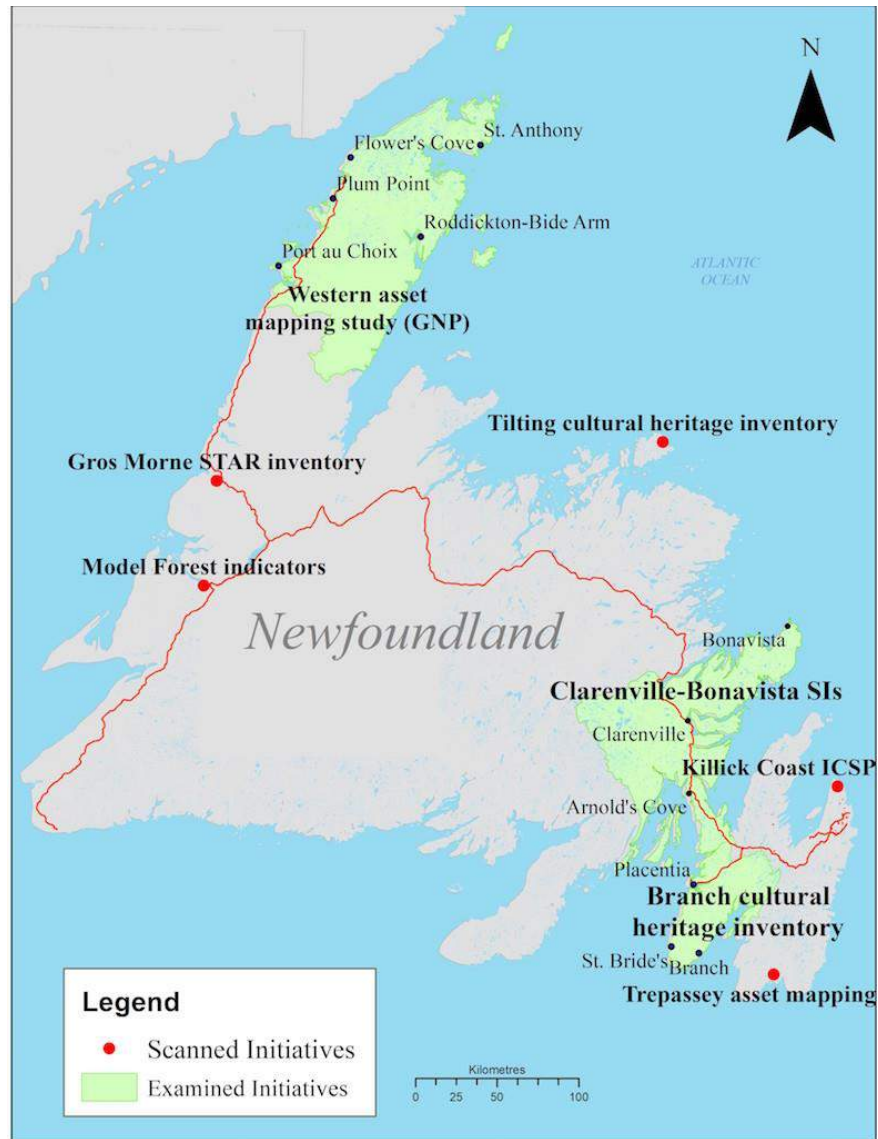


Figure 16. Map of AM/SI initiatives identified across rural NL.

Comparative analysis

Next, we conducted a comparative analysis to determine how each of the three selected AM/SI projects was carried out in its rural context and in relation to local and provincial governance dynamics. As we discuss in Section 5, these initiatives occurred along a spectrum of rural contextual factors like regional economic structure, population density, demographic trends, and

unemployment rates (which are often high in rural NL due to the seasonal nature of rural economic activities like fisheries and tourism). They also occurred at both the single community scale (i.e. Branch) and at a regional level in the other cases. Finally, the Branch CHR initiative primarily dealt with cultural assets (as discussed in Section 5), while the other two initiatives considered a more holistic set of local assets.

To begin this comparative analysis, we reviewed publicly available documents and online materials related to each initiative. This review identified the scale of each initiative (e.g. single community, region), relationship between chosen scale and past or present administrative regions (e.g. municipalities, Rural Secretariat regions, REDBs, etc.), and the range of stakeholders involved. To understand rural contextual factors, and how the initiatives portrayed SCRD in relation to them, we used Community Accounts to compile relevant socio-economic indicators for each study area (see Table 5 and [Appendix 5](#)). We also identified individuals or groups described as playing a central role in the initiatives, including both local residents and external actors. The frameworks used to describe and/or measure local assets were also examined, identifying their origins (grassroots, adopted from an existing framework, or otherwise) and how the initiatives chose them in relation to stated community and regional development priorities.

Next, we conducted semi-structured interviews in each of the study areas with key informants identified during document review (Spradley, 2016). In each community or region, we interviewed at least one person directly involved in conceiving the AM/SI tool (initiator), and other key local stakeholders who either became involved later or were not involved in the initiatives at all. In selecting both initiators and non-initiators, we sought to represent a variety of sectors (e.g. municipal, businesses, non-profit organizations, social services, consultants), as well as regional support agencies like business development organizations, former regional

development institutions (i.e. REDBs, Rural Secretariat), and other stakeholders like academic researchers. Stakeholder selection was informed by literature on multi-stakeholder governance and previous research on community and regional development in rural NL (Kooiman, 2003; Emerson et al., 2012; Vodden, Douglas, Markey, Minnes, & Reimer, 2019). An important caveat is that, as observed in other studies in rural NL, one community member can simultaneously occupy several of these roles due to limited capacity in many rural areas (Stoddart et al., 2020). We conducted interviews in-person during visits to the region (or over video-conference in a limited number of cases), which were all audio-recorded and later transcribed. Due to difficulty in recruiting interview participants in Branch, we also had informal conversations with local stakeholders which indirectly informed the analysis. In total, we conducted 14 interviews (including seven women and seven men), of which six were initiators of the AM/SI tools and eight were non-initiators; we also had eight informal conversations (see Table 4 below).

Table 4. Interview participants and informal conversations carried out across study sites.

Initiative	Interviews	Informal conversations
Branch CHR	<ul style="list-style-type: none"> • 3 interviews (1 female, 2 male) <ul style="list-style-type: none"> ○ 3 initiators ○ Represented sectors: regional development institutions, consultants, academic researchers 	<ul style="list-style-type: none"> • 3 informal conversations (2 female, 1 male) <ul style="list-style-type: none"> ○ 2 initiators, 1 non-initiator ○ Represented sectors: municipal, social services
Bonavista Peninsula	<ul style="list-style-type: none"> • 4 interviews (3 female, 1 male) <ul style="list-style-type: none"> ○ 2 initiators, 2 non-initiators ○ Represented sectors: non-profit, social services, business 	<ul style="list-style-type: none"> • 3 informal conversations (1 female, 2 male) <ul style="list-style-type: none"> ○ 1 initiator, 2 non-initiators ○ Represented sectors: municipal, regional development institutions, social services
Tip of Northern Peninsula	<ul style="list-style-type: none"> • 7 interviews (3 female, 4 male) <ul style="list-style-type: none"> ○ 1 initiator, 6 non-initiators ○ Represented sectors: academic researchers, non-profit, business development organizations, regional development institutions, municipal, business 	<ul style="list-style-type: none"> • 2 informal conversations (1 female, 1 male) <ul style="list-style-type: none"> ○ 2 non-initiators ○ Represented sectors: municipal, regional development institutions

Finally, we held a workshop to present preliminary findings and facilitate an open-ended discussion with residents of the study areas (including a number of individuals who were involved in the initiatives) about the value of AM/SI tools in contemporary rural sustainability discussions and provincial policy. Participants included both interviewees and other key stakeholders from the three study areas who did not participate in interviews, as well as rural community leaders from other parts of the province. The workshop also served a participant checking role, in which we presented a preliminary assessment of the Step Zero findings, allowing interview participants and other residents of the study areas to offer alternative explanations, clarifications, and insights on whether any efforts had taken place subsequently to build on these initiatives. This included a discussion about the long-term outcomes, if any, of the AM/SI initiatives and the value of such tools in contemporary provincial rural policy and development. Participant perspectives were recorded by note-takers who used flipcharts to take handwritten notes of the discussion. The workshop was held in Norris Point, NL in May 2019, and 19 individuals participated (11 female, 8 male) (Lowery & Vodden, 2019).

Data analysis methods

Data from the document review, interview, and workshop phases were analyzed using thematic content analysis via QSR NVivo™ software. This content analysis was informed by the Step Zero approach (Chuenpagdee & Jentoft, 2007; Barragan-Paladines & Chuenpagdee, 2017), using interview participant perspectives and project documents to identify the initiator(s) of each AM/SI project. We also identified these initiators' key motivations for carrying out these initiatives, including overarching conceptualizations of rural well-being and sustainability that

informed the initiatives and their intended outcomes. Considering the tensions between top-down and bottom-up forces in AM/SI experiences (Mathie & Cunningham, 2005; Fraser et al., 2006; Reid & Rout, 2020), we also examined how each initiative developed or chose its framework, including how local values and needs were balanced with existing frameworks adopted from elsewhere, what kinds of data were used to describe and evaluate assets, and whether community engagement efforts helped inform the way that the frameworks were applied. The perspectives of key local stakeholders who were not involved in the initiative were examined, including whether they perceived the initiatives differently than the initiators and whether they felt there would be value in building on the AM/SI tools to support contemporary development and governance in their regions. With respect to outcomes, we identified the primary outputs of each initiative, including how SCRD was measured and portrayed in each study site, whether the assessment was disseminated to the wider public, and any long-term impacts achieved like ongoing use of the tool or informing subsequent projects or policies. Finally, we examined the end of each initiative to determine why it concluded, what factors supported or inhibited the achievement of long-term outcomes, and the role of local and provincial governance factors.

5. Findings

These three rural AM/SI initiatives took divergent approaches to conceptualizing SCRD in their local contexts. Combining grassroots concerns for sustainability and well-being with pre-existing frameworks, they were driven by both local and external stakeholder dynamics and policy forces. They also drew on very different data sources to describe SCRD assets and challenges at different scales, influenced heavily by the motivations of their initiators and the community

engagement efforts employed. As shown in Table 5 and discussed further below, the initiatives' community and regional contexts also varied considerably. In the following sections, we introduce the initiatives in their rural community and regional contexts, then use Step Zero analysis to examine their inception and design processes.

Table 5. Summary of socio-economic indicators in communities and regions examined.¹⁶

Initiative	Community/ region	Population (2016)	Density (ppl./ km ²)	Key sectors	Demo-graphic change, 2011- 2016	Median age	Unemployment rate	% residents with strong sense of belonging to community
Cultural Heritage Resources Inventory	Town of Branch	228	14.1	<ul style="list-style-type: none"> • Natural resources (33.3%) • Construction (13.3%) • Administrative & support (13.3%)^a 	-7.7%	54 ^b	32.4% ^c	71.9% ^d
Western NL Asset Mapping Study	Tip of Northern Peninsula	11,315	1.08	<ul style="list-style-type: none"> • Healthcare & social assistance (16.1%) • Manufacturing (13.4%) • Natural resources (12.5%) 	-7.6%	52	37.3%	93.7%
Clarenville- Bonavista Sustainability Indicators	Bonavista Peninsula	27,425	3.61	<ul style="list-style-type: none"> • Construction (15.1%) • Retail trade (13.9%) • Healthcare & social assistance (13.3%) 	-2.9%	51	21.0%	86.4%
	Provincial average	519,715	1.4	<ul style="list-style-type: none"> • Healthcare & social assistance (14.7%) • Retail trade (12.6%) • Construction (10.9%) 	+1.0%	46	15.6%	79.6%

a-c: These indicators are not available at the community level in Branch (likely due to data suppression); data have instead been retrieved from the Branch/Point Lance Regional Local Area.

d: Data retrieved from Placentia-St. Bride's Local Area.

¹⁶ See [Appendix 5](#) for a broader list of socio-economic indicators in the study areas.

Initiative and community/regional background

Branch cultural heritage inventory

The first initiative was an AM project known as the Cultural Heritage Resources (CHR) Inventory, carried out in the community of Branch on the southwest Avalon Peninsula of Newfoundland. Branch is part of a collection of communities called the Cape Shore that have retained a strong Irish identity from the 18th century to the present day. According to one key informant from Branch, “if you know anything about Irish and land and place, sense of place...it’s a lot of passion. So really, the Cape Shore historically is from the community of Branch to the community of Big Barasway” (Personal communication, March 14th, 2019). This cultural identity was publicized by Irish journalist Aidan O’Hara, who traveled to the Cape Shore in the 1970s and recorded stories, songs, dances, and other cultural practices (RTE, 1981).

Branch is a small community (228 residents in 2016), whose population has declined considerably since 2011; the community is spread over 16 km² with a density of 14.1 residents per km² (Statistics Canada, 2019a). The main employment sectors in Branch (combined with the nearby community of Point Lance)¹⁷, are natural resource-based – reflecting the continued importance of fish harvesting and agriculture – followed by construction and administrative support (Community Accounts, 2018d). Branch has a high median age and unemployment rate compared to provincial averages; meanwhile, 71.9% of residents in the local area have a strong or somewhat strong sense of belonging to their community (Community Accounts, 2018e). Branch and nearby communities are largely dependent on the service hub of Placentia, which

¹⁷ Data used from the local area due to data suppression. See Table 5 for details.

hosts regional healthcare, retail, and government offices (Personal communication, March 26th, 2019). It is the most urban-adjacent of the three study areas, 148 km from St. John’s.

The CHR project was carried out in 2011-2012 by the Town of Branch, the Avalon Gateway (Zone 18) REDB, Memorial University researchers (led by economist Dr. Doug May), and NLSA (Branch Project Charter, 2011). It was introduced as a pilot project, with the aim of informing a new cultural account within Community Accounts and potentially expanding into other communities in Zone 18 (St. Croix, 2012). A Municipal Cultural Planning Toolkit produced by the Ontario provincial government (see Figure 17) was adapted to identify these cultural heritage assets (St. Croix, 2012).

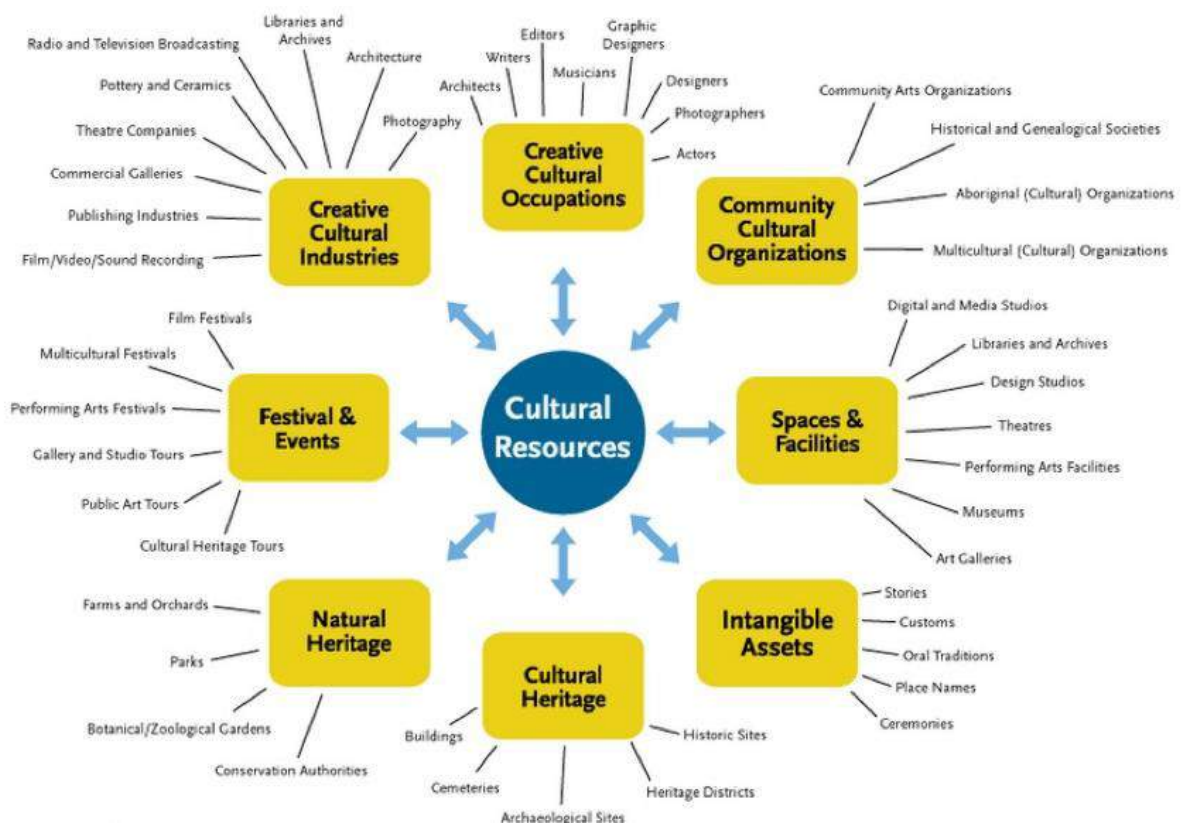


Figure 17. Cultural heritage mapping framework used in Branch.¹⁸

¹⁸ Source: St. Croix (2015).

Using this framework, the CHR project engaged Branch residents in identifying cultural assets across these categories. According to a project report:

“Through the engagement process, residents of Branch identified what they thought were the important aspects of their culture and heritage. Each item was sorted and slotted into one of the following categories: Cultural Heritage, Natural Heritage, Cultural Organizations, Creative Occupations, Creative industries, Spaces and Facilities, Festivals and Events, and Intangible Assets”.

St. Croix, 2012, pg. 3.

These heritage assets were collected and featured on a website, with assets displayed using a Google Maps interface, often with accompanying text, photos, video, and audio recordings.

Examples of these assets are shown in Table 6.

Table 6. Examples of cultural heritage assets identified during CHR project.¹⁹

Cultural resource category	Example of assets identified	Asset descriptions
Cultural heritage	<ul style="list-style-type: none"> • Adrian Power’s Hearth • Cemetery • Root cellars • St. Thomas Aquinas School • Stiles over fences • The Plot • War Memorial Statue 	<p>Cemeteries: The cemetery has historic value as the oldest known cemetery in Branch, and because it is also purportedly the oldest cemetery in the Cape Shore region of the province. While the earliest death dates appearing on extant headstones at the cemetery is 1857, the cemetery was likely in use before that time, and there are undoubtedly many unmarked graves.</p>
Natural heritage	<ul style="list-style-type: none"> • Back of the Beach • Cockawee Path • Hayjer’s Rock • Hiscock’s Lane • Kerry’s Spout • The Flats • The Landwash • Whitewood Gully 	<p>Hayjer’s Rock: Standing solitary at the tip of Wester Cove is this iconic landmark of Branch. It is a reminder of the play between land and ocean, and a bedrock symbol of Home for generations. In the time of the first settlers, this rock was known as the Hare’s Ears - referring to its shape sitting at Branch Head. Now the name is most often spelled Hayjers, although variations exist.</p>
Cultural organizations	<ul style="list-style-type: none"> • Branch Roundtable • Grievance Committee • Heritage Committee • Recreation Committee 	<p>Singing Kitchen: The Singing Kitchen is just what the name implies! Each winter, the community gathers biweekly for a big feed and a good chat. A team of volunteer cooks and servers prepare a home-cooked</p>

¹⁹ All asset listings and description were retrieved from <http://branch.dowerdigital.com/>

Cultural resource category	Example of assets identified	Asset descriptions
	<ul style="list-style-type: none"> • Singing Kitchen • War Memorial Committee 	meal that is served to, on average, 130 residents form Branch and surrounding communities. The singing takes many forms a song offered, a slide show depicting memories of years past or a chat with a neighbor they haven't seen in a while.
Creative occupations	<ul style="list-style-type: none"> • Singers • Storytellers • Writers 	Examples not given since community members' names are listed and permission has not been secured to include their names.
Creative industries	<ul style="list-style-type: none"> • Nanny's House • The Bakery • The Cliffhouse at Red Point 	The Cliffhouse at Red Point: Guest rooms at the Cliffhouse have a charm all their own. Each room is located on the main level and offers those desiring a rest from their journey a stay that is both relaxing and invigorating.
Spaces and facilities	<ul style="list-style-type: none"> • Basketball court • Branch Community Centre • Harbour Authority gear sheds • Harbour office • Playground 	None listed
Festivals and events	<ul style="list-style-type: none"> • Boxing Day Dance • Branch Culture Days • Branch Garden Party • Festival of the Sea • Remembrance Day Commemoration 	Examples not given since community members' names are listed and permission has not been secured to include their names.
Intangible assets	<ul style="list-style-type: none"> • Stories • Poems 	<p>From "Branch in a July Sun"²⁰:</p> <p>Branch in a July sun The beauty, the loveliness, and peace. The wide sparkling sunlit sea. The many skiffs on the smiling water, sailing home from the fishing grounds.</p>

²⁰ Poem authored by Agnes Singleton, retrieved from <http://branch.dowrdigital.com/intangible-assets/poems/75/>

Western NL asset mapping study: Tip of the Great Northern Peninsula

The second initiative was an AM study carried out in 2014 by Memorial University researchers (Parill et al., 2014a), with Dr. Kelly Vodden as lead investigator. The project was contracted by ACOA with the aim of identifying community assets across a large region spanning most of western Newfoundland and southern Labrador (Parill et al., 2014a), including Corner Brook – the region’s only urban area – and Gros Morne National Park. Part of the project’s rationale was to highlight the value of intangible assets like cultural heritage for regional economic development, which the Gros Morne Cultural Blueprint had previously underlined (Ginder Consulting, 2011). It considered a wide range of assets through a community capital-based framework (Butler et al., 2005; Roseland, 2012), identifying assets in five categories: built, economic, natural, socio-cultural, and political-institutional capital (Parill et al., 2014b).



Figure 18. Framework used in western NL asset mapping study.²¹

²¹ Source: Parill et al. (2014a).

Since this study included such a large region, we chose to examine it in one sub-region: the Tip of the Northern Peninsula (or Great Northern Peninsula/GNP). The GNP is a large region spanning 10,472 km², roughly half the size of Israel, with a 2016 population of 11,315 residents and a population density of 1.08 residents per km² (Community Accounts, 2020b). The GNP is much more remote than Branch, with the nearest urban area, Corner Brook, 285-475 km to the south (depending on how far north a given community is located). Using regional boundaries based on the former St. Anthony-Port Aux Choix Rural Secretariat region (and the current provincial electoral district), the region spans from River of Ponds on the southwestern side to Quirpon on the northern tip, and Englee on the southeastern side (NL Department of Finance, 2019; Community Accounts, 2020b). These boundaries differ from those used in the western NL AM study, which were based on the former REDBs and split the tip of the Northern Peninsula into two separate regions - one of which also included Gros Morne. We chose the Rural Secretariat regional boundaries based on key informant input that these communities share a common geography and similar socio-economic factors that are distinct from communities farther south on the peninsula.

The regional population declined considerably between 2011-2016, with a higher median age and unemployment than provincial averages (Community Accounts, 2020b). Interestingly, residents have the highest sense of community belonging out of any Rural Secretariat region of the province, with 93.7% of residents reporting a strong or somewhat strong sense of belonging (Community Accounts, 2018b). Key employers include healthcare and social assistance, manufacturing, and natural resources (Community Accounts, 2020i), reflecting the continued importance of fish harvesting and processing (Butters et al., 2016), as well as regional healthcare services in St. Anthony, Roddickton-Bide Arm, Flower's Cove, and Port Saunders (NLSA, n.d.).

The Western NL AM study relied mainly on secondary data to create an inventory of regional assets (Parill et al., 2014a). This inventory was intended as the initial data-gathering phase of a longer process, as described in the project report:

“Through the undertaking of a preliminary scan of regional assets and capacity, the study also aimed to identify gaps in existing information and make recommendations pertaining to future steps and the designing of a more in-depth future assessment” (Parill et al., 2014, p. 5).

The project report also describes efforts made to rely on local data sources, such as business directories and reports supplied by regional organizations like the former REDBs. The project also compiled a number of quantitative indicators from Community Accounts to complement the qualitative information contained in the asset inventories. On the GNP specifically, the project identified hundreds of assets across the five community capital areas (Parill et al., 2014b), which were member-checked by key local stakeholders (e.g. municipal leaders, businesses, non-profits, regional development organizations) during a series of focus groups held in the region. Table 7 shows how assets were organized across these areas of capital, with examples of assets identified on the GNP, accompanying quantitative indicators, and commonly cited data sources.

Table 7. Community capital categories and assets identified on the GNP.

Capital	Categories	Community assets identified	Accompanying indicators	Data sources ²²
Economic	<ul style="list-style-type: none"> • Business listings by sector 	<ul style="list-style-type: none"> • Fishing enterprises • Fish processing facilities • Convenience stores, grocery stores • Accommodations • Tourism operators • Restaurants & cafes 	<ul style="list-style-type: none"> • Self-reliance ratio • Employment rate • Per capita income 	<ul style="list-style-type: none"> • RED Board Business Directories • Western NL Business Directory

²² See Parill et al. (2014) for full details on data sources.

Capital	Categories	Community assets identified	Accompanying indicators	Data sources ²²
		<ul style="list-style-type: none"> • Construction/contractors 		<ul style="list-style-type: none"> • Community Accounts • Yellow Pages
Built	<ul style="list-style-type: none"> • General facilities • Tourism and recreation • Transportation infrastructure 	<ul style="list-style-type: none"> • Churches • Trails • Wharves & harbours • Arenas • Warehouses & storage facilities 	<ul style="list-style-type: none"> • Number of private dwellings • Home ownership rate • Median housing costs (for homeowners and renters) 	<ul style="list-style-type: none"> • RED Board Business Directories • Provincial government travel directory • Yellow Pages • DFO • Community Accounts
Social-cultural	<ul style="list-style-type: none"> • Associations and organizations • Festivals and events • Heritage sites • Spaces and facilities 	<ul style="list-style-type: none"> • Archaeological sites • Art galleries & studios • Artistic clubs & associations • Arts festivals & events • Heritage districts • Historical buildings • Multicultural events • Museums • Social clubs & associations • Sporting events • Youth clubs & associations 	<ul style="list-style-type: none"> • % of population with strong sense of belonging • % of population with high life satisfaction • Self-assessed community safety 	<ul style="list-style-type: none"> • RED Board Business Directories • Provincial government travel directory • Western NL Business Directory • Community Accounts • Yellow Pages
Natural	<ul style="list-style-type: none"> • Freshwater resources • Marine resources • Protected area • Terrestrial resource • Tourism resource 	<ul style="list-style-type: none"> • Aesthetic resources • Aquatic resources • Community park • Farmland • Mineral & energy resources • National park land • Open space • Private park • Provincial park land • Wildlife resources 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • RED Board Business Directories • Provincial government travel directory • Nature Atlas • Yellow Pages
Human	<ul style="list-style-type: none"> • Education services • Health services • Other human services 	<ul style="list-style-type: none"> • Colleges & universities • Dental services • Elementary and secondary schools • Hospitals • Nursing & residential care facilities • Other healthcare services • Outpatient facilities • Physicians' offices • Social assistance facilities • Technical & trade schools 	<ul style="list-style-type: none"> • % of population with good self-assessed health • Self-perceived life stress • % of students who believe schools are safe • Median age • Life expectancy • % of population with high school diploma • % of population with 	<ul style="list-style-type: none"> • RED Board Business Directories • Community Accounts • Provincial government travel directory • Western NL Business Directory • Yellow Pages

Capital	Categories	Community assets identified	Accompanying indicators	Data sources ²²
			Bachelor's degree or higher <ul style="list-style-type: none"> • % of population with other post-secondary education 	
Political-institutional	<ul style="list-style-type: none"> • Institutions by scale: <ul style="list-style-type: none"> ○ Community/municipal ○ Regional ○ Provincial ○ Federal 	<ul style="list-style-type: none"> • Community development agencies • Conservation & natural resource agencies • Economic & labour agencies • Elected government bodies • Energy/utilities • Fire departments • Libraries • Newspapers • Post offices • Social agencies • TV/radio 	<ul style="list-style-type: none"> • Municipal budgets & expenditures • Municipal staff • Municipal revenue sources • Residential & commercial tax rates • Debt-service ratio of municipalities • Depreciation of municipal infrastructure 	<ul style="list-style-type: none"> • RED Board Labour Market Reports • RED Board Business Directories • Community Accounts • Municipalities Newfoundland & Labrador • Yellow Pages

Clarenville-Bonavista regional sustainability indicators

The final initiative is a SI project created by the Regional Council of the former Clarenville-Bonavista Rural Secretariat region and researchers from Memorial University. This region encompasses several distinct sub-regions, including the tip of the Bonavista Peninsula, the Clarenville area, and the Isthmus of Avalon. Local stakeholders expressed that, due to socio-economic differences between these sub-regions, current regional development initiatives tend to focus more at this level than at the Rural Secretariat regional scale (Lowery & Vodden, 2016).

According to one individual who was an initiator of the SI project:

“you had centres like Clarenville, which is really the government service centre, you know, out there...and then oil came on the stream and a lot of people got jobs in Long Harbour and Come by Chance and Voisey’s Bay, and so on...and of course tourism became, is probably the most, right now on the Bonavista Peninsula, is the most economic generator”.

Personal communication, March 22nd, 2019.

Despite these identified sub-regional distinctions, the project included all three sub-regions due to the Rural Secretariat boundaries, in which 27,425 residents reside, with a population density of 3.61 residents per km². The nearest urban centre is St. John's, between 102-310 km to the southeast. As shown in Table 5, the major employment sectors are construction, retail trade, and healthcare and social assistance (Community Accounts, 2020d), influenced by regional health services in Clarenville and Bonavista (NLSA, n.d.), and the growing tourism sector on the Bonavista Peninsula. The regional population is considerably more stable than the GNP or Branch, with only 2.9% demographic decline between 2011-2016; unemployment is also considerably closer to the provincial average, and residents have a high sense of community belonging (Community Accounts, 2020d).

Seeking to delve deeper into these indicators and the factors that contribute to regional sustainability, this project identified salient regional priorities and assessed them using both available data and resident perceptions (Holisko & Vodden, 2015). Project documents discuss the Regional Council's goals of both planning for sustainable development in the region and informing other NL regions in pursuing the same:

“The Council is interested in defining the barriers to regional sustainability as well as determining whether such elements are applicable to other regions across the province. The Clarenville--Bonavista region seeks to develop a sustainable development strategy that recognizes the unique strengths, challenges, and opportunities of this region and its communities therein”.

(Holisko, Parrill, White, & Vodden, 2014, p. 6).

The project took place over three phases: 1) a literature review of different approaches for conducting rural SI initiatives and designing a preliminary regional indicator framework (Holisko et al., 2014); 2) the finalization of this framework and collection of data to measure the

identified indicators using secondary data and a survey of local residents (Holisko & Vodden, 2015); and, 3) the creation of a Regional Sustainability Report Card to disseminate the assessment to residents and policy-makers (Lowery & Vodden, 2016). These three phases occurred from 2013-2016, during which the project developed a grassroots sustainability indicator framework based on priorities expressed by the Regional Council and the resident survey, but also informed by other SI tools from around the world (Holisko & Vodden, 2015). This framework, and the indicators used to assess regional sustainability, are listed in Table 8.

Table 8. Indicator framework developed by Clarenville-Bonavista initiative.

Priority areas	Critical factor	Indicators	Data sources ²³
Meeting basic needs, tackling poverty, & promoting equity	Affordable housing	<ul style="list-style-type: none"> • Median housing costs (for homeowners & renters) • % of households spending 30% or more of income on housing (homeowners & renters) 	<ul style="list-style-type: none"> • Statistics Canada
	Employment opportunities	<ul style="list-style-type: none"> • Employment rate • Self-reliance ratio 	<ul style="list-style-type: none"> • Community Accounts
	Access to primary healthcare	<ul style="list-style-type: none"> • % of population with access to a doctor • Ratio of doctors to population • Life expectancy 	<ul style="list-style-type: none"> • Community Accounts • NL Medical Association
	Access to transportation	<ul style="list-style-type: none"> • % of residents with access to a car • Ratio of cars to adults 15+ years of age 	<ul style="list-style-type: none"> • Public survey • Statistics Canada
	Access to good food & nutrition	<ul style="list-style-type: none"> • % of population that is overweight or obese 	<ul style="list-style-type: none"> • Community Accounts
Maintaining sense of place, physical & cultural identity	Stabilizing population	<ul style="list-style-type: none"> • Residual net migration • 5-year population change • Median age 	<ul style="list-style-type: none"> • Community Accounts
	Community connectedness	<ul style="list-style-type: none"> • % of residents with strong sense of belonging to community • % of residents with high life satisfaction • Self-assessed community safety 	<ul style="list-style-type: none"> • Community Accounts

²³ See Holisko and Vodden (2015) for full details on data sources.

Priority areas	Critical factor	Indicators	Data sources ²³
	Preservation of cultural heritage & local identity	<ul style="list-style-type: none"> Regional tourism visitation # of heritage sites & museums 	<ul style="list-style-type: none"> Provincial government Community Infrastructure Mapping System
	Social inclusion & diversity	<ul style="list-style-type: none"> % immigrant population % of residents who feel their community is welcoming to newcomers 	<ul style="list-style-type: none"> Community Accounts Public survey
	Active & healthy lifestyles	<ul style="list-style-type: none"> % of population with good self-assessed health Diabetes rate 	<ul style="list-style-type: none"> Community Accounts
Intergenerational equity	Public debt	<ul style="list-style-type: none"> # of municipalities with a debt-service ratio above 20% 	<ul style="list-style-type: none"> Provincial government
	Youth unemployment	<ul style="list-style-type: none"> Youth unemployment rate 	<ul style="list-style-type: none"> Statistics Canada
	Investment in education	<ul style="list-style-type: none"> Provincial student loan debt Average university tuition fees % of population with a high school diploma 	<ul style="list-style-type: none"> Provincial government Community Accounts
Governance & participation	Commitment to governance & local autonomy	<ul style="list-style-type: none"> # of municipalities/local service districts Resident satisfaction with local government 	<ul style="list-style-type: none"> Provincial government Public survey
	Citizen engagement, vibrancy of non-recorded activities	<ul style="list-style-type: none"> Self-perceived life stress Volunteering rate 	<ul style="list-style-type: none"> Community Accounts Public survey
Integration of environmental, social, & economic factors	Viability of the agricultural sector	<ul style="list-style-type: none"> # of community gardens # of community pastures Agricultural workforce 	<ul style="list-style-type: none"> Memorial University REDB agricultural study
	Waste reduction strategies	<ul style="list-style-type: none"> # of green depots Waste reduction target in waste management strategy 	<ul style="list-style-type: none"> Multi-Materials Stewardship Board Provincial government
	Air quality & health	<ul style="list-style-type: none"> Air Quality Index 	<ul style="list-style-type: none"> Environment Canada
	Water quality & treatment	<ul style="list-style-type: none"> # of communities with public water systems # of communities with long-term boil water advisories Drinking Water Quality Index 	<ul style="list-style-type: none"> NL Drinking Water Study
	Energy use & GHG reduction measures	<ul style="list-style-type: none"> Targets in provincial climate change initiative 	<ul style="list-style-type: none"> Provincial government
	Ecological protection	<ul style="list-style-type: none"> # of ecological reserves # of provincial parks # of communities with a municipal stewardship agreement # of federal marine protected areas 	<ul style="list-style-type: none"> Community Accounts

Priority areas	Critical factor	Indicators	Data sources ²³
	Sustainable fisheries management	<ul style="list-style-type: none"> • % workforce employed in fish harvesting & processing • Groundfish recovery rates • Shrimp biomass index 	<ul style="list-style-type: none"> • REDB Strategic Economic Plan • DFO

These indicators were also compared to provincial and national averages whenever possible (Holisko & Vodden, 2015). In the final phase, these values were used as benchmarks to score each regional priority area and indicator using an aggregation process and visualization tools informed by a Dutch assessment tool called the Sustainability Balance (Zoeteman, Mommaas, & Dagevos, 2016). Using these tools, and noting recent changes in each indicator and overall priority area described both by official data and by local residents, the Report Card evaluated the overall state of each priority, as shown in Figure 19.

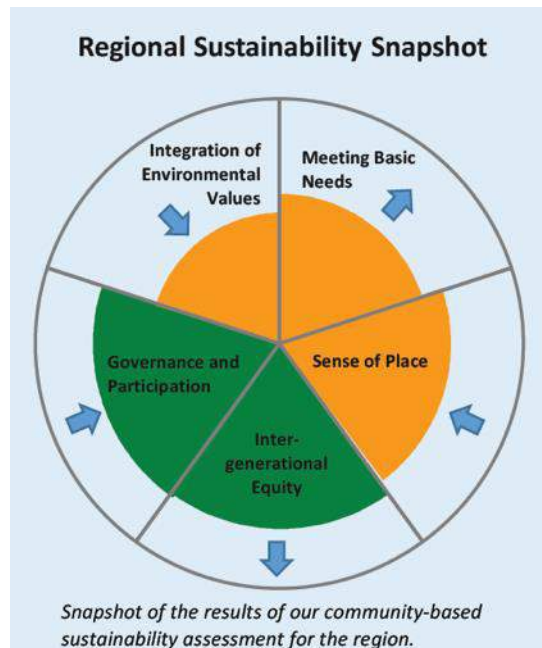


Figure 19. Snapshot of Regional Sustainability Report Card assessment.²⁴

²⁴ Source: (Lowery & Vodden, 2016b).

Step zero assessment

As discussed in Section 1, Step Zero analysis examines the underlying governance dynamics surrounding the inception and design of policy instruments (Chuenpagdee & Jentoft, 2007; Barragan-Paladines & Chuenpagdee, 2017). The previous section shows that each of the three AM/SI initiatives aspired to influence regional policy and development, thereby acting as soft governance instruments (Kooiman, 2003; Wurzel et al., 2013). To understand how these instruments were designed and how their inception influenced later outcomes, we now compare Step Zero factors including: the key initiators of each project; the motivations expressed by initiators and others who were involved; underlying conceptions of rural sustainability and well-being that informed the initiatives and how they measured SCRD; to what extent each initiative engaged community members; the role of external actors and policy structures in the initiatives; and key outcomes and barriers.

Project initiators

Across all three initiatives, external actors played a major initiating role. These external initiators were predominantly university researchers (involved from the onset in all cases) and provincial or federal government agencies. In the Western NL AM study, government agencies and researchers brought the idea to local stakeholders, while in the Branch and Clarenville-Bonavista projects government played a more secondary role, working with local actors during the inception phase alongside regional organizations that played key initiating roles. For example, in Branch the primary initiators were the Avalon Gateway REDB, NLSA – which oversees Community Accounts – and university researchers (led by Dr. Doug May), along with a

consultant from a nearby rural community. According to one local initiator, “I think the RED Board and Community Accounts and [the consultant] were the drivers” (Personal communication, March 14th, 2019). In the western NL AM study, regional organizations played a less prominent role. According to one initiator from Memorial University, “ACOA and [Memorial researchers] were the instigators” (Personal communication, March 14th, 2019).

In contrast, in the Clarenville-Bonavista project the impetus came primarily from regional actors. It was conceived by the Regional Council of the Rural Secretariat, a volunteer council consisting of seven community members from across the region, most of whom were prominent leaders in their communities. This Regional Council (like its counterparts in the eight other Rural Secretariat regions across the province) was supported by a full-time regional planner. According to a former Regional Council member:

“It was just coming out of conversations that we were having around the table, and us wanting to dig in a little bit deeper of what was going on. And [the regional planner], I guess, knowing [the researchers] from other circles...”

Personal communication, March 18th, 2019.

From these conversations around the Regional Council table, the idea was then brought to university researchers by the regional planner. The project’s Phase 2 report describes that:

“In 2013-2014, the Regional Council for the Clarenville-Bonavista Rural Secretariat Region (Regional Council) expressed its interest in understanding what are the important elements of a strategy to sustain the people and communities of their region, as well as defining the barriers to regional sustainability”.

Holisko & Vodden, 2015, pg. 9.

In contrast to the Clarenville-Bonavista project, the western NL asset mapping study was initiated mostly by a federal government agency (ACOA). The Branch CHR project represents a

middle ground, considering the strong role of the REDB and the consultant from a nearby rural area in introducing the project alongside provincial government and university actors.

Motivations

The motives expressed by these initiators were strongly influenced by the internal and external actors and institutions involved. The central role of federal government actors in the Western NL AM project featured strongly in its motivations. According to one initiator from the university:

“...my understanding was that we could use it as a way to understand changing conditions within communities, differing conditions from community to community – how can we use this to identify opportunities for rural communities to move forward?...and this is what I was thinking ACOA was about, you know – how can we then think about how we can invest money into a community or a region in certain areas, you know, to get the biggest bang out of their bucks?”

Personal communication, March 14th, 2019.

Given that ACOA is a major funder of community and regional development projects across Atlantic Canada (for which local actors must apply on a competitive basis), this motivation reflects a desire on ACOA’s part to use the AM project to inform its funding decisions in the region. Although this is a very government-driven motivation, the interest in understanding community-level changes was shared by the Clarenville-Bonavista project, in which local actors on Regional Council wanted to use the SIs to understand the same:

“I think we were trying to capture that period in time, and there was so much happening, and we wanted to figure out how we could capture it so that we could...figure out where we were going and trying to collect what was happening”.

Personal communication, March 18th, 2019.

This dual focus on understanding changing community and regional conditions and informing potential investments into rural regions highlights this initiative's intended policy relevance. Similarly, local stakeholders on the GNP who were involved in the regional consultations during the Western NL project saw the potential for the asset inventory to inform private or public sector investments, such as the following perspective:

“...if for argument's sake I went and checked my ticket from last night and discovered I won \$10 million...to be able to sit down to a site and say, 'Ok, I got this idea. Where might the best spot for that be?' Put in a few parameters and come up with labour market numbers, where people are traveling from, distances...all of a sudden figure out 'Ok, out in Port Au Choix would be a great place to put that. They've got a school that's not being used. There's not so many people working at the fish plant as there was. The population in the region has been relatively stable, so there must be unemployed people looking for work'. And you can go fairly quickly and put together...based on some extrapolations, what might be a good location for a particular type of business”

Personal communication, March 7th, 2019.

This perspective highlights the motivation to use the AM inventory to inform the siting of private sector investments with a full consideration of community and regional-level economic indicators and infrastructural assets (e.g. vacant buildings).

However, in Branch the motivation was less about managing change and more about simply recognizing the value of local assets. One local initiator hoped that the cultural heritage mapping project would highlight the value of local assets that were not being effectively used:

“I was trying to tell the story: 'Look people, just look at how much...is here. What can we do? Why, why are these assets and resources not being put to use?' They're very valuable. And...there should be something happening around the use of these resources”

Personal communication, March 14th, 2019.

This initiator's motivation was to tell a different story about the community's assets that, in their estimation, was desperately needed for those assets to be adequately valued and used. The CHR project website reflects a similar motivation, while also discussing the value of the community's cultural assets for tourism and municipal decision-making:

“The Community of Branch has a wealth of cultural resources that enriches the lives of its residents and entices visitors to linger. In order to understand its cultural resources, Branch, together with its partners, is beginning to develop tools such as Cultural Resource Mapping to leverage this wealth. The collection and mapping of cultural resources can then be integrated across all areas of municipal planning and decision-making”.

Branch Cultural Heritage Inventory, para. 1.

A strong theme from the Branch project was the desire to harness the community's cultural assets more effectively for economic development, a parallel with the western NL asset mapping study. This endeavor reflected both a desire to create new tourism opportunities and preserve the community's unique Irish culture for its own sake – a balance of conservation and development of cultural resources. Another stakeholder expressed that the value primarily lay in conserving these traditions for the local population: “I was hoping it would be...a life-long record of language and religious practices and all of those things from architecture...the natural heritage, as well as the built and social” (Personal communication, March 26th, 2019).

Conceptions of rural well-being and sustainability

Closely related to these motivations is how the AM/SI initiatives represented different conceptualizations of SCRD in their unique contexts. Given that each initiative used a different framework emphasizing distinct local assets, they prioritized different aspects of rural well-being

and sustainability and offered disparate portraits of SCRD based on these indicators and assets. For example, due to its focus on cultural heritage, the Branch CHR project was inherently less holistic than the other two initiatives, although aspects of its framework considered other SCRD areas like labour markets (e.g. cultural occupations) and landscape assets (natural heritage). Conversely, the Western NL AM project was more holistic due to its community capital-based framework, as were the Clarenville-Bonavista SIs.

Despite these differences, a number of key SCRD challenges and opportunities resonated across the initiatives. Firstly, concerns about reversing social and economic decline were extremely prevalent. This issue had long been discussed in many of the regions examined, especially in light of a report recently released on provincial population projections (Simms & Ward, 2017). One of the initiators on the Bonavista Peninsula described how:

“...the population was aging, a lot of the younger people were moving away, so we needed to address these issues...and, of course, we had some major employment problems, you know, fish plants closing down and so on and so forth, so from an economic focus we saw a need to, you know, how do we address that?”.

Personal communication, March 19th, 2019.

Similarly, an initiator from Branch described their concern for staving off demographic decline and youth out-migration: “in terms of their regional economic development board, Zone 18 had a very small population, scattered population, you know, a lot of people had just graduated from school and left” (Personal communication, March 7th, 2019). This concern is reflected in regional demographic trends, in which the population has declined by 15.3% since 2006 (and by 25.8% during the same timeframe in Branch alone) (Community Accounts, 2018c). At the same time, local residents were often frustrated by the frequent focus of academic and

media attention on demographic decline in rural areas, which was a major theme of the discussion from the workshop (discussed further below).

Closely related to demographic stabilization, another commonly expressed consideration was the need for acceptance of new residents from other cultures. One initiator from the Bonavista Peninsula reflected that, “I wouldn’t want to be the one that brings immigrant families into this area without starting an education part of it. Because you’re gonna put them up against some very ignorant people...” (Personal communication, March 18th, 2019). This sentiment may be reflected in the choice to include two indicators on immigration in the regional SI framework, with one showing that (according to the public survey conducted as part of the project) 85% of residents felt that the region was welcoming to newcomers, and the other paradoxically showing that immigrants comprise only 1% of the regional population (Lowery & Vodden, 2016).

A common theme across all three initiatives was the desire to acknowledge the full range of assets in the community or region. This concern was strongest in Branch and the GNP, where many stakeholders expressed frustration that rural development strategies often overlook local assets. One initiator from Branch shared an illustrative experience:

“...we had a meeting one day, and somebody mentioned about all the assets, or the resources, that were in our zone, and he mentioned the ocean, farmland, you know, those types of things. But he didn’t mention people. And I just figure that people are the main resource in whatever you do”.

Personal communication, March 14th, 2019.

Considering the intangible nature of the cultural assets considered in the Branch initiative, this desire to recognize the value of human assets seemed strongly related to the need to recognize these assets. For example, as shown in Table 5, the region including Branch has a relatively low sense of community belonging according to official statistics (71.9%, compared to

the provincial average of 79.6%)²⁵, which is not reflective of the community pride and sense of place reflected in the CHR project. The desire to fully recognize intangible cultural assets was also expressed on the GNP, where several stakeholders described historical narratives like the French Shore, which shaped the culture of communities like Conche and St. Lunaire-Griquet and which local heritage sites interpret to tourists:

“...the French Shore story isn’t told enough, so...we’re trying to get that story out there ...the French history has got forgotten and pushed to one side...so it’s certainly something that needs to be highlighted and showcased more because there’s a lot there”.
Personal communication, March 8th, 2019.

Although the asset inventory listed cultural assets like heritage sites and museums, it did not include more intangible cultural assets (Parill et al., 2014b), which tend to be more difficult to measure and are often better reflected in the stories of community members rather than official data sources. Local stakeholders discussed the importance of stories in all three initiatives, reflecting on storytelling as part of the culture and history of their communities. This was especially strong in Branch, where oral history, storytelling, and songs were among the main elements of the cultural asset mapping framework used (St. Croix, 2012). According to an initiator from the Branch project, “Branch...is a repository of old Irish music that is not heard anywhere else on the island or in Ireland anymore” (Personal communication, March 26th, 2019). Stories and cultural heritage were often discussed as important to preserve in their own right, but also potentially valuable for tourism product development.

²⁵ Regional-level data used due to data suppression.

Level of community engagement

The extent to which these initiatives engaged local residents largely corresponded to how the project was introduced and the roles of local and external actors. For example, the origination of the Clarenville-Bonavista SIs within the Regional Council, which was made up of volunteer members from across the region, implied a strong desire for Council members to understand changes occurring within their communities. Although university researchers and government staff also played a major role, there was ongoing engagement of both the Regional Council and a wider set of local residents throughout the project. For example, a survey of 299 residents across the region helped the project engage a wide range of local residents, while providing survey data to measure the indicators, and several rounds of regional workshops ensured additional resident input (Holisko & Vodden, 2015; Lowery & Vodden, 2016).

In the western NL study, several rounds of public input were also incorporated into the project, including focus groups in each sub-region and subsequent sharing of draft asset inventories for additional input. However, one GNP stakeholder recalled that there was “...more a sense it was university-driven...we were a primary source of information for the university” (Personal communication, March 7th, 2019). Considering the large geographic scope that this study examined, and its short timeframe (Parill et al., 2014), there seemed to be little effort to engage community members beyond member-checking the information in the asset inventory.

In contrast, the Branch CHR project followed a more participatory process despite the strong role of external initiators. This was partly due to the strong buy-in from the municipality: “...really in Branch, the Town Council was right on with it, you know. They understood it from the beginning” (Personal communication, March 26th, 2019). This buy-in is likely easier to secure within the scope of a single community than at a regional scale, although there was

purportedly interest from other Zone 18 municipalities in doing similar cultural asset mapping (Branch Project Charter, 2011). The project team employed creative methods to encourage community members to participate in public engagement sessions:

“...the question was simple: ‘what in your community would you like to preserve?’ And we did just sticky notes, you know...And there was 75 people on a Sunday afternoon, which was, you know, for towns of Branch’s size, was unheard of...”
Personal communication, March 26th, 2019.

One of the academic researchers involved in Branch also recalled the energetic participation of community members in this workshop:

“The attendees were divided into groups and the groups were given sticky notes or something to tackle each of these topics. Every time the group had a thought they would write it down and a ‘runner’ would take the note to the organizers at the front who had people on the side placing the notes onto posters on the wall. I volunteered to be a ‘runner’ knowing that I could watch the process to see if any ideas emerged. I was shocked as I was run off my feet as were other runners. The process was extremely successful”.

Personal communication, August 17th, 2020.

Outcomes

Interviewees indicated that the main outcomes of all three initiatives were their primary research outputs, in other words the asset inventory or sustainability assessment tool itself. Although these are valuable resources for community and regional development on their own, by their nature they are a “snapshot in time” (Regional Council of the Clarendville-Bonavista Region, 2016, p. 1), requiring regular updating in order to remain current to community and regional realities.

Consequently, all three initiatives were intended to be the beginning of a long-term process in

which the AM/SI tool would be routinely updated and used by different local and external stakeholders. For example, an initiator in the Clarenville-Bonavista project reflected that:

“I think it captured what we were trying to get, give us that sense. And when we did the Report Card, we wanted to be able to take that Report Card and then look at it like...a year or two out and see where, you know...this is where it was, so it’s a picture in time of where this area is, and then we’re gonna look at it again say in two years and see what has moved”.

Personal communication, March 18th, 2019.

In this long-term vision, the AM/SI tools were conceived less as direct tools for influencing the state of SCRD, but more for informing decision-making that would improve local assets. For example, the Clarenville-Bonavista Report Card highlighted a recent municipal water treatment pilot project in the Town of Sunnyside as a policy initiative that could help improve drinking water quality in the region, which was rated poorly due to the high prevalence of boil water advisories (Regional Council, 2016). Similarly, the Western NL AM study was seen as a way to identify new economic development opportunities both to take better advantage of the GNP’s existing capacities and enhance the range of economic and cultural assets:

“...if I had a bus tour or some kind of a tour company, and I was gonna offer a tour of lighthouses, then you could go into this system, pick the lighthouses, and perhaps some related fisheries infrastructure, and develop a tour based on that and tell the story. Someone else might want to do something of a religious and cultural tour and go in and pick all of churches, different denominations and religions, and cemeteries, and things like that”

Personal communication, March 7th, 2019.

To a lesser extent, stakeholders identified outcomes for SCRD measurement and promotion at the provincial level. For example, one of the initiators in the Branch CHR project expressed that:

“I think the key success from the asset mapping is...a cultural heritage account for the Newfoundland System of Community Accounts, that was actually created. And it’s there if people want to continue with it”.

Personal communication, March 14th, 2019.

A strong feature of this project was its direct linkage to Community Accounts, given that there was interest by NLSA in expanding its framework to include cultural assets, including providing support to the project in the form of funding and staff time (St. Croix, 2012). In contrast to this direct impact, another initiator from the Branch project reflected on a more indirect outcome that emerged from the initiative: “...I think every little thing you do in community development, it sort of snowballs, doesn’t it? You lose some, and it picks up some, and you start seeing vocabulary that you never saw before...” (Personal communication, March 26th, 2019). This more indirect impact does not occur in a linear or predictable way, but may be more reflective of the nature of community development initiatives, in which social learning and reflection may instill subtle changes among the actors involved over time.

Barriers

Despite these short-term impacts, and the vision held by all initiatives for more substantial long-term SCRD outcomes, they were largely described not by their impacts, but by the barriers they encountered. In the Western NL AM study, there was frustration that more effort was not put into ensuring a clear end use for the information collected. One initiator described that:

“...the goals of the project were to collect the information and to make it available to ACOA for planning. But I didn’t see the Part B. Part A – the benefits are the data was collected, it’s extensive...you know, I assumed that there was gonna be projects put forward...to look at certain regions and say ‘so here are the assets in this region. Let’s plan a project that’s gonna use those assets’ ...that’s where it fell short.”

Personal communication, March 14th, 2019.

This frustration may have stemmed from unclear expectations about which actors were meant to follow through on the study’s findings. As the same informant acknowledged, ACOA generally does not initiate economic development projects, but rather evaluates them once applications for funding are submitted by proponents at the community and regional level. Therefore, it was unclear who was meant to take action based on the information assembled in the regional asset inventory. Furthermore, the lack of follow-up may also be related to the relatively low level of community engagement in this project and the strong role of external actors relative to local stakeholders.

In the other two initiatives, institutional shifts stemming from changing political regimes were identified as the immediate cause for their demise. One stakeholder reflected on the dissolution of the Rural Secretariat in 2016, which effectively put an end to the Clarendville-Bonavista project:

“...the reason it stopped was there was a change of government...there was no other reason...the demise of Council happened through a phone call a couple of hours before the Budget came out, I believe it was. You know, so it wasn’t a phase-out, or a peter out type of thing, it was just over with”

Personal communication, March 19th, 2019.

This phone call, and concomitant elimination of the Rural Secretariat from the provincial budget, dissolved Regional Council and deprived rural regions of formal institutional support in provincial government. It also eliminated the regional body that had initiated the SI tool, leaving

no clear group to continue developing it. Sub-regional divides further stymied the potential for follow-through of the SI tool since the project had been designed around the formal Rural Secretariat regional boundaries (Holisko & Vodden, 2015).

The theme of political shifts was also strong in the case of the Branch CHR project, in which the REDBs were defunded by federal and provincial government in 2012, shortly after the pilot project in Branch was completed (St. Croix, 2012; Hall et al., 2016). The central role played by the REDB staff meant that its defunding sounded a death knell for the project. One regional stakeholder reflected that:

“I think it kind of died because the RED Board closed. That’s my understanding. You know...it was nice to see the community come together and realize that they had a rich culture, but it kind of never got more than that, you know, good feeling thing...And it was just poor timing that the RED Boards closed, and I think if the RED Boards had stayed around, the project would have continued...”

Personal communication, March 14th, 2019.

This reflection also conveyed a sense that there was a failure to harness the ‘good feeling’ of gathering community members to celebrate their cultural heritage and create more tangible outcomes for community or regional development. Combined with the demise of the REDBs, which had given the project a more regional scope and potential impact, the initiative lacked the momentum and regional capacity to build on its initial energy.

Whether due to the vagaries of macro-level political forces or lack of follow-through by the remaining actors involved, there was a general sense of unrealized potential from the AM/SI initiatives examined. This was combined with the need for a driver or champion to ensure that the initiatives did not end up ‘on the shelf’. One stakeholder involved in the Western NL AM project captured the sentiment in the following way: “...you’re left with a document, but no

resources necessarily to do anything about it...in these processes, you need champions”

(Personal communication, March 26th, 2019).

Table 9 summarizes the findings of the Step Zero analysis, highlighting key variations in chosen scale, initiators who drove the projects and their motivations, frameworks used to portray SCRD in the community and regional context, and to what extent local residents were engaged. The outcomes of these initiatives are also outlined, as well as the barriers discussed above.

Table 9. Overview of Step Zero assessment across rural AM/SI initiatives.

Initiative	Western NL AM study	Branch CHR	Clarenville-Bonavista SIs
Community/ region examined	Tip of GNP	Branch	Clarenville-Bonavista region
Scale	Region (defined by Regional Economic Development Board boundaries)	Municipality (with potential for expansion to other communities in the REDB region)	Region (defined by Rural Secretariat region boundaries)
Timeframe	2014	2011-2012	2013-2016
Initiating organization(s)	<ul style="list-style-type: none"> • ACOA funder • University researchers 	<ul style="list-style-type: none"> • Zone 18 REDB • Destination St. John’s • Consultant • University researchers • NL Statistics Agency • Town of Branch 	<ul style="list-style-type: none"> • Regional Council of Rural Secretariat (with regional planner) • University researchers
Framework used	<ul style="list-style-type: none"> • Community capital framework based in 5-capital model • Use of local data sources 	<ul style="list-style-type: none"> • Cultural heritage framework adapted from Ontario Cultural Planning Toolkit • Plan to link to Community Accounts 	<ul style="list-style-type: none"> • Homegrown sustainability indicator framework informed by resident survey and Regional Council discussions • Later stages of project used benchmarking & visualization tools

Initiative	Western NL AM study	Branch CHR	Clarenville-Bonavista SIs
Motivations for initiative	Create initial inventory of regional assets to demonstrate potential for economic development, inform private and public investment	Communicate the value of the community's cultural assets and potential for economic development; preserve community heritage	Understanding rapid socio-economic changes in the region; creating baseline assessment of conditions to monitor in the future
Level of community engagement	Low	Medium-high	High
Outcomes	Extensive inventory of regional assets with potential to be displayed visually (e.g. GIS)	Community pride and sense of hope; cataloguing of community's cultural heritage assets; creation of website displaying assets via multimedia	Creation of regional sustainability assessment tool; dissemination to key regional stakeholders and residents
Barriers	<ul style="list-style-type: none"> • Scope of project prevented in-depth analysis of assets at regional level • Unclear expectations about which actors should use the asset inventory and take action 	<ul style="list-style-type: none"> • Disbanding of REDBs in 2012 • Inability to translate short-term sense of pride into tangible community development outcomes 	<ul style="list-style-type: none"> • Disbanding of Rural Secretariat in 2016 • Sub-regional divides (e.g. Clarenville area vs. tip of Bonavista Peninsula)

6. Discussion and conclusions

This study has revealed a number of relevant findings for SCRD and the utility of AM/SI tools in rural regions. The Step Zero assessment conducted here reveals that actors and institutions external to the community or region played a central role in all three local initiatives, although they varied in the use of participatory practices and place-based efforts to contextualize rural well-being and sustainability. They were also strongly influenced by macro-level policy structures, revealing the vulnerability of rural development efforts to volatile political structures and the gradual withdrawal of essential regional capacity. The article concludes by offering two

key lessons learned for future efforts to promote rural sustainability through AM and SI-based tools, noting opportunities for future research in rural NL and similar jurisdictions.

Regional autonomy in hierarchical policy environments

Firstly, this study reveals that hierarchical governance structures strongly affected the rural AM/SI initiatives examined here. The interactive governance approach, and Step Zero analysis specifically, have been used in other jurisdictions worldwide to reveal hierarchical governance structures and the barriers imposed to community-level autonomy and collaborative approaches (Chuenpagdee & Jentoft, 2015; Barragan-Paladines & Chuenpagdee, 2017), including in rural coastal communities of NL (Olson, 2011; Daly & Chuenpagdee, 2020). Although Step Zero has had limited application outside of fisheries governance research, our findings suggest that it is useful for investigating local governance instruments outside of fisheries that occur at the nexus of local and external actors and policy forces (while acknowledging that in the communities and regions examined, fisheries are important parts of the local asset base). Considering its emphasis on instruments as *first-order* features of governance, this approach proved useful for exposing how the AM/SI initiatives examined here occurred within the institutional structures inherited from existing arrangements (*second-order governance*) while simultaneously reflecting explicit and implicit governing images and assumptions (*meta-governance*) (Kooiman, 2003).

Previous research has characterized the NL provincial governance system as highly centralized, with the province's recent colonial past and rural-urban dynamics leading to the concentration of power in bureaucratic government institutions (Gibson, 2014; Ommer, Neis, & Brake, 2016). According to Locke et al. (2007), "the political rule of Newfoundland and

Labrador has been consistent: a highly centralized and hierarchical administration with no long-standing tradition of local or regional authority” (p. 2). Very few communities outside of St. John’s were incorporated before Confederation (Vodden et al., 2016), and successive institutions intended to enhance rural capacity at the regional level have been disbanded (Hall et al., 2016), often due to abrupt institutional reshuffling stemming from partisan political shifts. One notable break from this pattern of top-down governance was the Strategic Social Plan, which had a participatory vision of using community-level priorities and well-being indicators to shape the plan’s implementation through regional planning committees (Powers et al., 2006). This plan, much like local AM/SI initiatives examined here, later fell victim to political reshuffling (although Community Accounts survived) (May & Hollett, 2008; Keenan & Whalen, 2010). This study corroborates that dependence on volatile, typically top-down driven policy structures restricts local-level development efforts and reinforces the hierarchical nature of rural governance in the province.

In summary, the Step Zero approach has highlighted how hierarchical governance arrangements featured strongly in all three cases, often overpowering more bottom-up efforts taken to engage a wide range of community stakeholders and use the tools to reflect local concerns. These initiatives reflect ongoing centralized policy structures that dominate rural governance in NL (Hall et al., 2016), which to some extent are re-producing these hierarchical relations through structural conditions, thereby stymying alternative avenues for breaking from path-dependent development trajectories (Tonts et al., 2014; Grillitsch & Sotarauta, 2019). These observations also reinforce earlier applications of Step Zero analysis that highlight path dependency in top-down modes of governance that affect instruments like co-management and marine protected areas (Chuenpagdee & Jentoft, 2007; Giraldo-Costa, Medeiros, & Tiepolo,

2020), expanding these observations beyond fisheries research. This hierarchical nature was strongly influenced by the pronounced role of centralized institutions in all three initiatives, including both provincial and federal government agencies and the university. An important difference between previous applications of Step Zero to fisheries management and the present study is the differences between the hard policy tools often used in fisheries governance, including coercive measures like limits on access to fisheries resources, and the soft nature of AM/SI initiatives, which are more informal and voluntary. Further, since they are largely publicly available (and in all three cases were identified as able to be built on in future iterations), they represent an adaptive form of ‘commons’ knowledge resources that are inherently different from fisheries management measures, in that once these tools are created they are essentially open source, rather than imposing restrictions on rivalrous natural resources (Madison, 2014). This application of the Step Zero approach also points to opportunities to compare path-dependent governance outcomes in rural NL to other neocolonial and natural resource-based jurisdictions, including where this technique has been previously applied in fisheries contexts (Tonts et al., 2014; Giraldi-Costa et al., 2020). Future research should also investigate how Step Zero analysis might be further applied in other geographic contexts and policy environments.

Regarding the strong role of university researchers, these findings also highlight critical capacity gaps in rural NL regions while underlining the importance of colleges and universities for rural development. All three initiatives were strongly influenced by university researchers (including several of the authors of this article who were personally involved in these projects). On one hand, this pronounced university involvement underscores the ongoing consequences of the dismantling of regional governance institutions in rural NL, which previously provided key

human resources and expertise for regional economic development and planning (Hall et al., 2016). In light of the capacity vacuum created by the dissolution of these regional bodies, the involvement of external actors like academic researchers represents an importation of necessary capacity and expertise to undertake rural development, which is reflected in all three AM/SI initiatives examined here. Given the hierarchical nature of the NL governance system, this reality creates further dependency between rural communities and external actors, in this case academic researchers who may have expertise in AM/SI tools and resources like research funding and graduate student capacity. However, in NL the relationship between the university and rural communities is regarded by many as a unique asset, partly because Memorial is the province's only university and plays a considerable role in community and regional development efforts (Webb, 2014; Halseth, Markey, Ryser, & Manson, 2016).

In light of the hierarchical governance structures reflected in our findings, we suggest further work to demonstrate the need for new regional governance structures in NL while investigating how AM/SI tools might be incorporated into these arrangements. Situated in ongoing explorations of regional governance models that could be adapted to fill the current void in regional capacity (MNL, 2013; Gibson, 2019), future research should consider multiple ways that AM/SI tools can be used to inform and guide regional development, both reflected in the SI literature and expanded on in these findings. For example, the well-established direct instrumental use of SI tools in formal policy and planning was reflected in the Western NL AM study and the Clarenville-Bonavista SIs (Hezri & Dovers, 2006; Lyytimäki, 2019), but these initiatives (especially the latter) also reflected more conceptual uses in fostering discussions about future sustainability and promoting social learning and reflection (Hermans et al., 2011; Buhonovsky & Jäger, 2013). In contrast, in Branch an entirely different use could be described in

terms of making the community's often-overlooked assets visible, which is more reflective of asset-based development experiences (Bebbington, 1999; Taliep et al., 2020).

Considering these myriad potential uses of AM and SI tools, our findings suggest that future explorations of regional governance in NL should examine how sustainability assessment and AM processes can be built into these arrangements. Regional development models like the Smart Specialization framework developed in the European Union, which directly incorporates monitoring processes into its approach and has been used in rural areas (da Rosa Pires, Pertoldi, Edwards, & Hegyi, 2014), could be assessed for potential applicability to rural NL and similar contexts. Currently, the provincial government does not seem to have a plan for re-visiting regional governance after the initial consultations conducted in 2017 (Government of NL, 2020a). Nonetheless, future research should examine which actors are already operating at regional and sub-regional scales who have expertise and capacity to carry out AM/SI work. As one participant in the workshop reflected, it is very expensive to collect and analyze the data needed to design local AM or SI tools (Personal communication, May 17th, 2019), further highlighting the demands on local capacity. Considering the high inputs of labour, expertise, data, and time needed for integrating sustainability assessment into regional governance structures, research is needed to understand which individuals, organizations, and institutions currently have these skill sets at the appropriate scale in rural regions, and what additional supports they would require to undertake this work if regional governance structures were put in place.

An important caveat to these ongoing regional governance discussions is the presence of socio-economic and cultural divides at the sub-regional scale in rural NL. The importance of these sub-regional divisions has been examined in previous research in rural NL, including on

the GNP, where spatial and socio-economic barriers have been identified that influence existing patterns of regional collaboration (Tucker, Gibson, Vodden, & Holley, 2011; Stoddart et al., 2020). At the sub-regional level (e.g. the Strait of Belle Isle), collaborative relationships have formed around specific service areas or shared resources, like drinking water management and fish habitat protection (Vodden, 2015; Chireh, 2018). This study builds on these findings by highlighting how, for example, disparate socio-economic conditions in sub-regions of the Clarenville-Bonavista area were noted by local stakeholders and partly led to the lack of follow-up after the Rural Secretariat was disbanded, as well as cultural and religious divides on the Cape Shore related to the Irish Catholic identity of communities like Branch. Research has also been done on the regional commuting patterns of rural labour markets, informing the identification of ‘functional economic regions’ across the province (Freshwater, Simms, & Ward, 2014). An in-depth understanding of these sub-regional divides, as well as existing patterns of collaboration at different regional scales, are essential for future regional governance interventions.

Telling stories to challenge deficiencies-based rural narratives

The other major lesson from this study is the importance of stories in rural sustainability, including the efforts examined here to measure and mobilize rural assets. Both AM and SI tools must navigate the tension between top-down and bottom-up forces in their design and use, including how to integrate local priorities and knowledge with existing measurement tools and frameworks, in a way that is transparent and meaningfully engages local stakeholders (Fuller et al., n.d.; Fraser et al., 2006). Admittedly, AM experiences have often taken an explicitly bottom-up approach oriented in the emancipation of marginalized groups (Mathie & Cunningham, 2005; Taliep et al., 2020), while SI tools are often influenced by the more technocratic origins of these

tools (Reid & Rout, 2020). In this search for participatory approaches, the stories of local residents are essential for understanding lived experiences that are often difficult to measure quantitatively, or may not be well represented in official data in rural areas due to inconsistent data quality and suppression techniques for protecting resident privacy in small communities (Main et al., 2019) – an issue seen in much available data on Branch. In rural and peripheral areas, asset-based development has also responded to deficiencies-based narratives told about these regions, such as in the South American Andes and the midwestern United States (Bebbington, 1999; Emery et al., 2007).

In comparing the rural AM/SI initiatives examined here and the communities and regions where they took place, we observed competing narratives about the sustainability of rural NL regions. In many interviews with local stakeholders, and in particular the workshop discussion, one of two overarching narratives was told: on the one hand, relatively successful rural communities wishing to optimize their assets to capitalize on economic renewal, and on the other a yearning for local assets to be adequately recognized. Local stakeholders in the Bonavista Peninsula generally expressed an optimism about the future and a desire to plan for sustainability as tourism and other sectors continue to grow. Central to that future is the influx of new and returning residents, such as one local stakeholder who recently returned to the area to start a business and family:

“I don’t think I want to live in a city ever again. When I was growing up I always wanted to move away. I didn’t realize how lucky we were. It’s really safe here and the crime rate is really low. Yeah, I don’t feel like ever moving again. If I can make a go of it here and make a living, we’re planning on staying”.

Personal communication, March 22nd, 2019.

This optimistic sentiment about the benefits of rural life, including safety to entice people seeking an escape from high crime rates in more urban areas, reflects a general narrative of hope about the future and desire to enhance local assets to encourage in-migration. In contrast, stakeholders on the GNP and Branch often expressed frustration over an overarching narrative of rural decline. According to one stakeholder on the GNP, which had been recently highlighted in a province-wide study of population projections (Simms & Ward, 2017), this decline narrative has been well-known to local residents for a long time:

“We’re all losing population. We’re the region that was highlighted by the Harris Centre’s population study to lose the highest amount of population by 2036...and I’ve said to...the Harris Centre ‘we certainly knew that anyway, thank you for highlighting it again’, because it did ignite some of the fire under some other people to really do something, but we knew...that we were down that road and we’re gonna continue to go down that road in many respects if we don’t find changes”

Personal communication, March 7th, 2019.

It should be acknowledged that since that report was published (Simms & Ward, 2017), the Harris Centre specifically has taken a different tone to regional engagement and development, including by leading an applied research funding initiative on the GNP (Butters, Lowery, Forward, & Carter, 2017). Local stakeholders also described the pressure that less successful rural regions receive from government and other external actors to copy what has been done in the regions characterized by the narrative of growth. Another stakeholder on the GNP expressed that:

“...even our own member, when I talk to him about sustainability for us, he keeps referring to Bonavista, and I keep saying ‘Jesus! We put you in! We didn’t put you in to run Bonavista on the Northern Peninsula. We need your help here’. Good that Bonavista is doing it, great for those people, ok. But don’t give me that horse shit”.

Personal communication, March 22nd, 2019.

The pressure described here also reflects the hierarchical provincial governance structure that relies on competitive funding mechanisms to distribute community development resources from provincial and federal agencies to communities, effectively forcing communities to compete with one another for the same resources. This sense of inter-community competition is reminiscent of widely-observed legacies of ‘divide and rule’ tactics used in other former British colonies like India (Farooqui, 2015), and reflects contemporary observations of uneven development patterns between so-called ‘leading’ and ‘lagging’ regions (Godeschalk et al., 2004; Tonts et al., 2014). In contrast, lessons could be learned from the experiences of more economically successful regions, like the Bonavista Peninsula or Fogo Island, without promoting a cookie-cutter approach or inter-territorial competition.

Rural policy and development research have repeatedly warned against ‘one-size-fits-all’ policy applications (Vodden et al., 2019). These findings reinforce this conclusion by showing the diversity of ways in which these local initiatives conceptualized and assessed rural sustainability, often including highly participatory and community-based methods. In addition, the sense that official indicators (i.e. demographic decline) and urban elites were controlling the story told about the GNP region reflects popular media portrayals of rural areas that often take a deficiencies-based tone (Hutchins, n.d.; Roberts, 2019; Swenson, 2019), and critical assessments of predominant narratives about rural NL (Porter, 2016). Local stakeholders’ resistance to these characterizations also resonates with previous research on narratives questioning rural viability (Bebbington, 1999; Johnstone & Lionais, 2004).

Another deficiencies-based narrative observed in the study was the sentiment that mainstream development strategies often fail to recognize the value of local assets. As one initiator in Branch expressed, people are the greatest asset for local development (but have often

been overlooked), which corresponds to asset-based approaches to development that acknowledge the individual as a major source of knowledge and skills (Fuller et al., n.d.; Kretzmann & McKnight, 1993). Particularly with the Branch project's emphasis on local stories and knowledge, and to a lesser extent with the Clarenville-Bonavista project - which shared stories of local initiatives and organizations in relation to each regional priority area in its Report Card (Regional Council, 2016) - stories provided essential context that quantitative indicators cannot show. These stories and cultural assets were considered somewhat in the Western NL AM study, but local stakeholders on the GNP expressed frustration that rich cultural narratives, like that of the French Shore, are often overlooked.

We found that many local stakeholders viewed these stories as a way to counter deficiencies-based narratives that either overlooked the community's assets or characterized it, along with other rural communities, as declining and undeserving of further support. Regarding the strongly-emphasized cultural assets in Branch, this desire to tell an alternative story about the community's identity has parallels to previous research on the role of cultural identity in individual and collective well-being (Usborne & Taylor, 2010), and the tensions between cultural preservation and commodification in heritage tourism (Bui & Lee, 2015). Stories and communication were also highlighted in the more long-term outcomes of the initiatives which, despite not becoming used or updated regularly by local development actors, often briefly inspired local residents to take pride in their communities and reflect collectively on their future. The shared sense of concern for understanding rapidly changing community conditions in the Clarenville-Bonavista project reflects well-established observations of the role of SI tools in encouraging social learning and reflection about sustainability (Reed et al., 2006; Buhonovsky & Jäger, 2013), while the observation of new vocabulary in the Branch project corroborates

observations of participatory SIs leading to “a common language” to talk about sustainable development (Hermans et al., 2011, p. 6), which may be supported by telling stories that resonate among a diverse range of stakeholders.

Future research should continue exploring the linkages between rural sustainability and stories, including how AM/SI tools may reflect storytelling elements in their current or potential use. Such research could build on the ongoing debates in the SI field on the most appropriate uses of these tools in local governance (Holman, 2009; Moreno Pires et al., 2017; Lyytimäki, 2019), while considering how asset-based mapping approaches may be more appropriate for relaying the stories of marginalized groups (Christensen, Cox, & Szabo-Jones, 2018; Taliep et al., 2020). Chapter 5 makes initial inroads into this important research area.

Limitations and future directions

The study has several limitations. Firstly, a considerable amount of time had passed between the beginning stages of these initiatives and the time of data collection, which may have affected the memory of participants as they described how they were conceived and designed. A related issue, particularly in Branch, was the fact that many community members involved in these initiatives had moved on in their lives, or had moved out of the region or the province, which impacted participant recruitment. As noted, we tried to supplement the low number of interviews in Branch with informal conversations with community members and other initiators. Finally, several of the article’s authors were directly involved in the initiatives examined, but the primary author (who conducted the data collection and analysis) was only involved in the Clarenville-Bonavista initiative in its final stage. We sought to remain aware of potential biases that may result from our involvement, while also acknowledging that this previous involvement

strengthened our ability to reflect on these initiatives, their successes and failures, and the lessons they contain for future rural sustainability initiatives and research (Halseth et al., 2016)

In conclusion, this article contributes to knowledge and practice on the unique characteristics of SD in rural communities and regions, and the utility of tools to identify and measure rural assets therein. Building on previous applications of the Step Zero approach, we find that local-level articulations of SCRDR through asset- and indicator-based tools are greatly constrained by the macro-level policy contexts that, in the NL context, perpetuate hierarchical policy regimes that stifle community-driven planning and development visions (Barragan-Paladines & Chuenpagdee, 2017; Chuenpagdee et al., 2017). This analysis also re-affirms the need for these instruments to do more than simply measure local sustainability conditions, but instead be used by local actors in long-term visioning and decision-making (Reed et al., 2006; Hermans et al., 2011; Bell & Morse, 2018). However, the initiatives examined here were unable to achieve that impact for both internal and external reasons. This study contributes to research on the role of AM/SI tools in local governance, showing how pre-existing hierarchical structures reproduce themselves in local-level tools, particularly in the context of strong influence from external actors and policy structures. Future research should examine the appropriate scale for incorporating AM or SI processes into regional governance, and how the NL experience can both learn from and inform these efforts in other jurisdictions facing hierarchical governance structures or neocolonial policy legacies. In the ongoing search for economic and social renewal in rural NL, once again threatened by crisis as the long-term effects of COVID-19 begin to materialize (Bailey et al., 2020), this study hopes to inform both provincial discussions on rural sustainability and the wider search for appropriate tools and processes to strengthen the sustainability of rural communities and regions.

Chapter 5: Storytelling for sustainable development in rural communities – an alternative approach²⁶

Abstract: Mainstream conceptualizations of sustainable development (SD) tend to focus on urban areas or the national or global scale – most recently through the Sustainable Development Goals. This focus often overlooks rural and natural resource-based communities, particularly those dependent on renewable resources like fisheries or forestry. Drawing from a comprehensive review, we propose an alternative approach for interpreting and measuring SD in these contexts. We integrate two seemingly contradictory approaches: sustainability indicators (SIs), whose evolution reflects competing views of the nature of knowledge and action in pursuit of SD, and the use of storytelling in policy and planning, highlighting how actors tell stories to garner support for proposed developments, influence public understanding, and mobilize stakeholders. Examining the opposing epistemologies often underlying these two approaches, we posit that they can be brought together through a transdisciplinary lens for sustainable rural development. We illustrate these potentials in Newfoundland and Labrador, a highly resource-based region in which rural communities are often characterized by deficiencies-based narratives. In such contexts, storytelling can allow rural stakeholders to interpret SD while potentially enlisting SIs in telling their own sustainability stories.

Keywords: sustainable development, storytelling, stakeholder engagement, rural development, sustainability indicators

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1. Introduction

Sustainable development (SD) has been a contested concept from its inception to the present day. Communities and sub-national regions worldwide have translated SD to local realities, guided by a variety of frameworks, most recently the Sustainable Development Goals (SDGs) adopted by 193 countries in 2015 (United Nations, 2015a). Nonetheless, its meaning in local contexts and how it should be implemented remain widely debated (Hopwood, Mellor, & O'Brien, 2005). Many mainstream SD agendas focus primarily on the national scale of implementation (Hajer et al., 2015), in which local visions for change may be suppressed by grand agendas (Sayer, Bull, & Elliott, 2008). The meanings and perspectives of local residents are central for articulating SD goals and strategies that consider local contexts while aligning with global imperatives like climate action and gender equity.

Rural and natural resource-dependent communities in particular have been overlooked in prevailing narratives about SD. Mainstream approaches to sustainable community development (SCD) often bear an implicit assumption that sustainable communities are 'urban by default', or even that cities are inherently more sustainable than rural areas (Bithas & Christofakis, 2006). This urban-centric approach overlooks the contextual differences between urban and rural communities, including rural assets like unique amenities and an often strong sense of place, as well as rural governance challenges including limited capacity and the retrenchment of government support (Vodden, Douglas, Markey, Minnes, & Reimer, 2019). Natural resource-based regions are often ignored in calls to dematerialize the economy, highlighting the need for a just transition which protects workers and communities that depend on resource extraction (Mccauley & He, 2018), while pursuing alternative livelihoods to replace fossil fuel industries. Furthermore, rural policy discourse often features deficiencies-based narratives that highlight the

challenges facing these regions but fail to acknowledge their strengths (Hutchins, n.d.; Bebbington, 1999). In such contexts, an asset-based approach to local development can mobilize communities that have been demoralized by these labels (Kretzmann & McKnight, 1993; Mathie & Cunningham, 2005). Similarly, strategies like appreciative inquiry can encourage organizations and communities to recount stories of success that build on what stakeholders value and have learned from past efforts (Hammond, 2013).

In rural and urban communities alike, progress towards SD is often defined in terms of what is easily measured. Hence the proliferation of sustainability indicators (SIs), which are characterized by holistic sets of (often quantitative) measures to represent progress towards a range of SD priorities (Bell & Morse, 2008; Ramos, 2019). SIs represent both a widespread tool for operationalizing SD and a site of epistemological tensions surrounding the nature of knowledge and action in a sustainability transition. Originating in technocratic approaches (which are still widespread in theory and practice), SIs have gradually evolved to include more participatory frameworks for measuring community well-being, evaluating the quality and quantity of local assets, and monitoring sustainability over time (Reed, Fraser, & Dougill, 2006; Ramos, 2019). Locally-crafted indicators can also provide novel ways to evaluate assets that are difficult to measure like culture and aesthetics (Cochrane, 2006; Stone & Nyaupane, 2018). However, the SI literature remains divided over how communities should use these tools – whether they must be directly incorporated into policy and planning processes in an instrumental fashion or if they should play a more nuanced role in fostering dialogue and facilitating multi-stakeholder engagement (Brugmann, 1997; Pinfield, 1997; Hezri & Dovers, 2006; Lyytimäki, Gudmundsson, & Sørensen, 2014; Reid & Rout, 2020).

Storytelling approaches to policy and planning offer a very different means to understanding current conditions and future potentials for SD. Therein, political myths impart meaning to social groups by providing a narrative that explains their experiences (Blumenberg, 1985; Bottici & Challand, 2006). Planners tell stories about communities that can reflect citizen concerns about the future and advocate for particular development decisions (Sandercock, 2005; van Hulst, 2012; Bourgeois, Penunia, Bisht, & Boruk, 2017). However, storytelling can be a destructive force when used to polarize political discourse, reflected in the rise of far-right populist movements which often appeal to bigotry to mobilize constituencies (Hochschild, 2016). In contrast to this divisive political discourse, alternative stories can be told about sustainable communities by engaging citizens in an inclusive process to find solutions to global challenges like climate change (Veland et al., 2018). Such an approach may be particularly appropriate for rural and resource-based communities, particularly when prevailing SD discourse has excluded these regions and problem-based narratives call into question the viability of rural people and livelihoods (Bebbington, 1999).

At first glance, SIs and storytelling may seem like mutually exclusive approaches to societal transformation. Indicator-based tools isolate and assess aspects of socio-ecological systems through reductionist logic, representing only the components that their designers choose to measure; in contrast, storytelling situates individuals and groups within a contextualized narrative in which these lines are often blurred. Furthermore, the urban bias in many sustainability strategies calls into question the appropriateness of SI tools for rural and resource-based communities, where important local assets may be difficult to measure or poorly represented in official statistics (Main et al., 2019; Ramos, 2019). Yet, what if there were a middle ground in which communities could employ both stories and quantitative SI tools to

interpret SD in their unique contexts and compel stakeholders to action? In oft-neglected rural and natural resource-based communities, could local stakeholders employ storytelling and indicators together to construct alternative narratives about community sustainability?

This comprehensive review proposes a storytelling approach to SCD in rural and resource-based communities and regions. We frame SIs and storytelling as disparate but complementary lenses for bridging knowledge and action towards a sustainability transition. The research question guiding this article is “can sustainability indicator tools be integrated with community storytelling in rural and natural resource-based communities, and if so, what roles might this approach play in SCD?” We argue that SIs may become more appropriate to these contexts if approached as part of a broader process of community storytelling. Recognizing the unique assets and challenges facing rural communities, we explore how storytelling can provide a complementary approach for representing community assets, particularly those that are often difficult to measure like culture and sense of place (Ramos, 2019; Markey, Breen, Vodden, & Daniels, 2019). To illustrate these potentials, we highlight the story of Newfoundland and Labrador (NL), Canada – a uniquely rural and resource-dependent region framed by deficiencies-based narratives about rural communities – while exploring rural sustainability stories in other areas. We propose storytelling as an alternative approach for mobilizing rural citizens to take stock of their communities’ assets and pursue their own sustainability visions, encouraging empirical applications in multiple contexts.

2. Methods and materials

This study conducted a comprehensive review of publications in the SI field and related literature. The review took place in multiple phases as part of a larger study examining SD in

rural and resource-based regions, combining iterative phases of theoretical and empirical research (see Chapter 2). During this process, we conducted empirical research on local SI and asset mapping initiatives in Canada and NL while continuously returning to the literature to guide interpretations and follow new developments in the field.

The temporal scope of this review spans from 1996 to 2020, representing the last 25 years in SI research. This process was not exhaustive or deductive, but rather purposive, following an interpretivist approach (Patterson & Williams, 1998), and combining narrative and theoretical literature review techniques (Schreiber, Crooks, & Stern, 1997; Paré, Trudel, Jaana, & Kitsiou, 2015). We searched both scholarly databases, like Scopus and Web of Science, and practitioner-oriented repositories like the Canadian Community Economic Development Network (<https://ccednet-rcdec.ca/en>) and the Community Indicators Consortium (<https://communityindicators.net/>). This process aimed to synthesize knowledge in the SI field and articulate missing theoretical and methodological links to sustainable rural development. As this process revealed gaps, which were often guided by the empirical research of the larger study of which this article is part, we expanded the review into other areas of research like narrative analysis and storytelling (Howard, 1991; Zilber, Tuval-Mashiach, & Lieblich, 2008). This integrative review intended to provide a conceptual contribution to the SI field while supporting other research areas through a transdisciplinary approach (Brandt et al., 2013).

3. A storytelling approach to sustainable development

The SD concept has been described as an inherently anthropocentric notion derived from Western ideals of the linear progression of society towards an imagined future state (Hopwood et al., 2005). Though mainstream conceptualizations generally acknowledge the importance of

three SD pillars, i.e., environment, society, and economy (Serageldin, 1996), there is a lack of consensus on how these priorities should be balanced and achieved in practice (Kates, Parris, & Leiserowitz, 2005). Robinson (2004) argued that SD attempts to “reconcile two incommensurable areas” (p. 370) – environmental protection and human development – which the famed Brundtland Report (where the most widely-used definition of SD was proposed²⁷) noted as not mutually exclusive, but compatible (WCED, 1987). More nuanced conceptualizations of SD are informed by a socio-ecological systems perspective, considering the multi-dimensional nature of interconnected human and biophysical elements (Berkes & Folke, 1992), while calling for action to stop the overshoot of planetary boundaries at a global level (Rockström et al., 2009). Often this global focus has foregrounded international agencies and national governments in SD strategies, in which community-level realities can be subsumed within ‘grand designs’ (Sayer et al., 2008). The most recent lodestar of SD implementation – the SDGs which outline 17 goals, 169 targets, and 242 indicators – have been similarly criticized for perpetuating a theory of change wherein states and international agencies pilot the craft in which local actors are merely passengers (Hajer et al., 2015).

The messy epistemology of SD

These challenges highlight how SD is a wicked problem that differs from challenges that can be solved by rationalistic approaches and technocratic solutions (Rittel & Webber, 1973). The epistemology of SD is informed by the dynamic and evolving nature of socio-ecological systems

²⁷ The Brundtland Commission defined sustainable development as “[development that] meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 16).

(Innes & Booher, 1999), in which social, economic, ecological, and political sub-systems are interdependent. Therein, interventions cannot be carried out in a linear fashion, but through what Checkland (1999) terms a ‘soft systems’ approach that acknowledges the complexity of these sub-systems and the cognitive and institutional systems through which actors design responses. This systems view is reflected in the balancing of multiple forms of capital, namely halting the depletion of natural capital to expand economic capital (Pearce & Atkinson, 1993), while also recognizing the importance of social bonds in maintaining robust communities (Putnam, 1995; Mathie & Cunningham, 2005), and the value of intangible resources like cultural capital (Cochrane, 2006; Stone & Nyaupane, 2018).

Due partly to this complexity, the SD concept has been plagued with debate over what concrete goals it should accomplish and how stakeholders should achieve it (Kates et al., 2005). Common principles have been articulated like justice (for safeguarding social capital), efficiency (for enhancing economic capital), and resilience (for sustaining natural capital) (Hermans & Knippenberg, 2005). Meanwhile, global imperatives like climate action, poverty eradication, and gender equity have been enshrined in the SDGs (Le Blanc, 2015). Nevertheless, Hák et al. (2018) suggest that even 30 years after Brundtland, SD advocates still struggle to offer a compelling narrative of change to garner widespread support from citizens and policy-makers. Another ongoing challenge is the prevailing mechanistic worldview informing many SD initiatives, including indicator-based tools, that sees the socio-ecological system as a series of discrete parts that can be isolated and controlled (Reid & Rout, 2020).

In light of these challenges, alternative models of science have been developed that call for new ways of linking knowledge and action for societal transformation under concepts such as post-normal science, sustainability science, Mode 2 learning, and transdisciplinarity (Funtowicz

& Ravetz, 1993; Gibbons et al., 1994; Brandt et al., 2013). These alternative research programs seek not only to blend but transcend discipline-bound knowledge and sectoral divides in pursuit of transformative insights (Mittelstrass, 2011), while crossing schisms between academic and citizen knowledge by engaging civil society, policy-makers, and individuals in defining problems and co-designing solutions (Brandt et al., 2013; Mauser et al., 2013).

Transdisciplinarity in research on complex socio-ecological systems has been adopted in areas such as fisheries, which Chuenpagdee and Jentoft (2018) have applied to the governance of small-scale fisheries and coastal communities. A related model is the Integration and Implementation Sciences, founded in complexity science and systems thinking, use of participatory methods, and the management, exchange, and implementation of knowledge (Bammer, 2005, 2016). Another example is reflexive monitoring, which challenges mainstream monitoring and evaluation conventions through an iterative and reflective process that acknowledges the dynamic nature of system innovation projects in which the experiences and perspectives of stakeholders play an important role (van Mierlo et al., 2010).

The power of stories in political discourse

There are few vehicles for conveying knowledge and imparting meaning as universal as the art of storytelling. Telling stories is central to the human experience, a timeless strategy for relaying information between individuals and groups. Due to their easily recognizable elements – like plot, setting, and characters (see Figure 20) – narrative tools have long been used in interpretivist social analysis (Barthes, 1975; Howard, 1991), ethnographic research (Spradley, 2016), and oral history (Ritchie, 2014), and have gained popularity in critical academic spaces like Indigenous and decolonization scholarship (Wiebe, 2019). These approaches recognize the broad

applicability of stories for conveying complexity through an easily understandable message with clear implications for different audiences, while exploring nuanced understandings of the world and the multitude of interpretations that can be made of events.

Stories tend to include a recognizable set of **characters** including: the hero/protagonist, whose internal and external conflict define the main tension of the story; a villain, who is in direct conflict with the hero; and victims who experience danger or setbacks, usually at the hands of the villain. These roles can be blurred through characters such as the antihero, whose conflict defines the story but who does not embody typical heroic virtues and often has internal conflicts that lead them to make choices that are destructive to themselves or others.

Every story occurs in a particular **setting**, in which characters interact within a place or series of locations and within a specific timeline. However, some stories are more temporally and spatially complex, such as those with a non-linear timeline.

The **plot** of most stories is driven by a central tension involving the protagonist and other characters, often involving both an internal conflict that the protagonist must overcome which is related to an external struggle (e.g. with the villain). The most common **story structure** is a 3-act plot defined by clear phases of build-up and release of tension, although there are many other plot structures. In this structure, stories begin with a problem that confronts the protagonist by forcing them to make a choice (inciting incident), followed by a series of struggles and the culmination of the main tension (climax), concluding with a winding-down of tension (denouement).

The **moral** of a story is the lesson to be learned from its events. Fables and fairy tales often have a clear moral that is the purpose of telling the story. More complex stories can contain nuanced lessons that are more open to interpretation. A common example is the cautionary tale, in which the mistakes of a character and their consequences are offered for others to avoid.

^a Sources: Sandercock (2005), Bottici & Challand (2006), van Hulst (2012), Jones, McBeth, & Shanahan (2014).

Figure 20. Anatomy of a story.

Planners and other policy actors use these storytelling elements both to understand citizen perspectives and influence perceptions of proposed developments. Public policy research has explored the power of storytelling through the Narrative Policy Framework, identifying how the elements described above are used to debate policy choices or justify a particular intervention (Jones et al., 2014). Similarly, Blumenberg (1985) has argued that political myths help communities and groups make sense of changing socio-political circumstances, while Bottici and

Challand (2006) discuss the heuristic power of such myths as ‘mapping devices’ that give significance to collective experiences. In urban planning, actors invoke archetypes like the hero’s tale, the rags to riches story, or the tale of the Golden Age lost to advocate for proposed developments (Sandercock, 2005). Such myths, both latent and explicit, can relay the importance of community assets that are difficult or impossible to measure quantitatively, such as cultural identity and heritage (Cochrane, 2006; Stone & Nyaupane, 2018).

Collective stories and visions can also be incorporated into the planning process through the technique of scenario-building (Bennett, Kadfak, & Dearden, 2016). When used in participatory planning, scenarios can elucidate the desired futures (and fears) of residents to inform local sustainability visions and encourage community empowerment by challenging engrained attitudes that reinforce external control (Bourgeois et al., 2017). The futurist orientation of scenario-building is contrasted to political myths, which often invoke a community’s past to foretell its future (Bottici & Challand, 2006). However, Twyman et al. (2011) caution that scenarios are often not done in a participatory manner, but rather policy-makers and other audiences tend to interpret scenario-based models in an authoritative manner, failing to acknowledge the value-laden assumptions underpinning scenarios and the simplifications they often make to predict complex futures.

In contrast to mechanistic approaches to SD visioning and implementation, storytelling offers an alternative view of human agency informed not by linear assumptions about knowledge and action but by the observed power of stories to shape perceptions and motivations. The use of narrative elements to explain social phenomena allows actors to transform events and places as part of an unfolding plot (van Hulst, 2012), inviting different audiences to decide which role they will play. Examining climate change discourse, for example, Veland et al. (2018) position

storytelling as a challenge to the ‘information deficit’ model of science that places faith in the informed citizen taking action in a rational manner once educated about the problem. Similarly, Corner and Clarke (2016) attribute the lack of widespread climate action to the fact that “most people have not yet heard a story about climate change that sounds like it was written ‘for them’” (p. 1), although the rapid ascent of teenage climate activist Greta Thunberg has perhaps changed this reality by providing a hero figure to mobilize a broad constituency (BBC, 2020). This call for inspiring stories highlights the importance of individual attitudes, which Dobson (2007) argues can induce lasting pro-environmental behaviours more effectively than policy incentives. It also parallels the appreciative inquiry approach to change management, which engages organizations and communities in recalling stories of past successes to inform future strategies, rather than focusing entirely on problems (Reed, 2007; Hammond, 2013).

However, the power of storytelling is by no means benign, as evidenced by the prevalence of destructive ideologies in the 20th century or even the current rise of right-wing demagoguery in Western societies. It is not hard to imagine the consequences of such political myths when society leaves no room for open debate and critique (Bottici & Challand, 2006). This destructive aspect of storytelling is explored by Hochschild (2016), who uses the concept of the ‘deep story’ to explain how far-right movements in the United States mobilize constituencies by tapping into latent values and frustrations, including by stoking bigoted sentiments. However, these ‘deep stories’ could conceivably also be harnessed for constructive ends. Could SD be thought of in the same way, but instead of merely tapping into pre-existing collective stories, mobilizing a broad societal base in constructing a new, inclusive story together?

4. Untold stories of sustainability in rural and resource-based communities

The SD project has often excluded rural and natural resource-based communities from its story of change. This urban bias is evident throughout SCD research in the Global North, as well as frameworks like New Urbanism, the Ecocity movement, and even SDG 11: Sustainable *Cities and Communities* (Roseland, 2012; United Nations, 2015a; Ecocity Builders, 2020). The following section illustrates how rural communities are often overlooked in these models, leading to an inadequate understanding of the contextual differences between rural and urban areas (Markey et al., 2010). We also show how natural resource-dependent communities have often been excluded from discourse on sustainability and innovation (Hall & Donald, 2009; Carter & Vodden, 2017). To highlight these rural sustainability challenges, we present the story of Newfoundland and Labrador, Canada (NL) as an illustrative example of the challenges and potentials of sustainable rural development. The NL context demonstrates how rural and resource-based communities can defy deficiencies-based narratives by reimagining their viability in the face of socio-ecological crisis and mobilizing under-utilized assets.

Urban-centric approach to SCD in the Global North

The theoretical origins of SD and its contemporary conceptualizations prioritize the quest for sustainability in urban human settlements. Influenced by predominant Western conceptions of modernization (Du Pisani, 2006), ‘development’ typically includes a trend towards urbanization (Gutiérrez-Montes, 2005). This sentiment is articulated by Bithas and Christofakis (2006), who claim that “[cities] have long been the pioneering leader of and the driving force behind the development and evolution of human societies”, which “strengthen the city’s dominance and,

concurrently, lead to the evolution of the countryside” (p. 181). Research and practice on SCD in the Global North have inherited this urban bias. Planning theorists like Jane Jacobs equated population density with neighbourhood vitality through foot traffic, multi-modal transit, and mixed use (Roseland, 2012), which are associated with vibrant urban communities but may not be appropriate for rural contexts where high densities are less common (Bantjes, 2011). Formerly a stringent urbanist, Florida (2012) contended that “[larger], denser cities are cleaner and more energy efficient than smaller cities, suburbs, and even small towns” (para. 3). The SDGs also bear this urban bias, mentioning the word ‘rural’ only twice in their 169 targets (United Nations, 2015a). These attitudes suggest an implicit assumption that sustainable communities are ‘urban by default’, relegating rural communities to passive recipients of innovations produced by and for cities, or simply labelling them as unsustainable and anachronistic. Such perspectives also ignore the reality that urban sustainability depend on externalities created outside of city boundaries, which the Ecological Footprint has demonstrated (Wackernagel & Rees, 1998), and which often implicate rural areas where food, water, and other resources are sourced. These interdependencies are key to understanding how systems in both urban and rural communities can be made more sustainable, like reconnecting people to food systems from which they have been alienated by urban life (Reimer, Barrett, Vodden, & Bisson, 2019).

In addition to this general urban bias, there is a particular under-emphasis on rural SD research in the Global North. A database search of recent peer-reviewed journal articles on local SD initiatives revealed that, out of 203 case studies retrieved, 113 had a rural focus.²⁸ Of these,

²⁸ This search, conducted on Scopus, focused on certain fields like geography, political science, and environmental studies, published between 2009-2019, and excluded national-level case studies. The search used “sustainable development”, “community”, and “local” as keywords, then study titles and abstracts were searched for terms such as “rural”, “urban”, “village”, and “city”.

66% were in the Global South, with the Northern case studies mostly from Europe (27%), where strong policy frameworks for rural development like Community-Led Local Development have been developed by the European Union (European Commission, 2017). Out of 19 case studies in North America, 17 focused on urban areas and only two on rural (less than 2% of the total). This literature review had several limitations, such as the exclusion of studies that may focus on core SD concepts but did not mention the term specifically, and case studies that did not include keywords denoting their rural geography. The prevalence of rural SD studies in the Global South somewhat reflects global demographic trends, with approximately 50% of the population of Asia, and 57% of Africa, living in rural areas, contrasted to only 26% in Europe and 18% in North America (United Nations, 2018). Another potential explanation for this gap could be the origins of the SDGs, which replaced the Millennium Development Goals in place from 2000-2015 which focused primarily on human development in the Global South (Le Blanc, 2015). This literature review suggests that prevailing research tends to view rural SD as more relevant for the Global South than for Northern societies, particularly in the North American context.

In northern settings, SD research and practice often ignore the contextual differences between urban and rural communities. Strategies developed for urban areas are often used in copy-paste fashion in rural places (Markey et al., 2010), while comparative research often fails to acknowledge the contextual factors that distinguish urban and rural regions (e.g. Rodrigues & Franco, 2019). This urban-centric approach may undervalue important (yet difficult to measure) rural assets like social capital (Reimer, 2005; Baines, 2012), identity, and attachment to place (Markey et al., 2019). Much research has highlighted the advantages of a place-based development approach that foregrounds the unique assets and situated knowledges of rural communities (e.g. Vodden, Baldacchino, & Gibson, 2015). In this orientation, environmental

factors like climate are imbued with lived experiences and cultural meanings (Hulme, 2015), which punctuate the seasonal livelihoods of rural Northern communities. One reason why intangible factors like sense of place may be excluded from traditional SD frameworks is the inherent challenges in measuring ‘non-traditional’ aspects of sustainability like culture and aesthetics (Ramos, 2019). Furthermore, public data in rural areas often are often out of date, suppressed due to confidentiality concerns, or reported at an inappropriate aggregation level (Main et al., 2019), creating challenges for accurately measuring these factors.

Exclusion of natural resource-based communities

Natural resource-dependent communities are also commonly overlooked in prevailing SD discourse. Calls to decouple economic activity from natural resource extraction (e.g. Meadowcroft, 2017), which is essential for reducing the depletion of natural capital (especially in the case of non-renewable resources like fossil fuels), often overlook the well-being of communities that depend on these activities. Although this dematerialization is essential to reduce the material and energy throughput of the economy (Dietz & Neumayer, 2007), if not framed within a social justice orientation it can further marginalize communities and workers who rely on extractive industries and often already experience environmental injustices (Newell & Mulvaney, 2013). Without attention to this ‘just transition’(Mccauley & He, 2018), primary industries and the communities that rely on them can easily be labelled as “dirty, dangerous, and dying” (Hall & Donald, 2009, p. 20). Furthermore, the close links between these communities and histories of resource exploitation and environmental crisis can perpetuate doom and gloom narratives in communities like Sudbury, Ontario which became so notorious for mining-based pollution that it was used as a measurement unit for acid rain in other cities (Kuhlberg & Miller,

2018). In contrast, the acknowledgment that some amount of primary extraction will always be necessary to sustain the economy (prioritizing renewable resources like capture fisheries and forestry) creates opportunities for communities to plan for transitions from non-renewable to renewable resource extraction while shifting to more sustainable utilization of resources.

Similarly, contemporary regional development and innovation models privilege knowledge-based urban clusters over primary production and the rural communities where it occurs. For example, the ‘eco-social innovation’ approach described by Stamm et al. (2019) and others combines environmental sustainability with entrepreneurial techniques, but tends to focus on urban contexts. Technological innovation has been central to the evolution of primary industries (e.g. forestry, agriculture), with resource-based communities continually adapting to stay competitive, and primary industry workers facing the constant risk of layoffs due to automation. Yet rural and resource-based communities are rarely conceived as the sites of this innovation, which is presumed to originate from clusters of technological and creative capacity centered in large cities. Models like the creative class and territorial innovation systems promote high-tech or creative sectors, which tend to cluster in cities, over the knowledge and livelihoods of residents in rural and resource-based areas (Carter & Vodden, 2017). These frameworks could be applicable to rural areas, but must consider how gaps in high-speed internet access in rural areas create limitations to information and communication technology (ICT), or how to integrate high-tech sectors with traditional creative practices and local knowledge (Roberts & Townsend, 2016; Salemink, Strijker, & Bosworth, 2017). Furthermore, the development of amenities to attract urban professionals in sectors like creative industries and ICT must be balanced with the needs of long-time residents (Chipeniuk, 2004).

Rural sustainability narratives in Newfoundland and Labrador

We now illustrate these urban-centric conceptualizations of SCD through the example of NL, while highlighting potential pathways for crafting alternative rural sustainability narratives. With approximately 520,000 residents on a landmass of 405,720 km² – an area nearly 1.75 times the size of the United Kingdom – NL has the lowest population density of Canada's provinces (Statistics Canada, 2016; Government of NL, 2018b), and the largest proportion of residents living in rural and small-town areas (47%) (Bollman, 2016). Paradoxically, provincial development discourse features popular narratives in which the very existence of rural and remote communities is often called into question. Yet NL's history and identity are inextricably linked to rural fishing livelihoods, where most European settlements were established for proximity to in-shore Northern cod stocks, which later transitioned to larger-scale offshore harvesting. This fishery was the lifeblood of most rural NL communities for centuries, until the 1992 moratoria on cod and other groundfish species were instituted in reaction to decimated cod stocks (Bavington, 2010). Overnight, a way of life that constituted the social, cultural, and economic bulwark of these communities nearly disappeared (Davis, 2014).

Almost three decades later, rural coastal communities across the province continue to search for new identities while developing sectors like tourism and the arts. Meanwhile, the sustainable management of fisheries resources – which have now shifted towards shellfish (Government of NL, 2019b), and are targeted by larger-scale vessels than traditional cod harvesting techniques (Bavington, Grzetic, & Neis, 2004) – has become a dominant theme in provincial sustainability discussions (Song & Chuenpagdee, 2015). Another challenge is the role that natural resource sectors like fisheries, forestry, and mining should play in a more diversified

rural economy that increasingly depends on tourism and the arts (which often themselves are based on these traditional livelihoods).

In this context, rural communities are often pitted against urban centres in prevailing discourse on the economic viability of NL, which is currently top of mind in provincial political debates. This discourse often invokes the province's controversial resettlement program, which at its height in the 1950s-60s oversaw the dissolution of over 300 rural coastal communities and the displacement of over 27,000 people to larger communities (Maritime History Archive, 2004). Resettlement still continues today, with small communities targeted in debates over their economic and demographic sustainability (Simms & Ward, 2017; Mercer, 2019). Meanwhile, the NL rural governance system has featured the gradual elimination of regional development institutions, which were formerly key actors in rural economic development and planning (Hall, Vodden, & Greenwood, 2016). Due to these and other factors, many rural communities are facing rapid population decline (Statistics Canada, 2016).

Academic and media portrayals often fixate on these trends to tell a narrative of decline about rural NL. For example, the Great Northern Peninsula of Newfoundland has become almost synonymous with trends like population decline and unemployment (Wangersky, 2009; Roberts, 2016), recently forecast to have the highest projected demographic decline of any region of NL (Simms & Ward, 2017). These narratives characterize rural NL as stagnant (or declining) and undeserving of further public and private investment. For example, Roberts (2019) argues that “anywhere from 100 to 120 small communities are now beyond the point of no return because the educated youth are not staying in rural Newfoundland” (para. 26). Such pronouncements echo popular characterizations of other rural Canadian communities (Hutchins, n.d.), and the labeling of rural communities and people as ‘non-viable’ in neoliberal policy agendas

(Bebbington, 1999). Advocates of rural abandonment use indicators like median age and the per-resident cost of public services to levy a fiscal argument against the continued support of these communities. Such arguments are also used in fisheries, invoking neoliberal principles such as efficiency, individual accountability, and rational choice (Song & Chuenpagdee, 2015). This logic places rural communities themselves at fault for their ills while calling for the withdrawal of remaining public and private sector support from these regions.

Nonetheless, many rural NL communities have challenged these deficiencies-based narratives by telling stories to mobilize undervalued local assets. At the height of the resettlement program, the remote island communities of Fogo Island challenged government pressure to relocate through a participatory media initiative known as the Fogo Process in which residents used video to tell their communities' stories and eventually establish a fisheries cooperative (National Film Board, 2020). In Conche, which is part of a French-influenced region of the island's Northern Peninsula, local and international artists came together to create the French Shore Tapestry, a unique example of visual storytelling, modeled after the Bayeux Tapestry in France, which is now a major regional tourist attraction (French Shore Historical Society, n.d.; see also Chapter 6). Similarly, the community of Branch has highlighted its Irish heritage through both local asset mapping and international media attention (St. Croix, 2012; Irish Traditional Music Archive, 2018). These and other rural communities have used storytelling to convey the value of assets that are often overlooked in provincial development discourse, as well as intangible resources like cultural heritage that are difficult to measure quantitatively.

Searching for a ‘deep story’ of rural sustainability

Returning to the concept of the ‘deep story’ (Hochschild, 2016), any search for a unifying narrative of rural sustainability must acknowledge the diversity of rural realities. Rural scholars often say that ‘if you know one rural community, you know one rural community’, cautioning against sweeping generalizations that ignore contextual variations. In Canada alone, rural communities experience disparate socio-economic conditions, from rapidly growing amenity migration towns to remote Northern regions facing resource sector decline and out-migration (Chipeniuk, 2004; Carter & Vodden, 2017). External narratives are often imposed onto rural places, from the decline story seen in rural NL to the rural idyll which reinforces a bucolic archetype of the static countryside (Baylina & Berg, 2010; Roberts, 2019). Many rural communities have learned to navigate socio-ecological crises, like the US Dust Bowl, calling for narratives to help rural stakeholders assess societal risk and its relationship to resource-based livelihoods (Fraser, 2013). In the contemporary context of the COVID-19 pandemic and its long-term socio-economic impacts, rural regions may reflect on narratives of past crises to navigate the projected global recession, which will affect rural communities differentially and may impose new risks onto rural places that are re-imagined as escapes for urban residents seeking respite from quarantine and economic fallout (Hall, Gibson, Markey, & Weedon, 2020).

This ‘deep story’ will thus look very different across rural contexts and socio-economic circumstances. In rural NL and other regions characterized by deficiencies-based narratives, storytelling can relay the message that rural sustainability cannot be determined solely by easily measurable socio-economic indicators, re-invoking the long-held search to move beyond GDP and monetary measures of well-being (Costanza, Hart, Posner, & Talberth, n.d.). Community storytelling can show not only the intrinsic worth of intangible assets like culture and identity

(Ramos, 2019), but also their ability to foster new economic development opportunities, foregrounding the knowledge and experiences of rural residents. This dual focus underlines the role of the arts in rural sustainability, requiring an understanding of how creative practices can convey the uniqueness of intangible and tangible resources while encouraging creative reuse of cultural assets such as built heritage (Bell & Jayne, 2010; Winkler, Oikarinen, Simpson, Michaelson, & Gonzalez, 2016). In this effort, alternative indicators can help identify underutilized assets (e.g. vacant commercial space, skills in crafts and other traditional creative practices) to expand the factors considered in assessing rural viability. Local pride must also be balanced with acceptance of people and ideas from outside to ensure an inclusive approach that rejects divisive or xenophobic narratives (Bottici & Challand, 2006; Hochschild, 2016).

5. Sustainability indicators: Measurement tool or storytelling device?

The epistemological tensions explored thus far in this article – between wicked problems and technocratic fixes, the information deficit and latent stories, fiscal logic and undervalued rural assets – are mirrored in an SD instrument with worldwide application: sustainability indicators (SIs). Defined broadly, SIs employ both quantitative and qualitative data to measure complex dimensions of well-being and long-term sustainability to aid communities or other jurisdictions in monitoring progress towards SD over time (Ramos, 2019). The evolution of SIs over the last 25 years shows a shift from a more rationalistic theory of change to one that accommodates more interpretive, bottom-up approaches (Bell & Morse, 2018). Gaining widespread appeal in the early 1990s with highly technical and expert-driven tools like Multi-Criteria Decision Analysis (Ferrarini, Bodini, & Becchi, 2001) and the Environmental Sustainability Index (Bell & Morse, 2008), SIs were initially the domain of the technical expert. However, the global call to action

for local SD implementation in Agenda 21 emphasized the need for SIs to take on a more bottom-up character, echoing similar calls within academic SI research (UNCED, 1992; Pinfield, 1997). This ‘participative turn’ led to an increasing emphasis on community involvement in the development of not only indicators, but also solutions to ensure that they led to action (Hezri & Dovers, 2006; Holman, 2009). Indicator researchers and practitioners began placing greater emphasis on the lived experiences and subjective well-being of communities (Reed et al., 2006), which stories can often represent more effectively than measurement tools.

Communities around the world have used SIs to articulate local sustainability visions, allowing stakeholders to translate international frameworks like Agenda 21 into locally relevant agendas for change (Moreno Pires et al., 2017). SIs have also encouraged dialogue among stakeholders from diverse backgrounds and sectors (Holden, 2013), which Hermans, Haarmann, and Dagevos (2011) discuss as creating a ‘common language’ to talk about SD (p. 6). This communicative approach has been thought to catalyze social learning by prompting reflection on assumptions and values surrounding well-being and sustainability (Reed et al., 2006; Buhonovsky & Jäger, 2013). SI tools have long been compared with community asset mapping, which provides a variety of tools for local actors to identify and evaluate resources for development (Champagne, 2005). Stemming from Asset-Based Community Development, which focuses on the often-overlooked strengths of communities, asset mapping can be especially appropriate for mobilizing residents in marginalized communities (Kretzmann & McKnight, 1993; Mathie & Cunningham, 2005). Both asset mapping and SIs can be used to evaluate the quality and quantity of community capital – including key stocks of ecological, social, cultural, economic, institutional, and human assets (Butler, Emery, Fey, & Bregendhal, 2005; Roseland, 2012). Through this community-based approach, SIs and related tools like asset

mapping have helped local stakeholders discuss community aspirations and articulate a common agenda for change through dialogue, improved trust, and reduction of conflict (Reed et al., 2006; Terry, 2008; Hermans et al., 2011).

Despite these well-documented ‘soft impacts’, SIs are often criticized for failing to trigger a direct impact on SD outcomes (Lyytimäki, 2019). SI theorists and practitioners have long sought to explain why these tools are rarely incorporated directly into decision-making by local authorities (Brugmann, 1997; Pinfield, 1997; Bell & Morse, 2003, 2008, 2018; Hezri & Dovers, 2006; Lyytimäki et al., 2014; Lyytimäki, 2019). This implementation gap has been the focus of a protracted debate about how local actors should use SIs, reflecting a deeper tension over the relationship between knowledge and action for achieving SD. The classic debate between Graham Pinfield and Jeb Brugmann (Brugmann, 1997; Pinfield, 1997) questioned whether high-profile initiatives like Sustainable Seattle made a tangible impact on local governance despite not being directly used by municipal planning authorities. Hezri and Dovers (2006) outlined different forms of SI use, including instrumental uptake by policy-makers based on a linear relationship between indicators and decisions, and conceptual use in which indicators inform societal values and help construct shared meanings among stakeholders. Similarly, Lyytimäki et al. (2014) use the opposing metaphors of Russian dolls and the game of telephone to highlight how SIs are often designed like *matryoshka* dolls, seeking to capture perfectly the complexities of the real world through simplification, while in public discourse they become like the game of telephone: one person whispers a message to another, who repeats what they understood to their neighbor, until the message eventually becomes unrecognizable. Bell and Morse (2018) compare SIs to social media in the way they distill complex realities into sharable bits of information that can easily be misinterpreted and manipulated. Nonetheless, Reid and

Rout (2020) contend that SIs are still often approached through a mechanistic worldview that uses them as tools for measuring and controlling the world, calling for ‘radical transparency’ in how indicators are used to influence local conditions and by whom.

These debates reveal numerous potential overlaps between SIs and a storytelling lens to SD. When approached through a community-based process, SI initiatives can help facilitate societal dialogue that encourages stakeholder groups to exchange different stories of change and desired futures for their communities (Holman, 2009; Holden, 2013), which have been discussed through metaphors like the ones discussed above. However, for this communicative exchange to occur along the lines of conceptual use (Hezri & Dovers, 2006), SIs must be developed in a participatory manner that engages a wide range of stakeholders and balances bottom-up and top-down forces (Fraser et al., 2006; Bell & Morse, 2008). This narrative of change must not cast only government actors as the hero (Pinfield, 1997; Lyytimäki, 2019), but also stakeholder groups like youth or marginalized communities, or even concepts like the ‘big data’ revolution in urban analytics (Emery, Fernandez, Gutierrez-Montes, & Butler Flora, 2007; Terry, 2008; Moreno Pires et al., 2017). Broadening the cast of characters can help expand conceptions of SI use beyond strictly informing policy – which can include disingenuous techniques like using indicators to support previously formed political stances or deflect criticism of inaction (Hezri & Dovers, 2006). For example, indicators have been deployed in polarized political debates like the Brexit referendum, in which the UK’s status as the world’s ‘fifth largest economy’ was used as ammunition for the Leave campaign – often invoking xenophobic sentiments about immigrants from other EU countries (Bell & Morse, 2018). External threats often play the role of the villain in community-based SI initiatives, mobilizing local stakeholders to respond to inciting incidents like shifting resource markets or demographic decline (Parkins, Varghese, & Stedman, 2004;

Holisko & Vodden, 2015). Under these conditions, community-based SIs can bring together a wide range of stakeholders to construct a common sustainability narrative (Hermans et al., 2011; Hák et al., 2018). Table 10 summarizes storytelling elements identified from SI research and practice, pointing to many potential parallels between the two approaches.

Table 10. Summary of storytelling elements in SI tools and case studies.

Element	Examples
Metaphors	<ul style="list-style-type: none"> • Sustainable Seattle as ‘prophet in its own land’ (Holden, 2006) • Russian dolls vs. game of telephone (Lyytimäki et al., 2014) • SIs as social media (S. Bell & Morse, 2018) • SIs as thermostat or thermometer (Lyytimäki, 2019)
Identifying heroes	<ul style="list-style-type: none"> • Municipal leadership (Brugmann, 1997; Moreno Pires & Fidélis, 2015; Rodrigues & Franco, 2019) • Public service providers/data holders (Keirstead & Leach, 2008) • Marginalized communities (Terry, 2008) • Youth (Emery et al., 2007) • Indigenous peoples/self-determination (Natcher & Hickey, 2002; Klinck et al., 2015) • Urban data revolution (Moreno Pires et al., 2017) • ‘Non-traditional aspects of sustainability’: ethics, culture, aesthetics, non-material values (Ramos, 2019)
Mobilizing against a common threat/inciting incident	<ul style="list-style-type: none"> • Changing natural resource sectors (MacKendrick & Parkins, 2004; Gutiérrez-Montes, 2005; Klinck et al., 2015) • Demographic decline/youth out-migration (Holisko & Vodden, 2015) • Natural disasters (Gutiérrez-Montes, 2005; Lowery, 2013) • Indicators as ‘vocabularies of resistance) against injustice (Martinez-Alier & Naron, 2004)
Constructing a common narrative	<ul style="list-style-type: none"> • Balancing bottom-up and top-down forces (Fraser et al., 2006; Reed et al., 2006) • Creating a forum for discussion, new working relationships (Gahin, Veleva, & Hart, 2003) • Resonance among policy audiences (Hezri & Dovers, 2006) • SIs as ‘boundary objects’ between stakeholder groups (Holden, 2013) • SIs as ‘portals of communication’ (Holman, 2009) • Creating a ‘common language’ to talk about SD (Hermans et al., 2011) • Social learning (Reed et al., 2006; Buhonovsky & Jäger, 2013) • Supporting a global SD narrative (Hák et al., 2018) • Need for ‘radical transparency’ to counter mechanistic approach to SI development (Reid & Rout, 2020)

6. Using indicators to tell alternative stories about rural sustainability

Like any good story, the search for sustainable communities is defined by tensions. SIs, like many other SD tools, have often been approached through a linear theory of change, failing to bridge knowledge and action in a transdisciplinary manner to catalyze societal transformation (Bammer, 2016; Reid & Rout, 2020). At the same time, an urban-centric focus of much research and practice on SCD in the Global North has often excluded rural and natural resource-based communities (Markey et al., 2010), particularly when socio-economic indicators are used to tell deficiencies-based narratives about rural regions, as in the NL context (Bebbington, 1999; Roberts, 2019). Yet, at times SIs have been employed as part of participatory processes to support the engagement of diverse societal stakeholders and foster open dialogue about desired futures (Hermans et al., 2011; Moreno Pires et al., 2017).

We suggest that this participatory use of indicators is compatible with a storytelling approach to SCD, highlighting how SIs and stories can be used in tandem to paint a more contextualized portrait of communities than standard indicator tools. The storytelling lens proposed here borrows from asset-based approaches to development in marginalized communities, seeking to mobilize action not through a linear information deficit model, but by telling a compelling story in which local stakeholders can see themselves playing a part (Kretzmann & McKnight, 1993; Veland et al., 2018). In rural and resource-based communities, especially those often portrayed as deficient, local stakeholders can employ indicators as part of a broader communicative process aimed at telling their own unique stories about sustainability. Storytelling is needed to depict a contextually-rooted vision for SCD that casts rural stakeholders as the hero (rather than victims or villains), while SIs can depict the state of the local system – the setting which both influences, and is influenced by, rural actors and their community

development initiatives. An understanding of different audiences and the information they use to make sense of complexity can guide rural stakeholders in blending stories with indicators to resonate with government, investors, prospective residents, and other external actors (Checkland, 1999; Hezri & Dovers, 2006; Lyytimäki et al., 2014), while ensuring that they control the story being told about their communities.

The proposition advanced here must now be tested in diverse rural and resource-based contexts. Successes in leveraging community assets must be shared and stories of rural renewal told. Although we introduce the rural NL context as an illustrative example, empirical research is needed to delve into these deficiencies-based narratives and how they relate to locally-defined SD agendas in similar jurisdictions, which are likely to illustrate different kinds of stories told by various storytellers and feature quite different characters, plots, and morals. Future research can show how community storytelling for and about rural SD is undertaken and what role, if any, indicator-based tools have played in this broader process. This must be done in ways that enable rural communities and regions to recognize the threats to their viability while highlighting often-undervalued assets. Finally, research is needed to document both successes and failures experienced in rural resource-based communities or in other contexts with transferable lessons for combining storytelling and indicator-based tools.

Chapter 6: A new story for sustainability in rural communities – reflections from the Great Northern Peninsula of Newfoundland, Canada

Abstract: Stories have unique power in shaping our understanding of the sustainability of communities. In rural and peripheral communities and regions, this power is often enlisted to perpetuate deficiencies-based narratives. For example, the Great Northern Peninsula (GNP) of Newfoundland has often been targeted in popular provincial discourse regarding negative trends like demographic decline. This article seeks to offer an alternative narrative about regional sustainability, told through a storytelling approach developed within a community-based research initiative based in the stories and perspectives of local stakeholders. By integrating asset-based approaches to local development in marginalized communities with a systems-based assessment through the Community Capital Framework, it engages with community members on the GNP in telling a ‘deep story’ of regional sustainability and offering new pathways for sustainable rural development. The study tells the stories of two particular communities in the region – Port au Choix and Conche – while identifying cross-cutting regional narratives. Considering both past experiences of socio-ecological crisis and the current context of adaptation to the COVID-19 crisis, the article offers potential ways forward for rural regional development while contributing to engaged research and transdisciplinary co-creation practices.

Keywords: sustainable development; rural development; community engagement; community-based research; storytelling; asset mapping; Newfoundland

1. Introduction

The stories we tell about communities greatly influence their sustainability. Policy actors use narrative tools like plot (e.g. tensions, climax) and characters like heroes, victims, and villains to describe and argue for particular futures (Jones, McBeth, & Shanahan, 2014), tapping into latent myths to influence public perception of policy and planning decisions (Sandercock, 2005; Bottici & Challand, 2006). In a transition to sustainable development (SD), this approach can inspire action by telling a compelling narrative in which citizens can see themselves playing a role (Loorbach, Frantzeskaki, & Avelino, 2017; Hák, Janoušková, Moldan, & Dahl, 2018).

However, in rural and remote geographies such narratives can be used to call the sustainability of communities into question. In Newfoundland and Labrador (NL), a region grappling with major changes in the natural resource-based livelihoods of rural coastal communities, demographic and socio-economic indicators are used to paint a picture in which rural communities are increasingly unviable in a political climate of fiscal scarcity (Simms & Ward, 2017; Roberts, 2019). This narrative of decline often includes the Great Northern Peninsula (GNP), a region which media discourse and academic research use to exemplify negative demographic and economic trends (Wangersky, 2009; Simms & Ward, 2016; Roberts, 2016). This narrow focus on quantitative indicators often fails to acknowledge the assets – both physical and intangible – that communities in the region could potentially use to enhance their well-being and long-term sustainability, assets that local residents often feel have been neglected. As the prolonged socio-economic impacts of the COVID-19 pandemic unfold, including contractions in key sectors like tourism and fisheries and reconfiguration of supply chains, rural regions like the GNP must take a place-based approach to harnessing these local assets and

planning for a sustainable adaptation process while buffering for political and socio-economic uncertainty (Bailey et al., 2020; Hall, Gibson, Markey, & Weedon, 2020; Cooke, 2020).

Through an asset-based approach that focuses on strengths rather than solely assessing deficiencies (Kretzmann & McKnight, 1993; Mathie & Cunningham, 2005), rural stakeholders can integrate nuanced stories of local experiences, initiatives, and policy efforts to show local context that may be overlooked by quantitative indicators (van Hulst, 2012; Veland et al., 2018). By incorporating these stories alongside indicator-based tools, the resulting analysis offers a more complete picture of local assets and challenges across different forms of community capital (Winkler, Oikarinen, Simpson, Michaelson, & Gonzalez, 2016; Bell & Morse, 2018). The storytelling approach to rural SD proposed in Chapter 5 of this dissertation posits that rural stakeholders (in partnership with academic researchers) can integrate indicator-based tools and stories through a transdisciplinary process, offering a contextualized portrait of sustainability while mobilizing rural citizens in telling self-directed stories about their communities.

The present article explores the applicability of this storytelling approach to sustainable regional development on the GNP. It relays the stories heard during a community-based research process over 2019-2020 with two particular communities, Port au Choix and Conche, highlighting their unique assets, challenges, and potentials. Combining storytelling with a community capital-based approach, the study offers a novel contribution to transdisciplinary sustainability research and sustainable community development theory and practice (Emery & Flora, 2006; Zoeteman, Mommaas, & Dagevos, 2016; Loorbach et al., 2017). The study also builds on previous asset mapping research on the GNP while reflecting on rural sustainability narratives across NL and similar jurisdictions (Bebbington, 1999; Parill, White, Vodden, Walsh, & Wood, 2014a). Through these stories, I aim to show the different ways in which rural

communities have leveraged their assets and how community stories link to broader narratives about rural well-being and regional sustainability. The article concludes with lessons learned for community-engaged research and rural development, contributing both to tools for assessing and processes for mobilizing assets in rural and peripheral regions.

2. Sustainable community development and storytelling

Sustainable community development (SCD) calls for efforts to adapt and contextualize the universal aims of SD – which are deprived of local context due to their intended global relevance (Hopwood, Mellor, & O’Brien, 2005; United Nations, 2015b) – to the local realities of different communities, regions, and cultures (Bridger & Luloff, 1999; Roseland, 2012). This need has been acknowledged by global SD strategies since Agenda 21 and its local implementation plans (UNCED, 1992; Moreno Pires, Magee, & Holden, 2017), and reiterated in current efforts to translate the Sustainable Development Goals to national and local contexts (Bowen et al., 2017). This effort entails the need to contextualize global priorities like climate action, gender equity, and food security into locally appropriate SCD agendas, thus balancing bottom-up and top-down forces and priorities (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; Zoeteman et al., 2016).

The Community Capital Framework (CCF) is a widespread approach for identifying local priorities and resources for SCD. Informed by calls to end unchecked economic growth at the expense of natural capital (Pearce & Atkinson, 1993), and case studies of sustainability in rural communities (Bebbington, 1999; Gutiérrez-Montes, 2005; Winkler et al., 2016), the CCF portrays SCD as a delicate balance between multiple development priorities. This implies the consideration of various forms of community capital through a holistic approach that seeks to: advance local economic development while safeguarding natural resource stocks like fisheries

and forests, as well as critical ecological functions like climate (Ekins, Simon, Deutsch, Folke, & De Groot, 2003); acknowledge multi-dimensional components of well-being informed by theories of social capital that highlight the importance of trust, social networks, and reciprocity (Putnam, 1995; Mathie & Cunningham, 2005); recognize the importance of cultural capital for constructing shared meaning and informing individual and group identity (Cochrane, 2006; Usborne & Taylor, 2010), and the contribution of cultural heritage and natural landscapes to sense of place and well-being (Abraham, Sommerhalder, & Abel, 2010; Bui & Lee, 2015); promote the development of human capital by investing in youth, building skills, and promoting healthy and educated residents (Becker, 1995; Emery, Fernandez, Gutierrez-Montes, & Butler Flora, 2007); and build institutional capital by promoting democratic participation and understanding the embeddedness of institutions, private, public, or otherwise, in cultural norms and rules (Platje, 2008; Valente, 2012). Although local applications of the CCF articulate these capitals in different ways (from as few as three capitals to as many as seven) (Butler, Emery, Fey, & Bregendhal, 2005; Roseland, 2012; Zoeteman et al., 2016), they must be translated into local priorities, which Knippenberg et al. (2007) describe as identifying the most salient stocks, or key sub-systems which must be maintained for an area of community capital to thrive.

However, in peripheral communities it may be more appropriate to approach SCD by “[starting] with what is strong, instead of what is wrong” (Russell, 2016). Asset-Based Community Development (ABCD) draws from research and practice in marginalized communities, offering a complementary approach to development in communities that are often labelled as deficient (Kretzmann & McKnight, 1993; Taliép et al., 2020). Central to ABCD is the empowerment of residents based in a shift from the passive role of ‘clients’ of externally controlled institutions to active ‘citizens’ with an internal locus of control (McKnight, 1995).

ABCD also highlights assets that are often overlooked, like the importance of social capital in binding communities together and forging relationships with external actors who can support locally-driven development (Mathie & Cunningham, 2005), thereby offering a more complete portrayal of community assets than needs-based development models. ABCD's 'glass half-full' approach is similar to appreciative inquiry, a change management strategy that engages stakeholders in solving complex problems by telling stories of what has worked in the past, rather than focusing solely on the problem at hand (Hammond, 2013).

When approached through this asset-based lens, the description of local community capital stocks can shed light on essential but under-valued local assets. For example, cultural identity or sense of place are challenging to measure quantitatively (Stone & Nyaupane, 2018; Markey, Breen, Vodden, & Daniels, 2019), but may be the most important resource for a community or region's vitality. To account for such resources, asset mapping (AM) takes stock of community capacities by starting at the level of the individual, considering the knowledge and resources of community members, then moving up to the level of informal associations and, finally, formal institutions that influence community sustainability (Fuller, Guy, & Pletsch, n.d.; Kretzmann & McKnight, 1993). This multi-scalar focus can be integrated with the CCF in a systems-based lens to highlight, for example, how natural resource sectors have influenced the creation of local infrastructure and built heritage, the development of skills among workers, and the exploitation of natural resources (Winkler et al., 2016). It also parallels calls for transdisciplinary approaches to integrating scientific and practical knowledge, such as the focus on tacit knowledge in Mode 2 knowledge creation (Gibbons et al., 1994), and the need for collaboration with non-scientific stakeholders in co-creating transformational insights to solve complex problems (Bammer, 2019). Communities can use AM not only to identify key assets in

different capital areas, but also evaluate their quality and quantity over time. In that respect, AM methods overlap with community sustainability indicators (SIs), which have been used to assess SCD using a wide variety of frameworks across diverse contexts (Champagne, 2005; Ramos, 2019). The use of AM and SI tools can reveal interdependencies between different forms of community capital, thereby informing investments that can initiate a process of ‘spiraling up’ in communities that have been waylaid by economic downturns, demographic shifts, or ecological shocks (Gutiérrez-Montes, 2005; Emery & Flora, 2006; Fernando & Goreham, 2018).

A disparate but related way to conceptualize and communicate community sustainability is through storytelling. Interpretivist research has long pointed to the power of narrative for understanding societal phenomena (Barthes, 1975; Howard, 1991), while community-based research methods like oral history and ethnography commonly use narrative approaches (Ritchie, 2014; Christensen, Cox, & Szabo-Jones, 2018). Similarly, policy and planning researchers have underlined the power of stories for influencing public understanding (Bottici & Challand, 2006; van Hulst, 2012). These conceptualizations draw attention to both specific stories that engage identified characters in a certain time and place, and broader narratives representing constellations of bounded stories in a more open-ended process that invites individuals and groups to participate in their ongoing development (Corman, 2013).

Storytelling has been widely applied in policy and planning studies to explore how local actors tell particular stories and contribute to broader societal narratives. Sandercock (2005) shows how planners invoke widely recognized archetypes, like the rags to riches story or the tale of the Golden Age lost, to advance particular narratives about their communities and influence how residents perceive proposed developments or policies. Similarly, the Narrative Policy Framework shows how policy actors employ tools like plot (tensions, acts, climax), characters

(heroes, villains, and victims), and the moral of the story to frame policy debates and advocate for particular positions (Jones et al., 2014), often by expressing normative claims either explicitly or implicitly (Polletta & Callahan, 2017). These stories often take the form of political myths that explain the plight of a community or group (Blumenberg, 1985), reflecting back on where a people has come from to foretell where it is headed (Bottici & Challand, 2006). Planning tools like scenario-building, when used in a participatory manner, can employ storytelling to portray collective visions for desired futures and express fears about anticipated threats to community sustainability (Bourgeois, Penunia, Bisht, & Boruk, 2017).

Contemporary thinking on governance for SD has parallels to this storytelling approach, wherein alternative policy models have been proposed to address complex societal challenges that unitary state actions have failed to solve (Salamon, 2002; Peters & Pierre, 2016). These perspectives highlight how contemporary socio-ecological problems often require a broader set of actors to engage in alternative shared decision-making arrangements and collaborate in allocating resources and implementing strategies to advance collective SD goals (Salamon, 2002; Moreno Pires, 2011; Emerson, Nabatchi, & Balogh, 2012). Similarly, the concept of multi-level governance envisions policy interventions designed to respond to complex, cross-jurisdictional challenges in which different levels of government and non-government stakeholders must navigate new roles (Hooghe & Marks, 2003; Bache, Bartle, & Flinders, 2017). Borrowing from these multi-stakeholder governance theories, regional economic development has been advanced through coalition-building by strategies like the New Market Approach, which has been used in the Dutch region of Heuvelland to mobilize entrepreneurs and other stakeholders but requires shared agenda-building and the negotiation of responsibilities between government, business, and other actors (Mommaas & Janssen, 2008; van der Stoep & Aarts, 2010). Similarly, the

concept of place-based leadership has been offered as a multi-stakeholder approach to mobilizing community leaders in peripheral regions who can unlock regionally specific opportunity spaces for economic development (Grillitsch & Sotarauta, 2019).

Governance for SD and storytelling are linked by a shared focus on how values and images motivate policy actors. Sustainability transition is an inherently normative process, embroiled in societal appraisals of unsustainability – a problem that is wicked and multi-dimensional, rather than technical, in nature (Rittel & Webber, 1973; Martin, 2015) – and deliberation on competing desired futures (Orsskog, 2002; Hermans. & Knippenberg, 2005). The interactive governance framework stresses that actors should explicitly state their meta-level values and guiding images – including metaphors and narratives – lest governing systems reproduce hierarchical structures guided by implicit images such as that of the state steering society or national SD agendas superceding local priorities (Kooiman, 2003; Hajer et al., 2015). In contrast, multi-stakeholder arrangements more resemble a jazz performance, with different actors playing unscripted parts and the state as part of an ensemble of interdependent actors, rather than conducting the performance (Sayer et al., 2008). Concerning SIs, Lyytimaki (2019) uses similar metaphors to question whether these tools can function as thermostats for technocratic experts to directly change SD outcomes, or rather as thermometers that reflect widespread societal values. The latter depends on how the indicators are designed: whether local residents were included in defining sustainability goals and deciding how to measure them, or if they are engineered by technical experts in a mechanistic fashion (Reid & Rout, 2020). As discussed below, these values are often represented in residents' stories of their communities.

One concept that could be particularly useful for community sustainability narratives is that of the 'deep story'. Based on ethnographic research with members of the Tea Party in the

southeastern United States (Hochschild, 2016), this concept seeks to explain why radical political movements are attractive to certain voter groups. Drawing from her research with a group of largely white, middle class conservative Christians from rural Louisiana, her 2016 book, *Strangers in their own land*, suggests that disenfranchised constituencies are often motivated by latent stories that appeal more to emotional resonance than factual accuracy, offering a common narrative to explain their plight and prescribing solutions for altering it. This deep story is presented a metaphor in which a group of such individuals is waiting in line for the promise of the American dream, but are continuously skipped by a litany of ‘line-cutters’ consisting of immigrants, racial minorities, liberal politicians, and other imagined enemies. When relaying this metaphor back to her informants, Hochschild (2016) attests that they felt it described their plight with uncanny precision. Part of the widespread appeal of this story (as further evidenced by the 2016 presidential election) was its ability to allude back to, and draw from, pre-existing sentiments held by conservative voters (Polletta & Callahan, 2017).

I do not highlight this ‘deep story’ concept to liken rural communities in other locations to the demographic group whom Hochschild (2016) set out to understand, nor to suggest that rural residents elsewhere are particularly susceptible to such political myths. Rather, it demonstrates the power of such narratives for shaping public understanding. These myths have been manipulated to catastrophic ends throughout the 20th century (Bottici & Challand, 2006), and with the current rise of populist movements, they are once again ensnaring rural and urban citizens alike by offering a common villain against which to mobilize.

I contend, however, that the deep stories of communities can be equally powerful for inciting constructive action along an SD ethos. Considering the importance of individual attitudes in creating lasting pro-environmental behaviours, and of personal sustainability in

societal SD transitions (Dobson, 2007; Parodi & Tamm, 2018), stories have the potential to incite a personal shift in values towards SD. This focus on attitudes and values also calls into question the relationship between knowledge and action, in which transdisciplinary research perspectives like sustainability science and the Integration and Implementation Sciences have challenged linear conceptions of the science-policy interface in efforts to bridge academic and practitioner knowledge (Clark, 2007; Brandt et al., 2013; Bammer, 2016; Richards, 2019). Similarly, Veland et al. (2018) argue that collective action on global crises like climate change cannot be sparked through facts alone, questioning the effectiveness of the widely held ‘information deficit’ model of science that places trust in individuals being compelled to action once properly educated about a problem. Instead, what is needed is a compelling narrative, with Corner and Clarke (2016) arguing that “most people have not yet heard a story about climate change that sounds like it was ‘written’ for them” (p. 1). Chapter 5 builds on these insights by proposing a storytelling approach to rural sustainability, suggesting that rural and natural resource-dependent communities can translate global SD agendas into their local contexts through community storytelling based in dialogue and shared understanding. In this view, can we understand what sustainability means for rural communities and regions by understanding their own ‘deep story’ and, based on contextualized knowledge of their assets and challenges, embed sustainability goals and initiatives within the plot of this unfolding narrative? This article aims to answer this question by reflecting on community-based research conducted in a remote rural region, as described below.

3. The Great Northern Peninsula and rural sustainability narratives

The Tip of the Northern Peninsula (or Great Northern Peninsula/GNP) consists of over 50 rural coastal communities on the northwest coast of Newfoundland, spread over an area of 10,472 km² (Community Accounts, 2020b) – roughly half the size of Israel. The regional population was 11,315 in 2016, with the largest community of St. Anthony (2,255 inhabitants) serving as the regional service hub, and secondary hubs including Roddickton-Bide Arm, Flower’s Cove, and Port au Choix. The nearest city, Corner Brook (population 19,547), is about 350 km to the south. The GNP consists of four distinct sub-regions, including the Tri-town area (River of Ponds to Eddies Cove West), St. Barbe-Straits (Castor River to Eddies Cove East), GNP East (Main Brook to Englee), and the St. Anthony Basin (Big Brook to Goose Cove). The region and select communities are portrayed in Figure 21 below.



Figure 21. Map of the Great Northern Peninsula.²⁹

The GNP has been inhabited for thousands of years by several Indigenous groups including the Maritime Archaic, Dorset, Groswater, Beothuk, and (including today) Mi'kmaq peoples (Parks Canada, 2019a). Like most of rural Newfoundland, the region's European history centred around the fishing of in-shore stocks of Atlantic cod and the centuries-old salt cod industry until the federal moratoria on cod (and other species) was instituted in 1992 in response

²⁹ Map provided by Myron King, Environmental Policy Institute, Grenfell Campus, Memorial University.

to decimated fisheries stocks (Bavington, 2010). It also was shaped by the work of Dr. Wilfred Grenfell, a British doctor and missionary who established clinics in the region in the early 1900s and engaged in numerous community development activities ranging from small-scale agriculture to education (Wood & Lam, 2019). The GNP is home to L'Anse aux Meadows National Historic Site, the only known Viking settlement site in North America (Parks Canada, 2019b). It also has numerous heritage sites linked to seasonal fishing activities carried out by French and Basque sailors in the 16th-19th centuries (French Shore Historical Society, n.d.a; Barkham, 1989). Residents of the GNP have the strongest sense of community belonging of any region of the province (93.7% of residents identify a very strong or somewhat strong sense of belonging to their community, compared to a provincial average of 79.6%) (Community Accounts, 2018b). The region also hosts unique geological features like limestone barren ecosystems and ancient thrombolite fossils (Knight & Boyce, 2015).

However, the GNP and other rural regions are often targeted in popular discourse on provincial economic viability for negative socio-economic trends like population decline and unemployment. Influential voices from media and academia often use such indicators to perpetuate a narrative of decline about rural NL, invoking the province's current political climate of fiscal uncertainty to question the viability of rural communities (Simms & Ward, 2017; Roberts, 2017, 2019). In this context of economic precarity, now aggravated by the COVID-19 pandemic which sidelined provincial oil royalties and tourism visitation while contributing to record-breaking government deficits (Gushue, 2020), rural communities are easy targets for potential cuts. For example, Roberts (2019) highlighted the high rate of youth out-migration from rural NL, arguing that "anywhere from 100 to 120 small communities are now beyond the point of no return because the educated youth are not staying in rural Newfoundland" (para. 26).

What is not clear in such proclamations is how to determine where this point of no return is, whether a community has passed it, or what local stakeholders can do to prevent reaching it. In contrast, other rural regions that have successfully navigated the post-moratorium years by shifting to other fisheries and tourism are hailed as paragons of rural resilience, like the Bonavista Peninsula, Fogo Island, and Gros Morne National Park (e.g. Riche, 2015; Adey, 2019). However, as the long-term social and economic effects of the COVID-19 pandemic materialize, it seems unlikely that any rural region will be spared from impacts on key sectors like tourism (Cooke, 2020). Meanwhile, residents must adapt to virtual models of service delivery (e.g. healthcare, education) and employment, exposing long-standing inequities in high-speed internet access between urban and rural areas (Salemink, Strijker, & Bosworth, 2017).

In popular debates on provincial socio-economic viability, the GNP has become synonymous with trends like population decline, youth out-migration, and unemployment. The region was hit hard by the cod moratorium and subsequent economic downturns (Thomas, Vodden, Chuenpagdee, & Woodrow, 2014). Today, it experiences the fastest demographic decline of any area in the province, shrinking by 7.6% between 2011 and 2016, along with high unemployment (which is partly due to the highly seasonal nature of rural sectors like tourism and fisheries) and a rapidly aging population (Community Accounts, 2020i); see [Appendix 5](#) for a full list of socio-economic indicators. A 2009 article in *Canadian Geographic* proclaimed the GNP “a region of depleting human and natural resources” (Wangersky, 2009, para. 1). Similarly, a 2016 report on demographic projections predicted that the GNP could shrink by up to 40% by 2036, the second highest amount of population decline predicted for any region of NL (Simms & Ward, 2016). Roberts (2016) concludes: “[t]hat’s the story of the Northern Peninsula: heavy youth out-migration; one of the oldest median ages in the country; an economic base teetering on

the brink” (para. 5). Although it may make for eye-catching journalism or compelling research, the continual retelling of this decline narrative has an unknown effect on the psychological well-being of residents on the GNP and other rural regions, and on their decisions to remain (or not) in their communities. Moreover, it fails to acknowledge the very assets that rural communities can harness to reverse these trends and pursue sustainable pathways to revitalization, which are more necessary than ever in the COVID era.

4. Study purpose and methods

This study examines the potential of a storytelling approach for uncovering under-utilized assets to strengthen sustainable regional development on the GNP. Representing a novel approach both in the region and in research on community capital-based SCD, it proposes that these overlooked assets can be uncovered, and ultimately harnessed, through a community-engaged process of co-creative storytelling. Framed in the CCF and asset-based approaches, this study seeks to answer the following research question: “can the identification of a deep story in communities of the Great Northern Peninsula reveal new opportunities for catalyzing renewal? If so, how can this help articulate a broad agenda of sustainable development for rural peripheral regions?”

To answer these questions, I conducted community-based research (CBR) approached through a transdisciplinary methodology. Taking place between 2018-2020 (and still underway), I engaged regional stakeholders in a storytelling process to examine community and regional assets and their evolution in recent years. I also experimented with the concept of the ‘deep story’ discussed earlier, engaging with both historical cultural narratives about these communities and widely held experiences with regional sustainability to identify an underlying narrative of rural sustainability. This study drew from principles of CBR, which Ochocka et al.

(2010) identify as research that is: a) community situated – focused in a community setting and research questions related to that community; b) collaborative – sharing control over the research agenda between researchers and community members; and, c) action oriented – emphasizing practical impact and social change alongside scholarly relevance. I sought to embody these principles by striving for close working relationships with community members, with whom I engaged as experts and holders of knowledge of their communities (Halseth, Markey, Ryser, & Manson, 2016). The study also followed a transdisciplinary research approach, integrating knowledge between academic researchers and practitioners while building novel insights at the nexus of disparate research areas and domains of knowledge (Brandt et al., 2013; Bammer, 2016). Therein, I engaged local stakeholders in a co-creation process in which they played (and continue to play) an active role in shaping the storytelling approach described here.

This study thus seeks to centre community members' voices as the storytellers of their own experience, while reflecting a synthesis of individual stories within a broader narrative that integrates community perspectives with academic knowledge. Taking both a researcher-driven and community-driven approach, it directly engaged community members continuously throughout the study in its design and execution, thus incorporating aspects of both collaboration and empowerment on Bammer's (2019) spectrum of engaged research. In this co-creative process, I have sought to practice reflexivity by acknowledging my own positionality, power imbalances between myself and community members, and inherent biases involved in observing and interpreting community realities within these dynamics (Rose, 1997; Pain & Francis, 2003). Finally, given that CBR aims to generate tangible benefits in communities by enhancing local capacity (Halseth et al., 2016), I engaged local residents in an action research initiative that updated and built on a regional asset inventory that had been compiled in 2014 (Parill et al.,

2014a; Lowery & Vodden, 2019). The research received ethics approval by Memorial University's Interdisciplinary Committee on Ethics in Human Research (see [Appendix 7](#)).

Preliminary discussions

Discussions that informed the research have been ongoing since fall 2018, in which local stakeholders from a variety of communities and backgrounds have participated in co-designing the overall research goals and its approach. The first informal discussions occurred during initial visits to the GNP in which I engaged in informal conversations with a group of community leaders in a number of sectors. I identified these community leaders during a previous (but related) research project that examined rural asset mapping and sustainability indicator initiatives across NL (see Chapter 4), speaking with local stakeholders representing municipal, business, and non-profit backgrounds from communities across the GNP, as well as individuals representing regional development organizations.

I also met community stakeholders through an applied research initiative underway in the region led by Memorial University, called Sustainable Northern Coastal Communities (SNCC), including several events in which I participated. In a conference held in the region in 2016, community leaders had expressed frustration about the narrative of decline often used to describe the region, including in a panel presentation in which local residents countered this narrative with statements like “there's a real sense of pride here. I grew up here, and moved away but there's something that pulls you back” and “I have the opportunity to leave, but I don't want to” (“Why live in St. Anthony? A panel of local residents,” 2016). On my first visit to the region for a workshop one year later, participants echoed this frustration, as well as interest in conducting AM initiative to highlight new community economic development opportunities (Butters et al.,

2017). These initial encounters are described in the personal reflection on my research journey in Chapter 2. During this time CBDC Nortip, a business development and support agency on the GNP operating under the federal Community Futures program, advised me on how the project could respond to community economic development and regional sustainability issues. This organization became a significant partner in the study, informing the research objectives and methods and providing support and guidance to the project. Through discussions with both Nortip and other local organizations, regional stakeholders have had an ongoing role in shaping the research, thus contributing to its community-based and transdisciplinary approach.

Initial interviews

In winter 2019, I conducted six semi-structured interviews as part of the provincial study described in Chapter 4. I spoke with both individuals who had been involved in the 2014 asset mapping initiative, which had identified community-level assets across the region (see Chapter 4 for details). Regarding this asset inventory, I conducted key informant interviews with both community leaders who had been involved in the 2014 project and others who were not, selecting key regional stakeholders who held leadership positions in local government, non-profit organizations, business, and regional economic development agencies. These regional stakeholders reflected on experiences from other asset mapping initiatives and studies in the region and assessed the prospect of building on the 2014 asset inventory (which had not had any follow-up since the original project concluded). They also identified asset areas that had been under-emphasized in the 2014 inventory, like cultural heritage and under-utilized facilities and spaces. Stakeholders suggested a number of ways that CBR could respond to local concerns like promoting heritage sites in tourism marketing, informing proposed private sector investments in

sectors like forestry, petro-chemicals shipping, and fisheries, and streamlining provincial government assessments of land use changes (Lowery & Vodden, 2019).

Participant observation

I returned to the GNP in fall 2019, living in the community of Port au Choix and using participant observation to heighten my understanding of the region by embedding myself in the local context and becoming aware of social relations and interactions (DeWalt & DeWalt, 2011). I chose Port au Choix partly because I did not want to live in St. Anthony, the region's largest community that, according to local stakeholders, was usually where Memorial University engagement events were held in the region. Port au Choix was also described by regional stakeholders as having a rich cultural heritage linked to historical French seasonal fishing activity, including in other communities like Conche and St. Lunaire-Griquet. In Port au Choix, I engaged in public observation of everyday life by spending time in public venues like restaurants, coffee shops, bars, and hiking trails to gain exposure to local dynamics and have informal conversations with community members. This public observation of daily life helped inform my understanding of the local economic structure and its seasonality, demographic trends, the impact of environmental conditions on daily life, and other contextual factors. I took field notes based on these impressions, which indirectly informed the analysis of this study.

I also attended the meetings of local citizen groups and organizations, hearing more conversations and stories being told in these contexts. During fall 2019-summer 2020, I became a participant in several regional initiatives, including the university-driven research partnership discussed earlier (SNCC) and a provincial government-driven initiative called the Regional

Innovation Systems pilot, in which I participated both as a researcher and on behalf of the Office of Engagement at Memorial University's Grenfell Campus. I also became involved in a community-based research initiative aiming to create a community health hub in Port au Choix (which is still ongoing). These initiatives involved meetings (in-person and virtual) consisting of both community representatives and staff from provincial government and post-secondary institutions. I ensured that a member of the group had invited me before attending, and announced my participation during the meeting and briefly described the nature of the research. In these interactions, I tried to remain aware that I simultaneously acted both as a graduate student researcher and a representative of the university, which has a unique relationship with rural NL communities and implies inherent power relations and expectations that are often coloured by previous research and engagement encounters.

Interviews/storytelling sessions

During fall 2019, I engaged with an extensive set of residents in semi-structured interviews, which also served as storytelling sessions about communities and assets of the GNP. Meeting in person with 24 additional individuals, I followed a purposive sampling rationale aiming to include representatives of community-based initiatives connected to social, environmental, cultural, economic, heritage, and other community development efforts. I also sought to ensure representation of different sub-regions and sectors, including local government (municipalities and local service districts), non-profit organizations, businesses, and provincial and federal government. Participants were identified using Internet search and snowball sampling from the initial set of interviews, relying on local stakeholders' knowledge of other knowledgeable individuals and organizations, including those in well-known public positions

and other individuals who are everyday residents (Noy, 2008). I recruited participants using telephone, email, and in-person contact, interviewing 30 individuals in total (including the initial six interviews). This sample included 18 women and 12 men residing in all four sub-regions of the GNP (6 in the Tri-town area, 7 in the St. Barbe-Straits area, 8 in the Northern Peninsula East area, and 7 in the St. Anthony Basin area), as well as two residents living outside of the region who were included because of their personal or professional ties to, and knowledge of, the GNP. Interviews were held in participants' office/workplace, in their homes (at participants' request), or another location of their choosing, with audio recording used in almost all cases (except for a small number of participants who preferred handwritten notes).

Regional asset inventory

As noted above, the study also engaged in action research by building on a previous AM study in the region (Parill et al., 2014b). This previous work compiled an inventory of regional assets using a mixture of local secondary data sources and provincial or federal government documents, which were member-checked during a series of workshops in the region. This asset inventory was organized around the CCF, including community assets in five capital areas: natural, social-cultural, economic, built, human, and political-institutional; the inventory reflected the state of regional assets in 2014 when these data were collected. Most of these assets consist of listings of local businesses or organizations, but the inventory also complemented this qualitative information with quantitative indicators that corresponded to related socio-economic changes in the region (see Parill et al., 2014b). Although this project had limited engagement with regional

stakeholders, it was intended as an initial phase of asset identification to inform more participatory asset mapping methods later (Parill et al., 2014).

In the current study, this regional asset inventory informed the interviewing process, focus groups, and knowledge mobilization. These data collection phases provided an opportunity to identify additional assets in communities which were not well-represented in the 2014 asset inventory, including stories and cultural heritage assets. The interviews also gave a wealth of information on the status of assets included in the inventory, many of which have changed significantly since 2014 (e.g. businesses that have opened or closed, government offices that have moved locations, new heritage sites). Participant observation also familiarized me with visible assets in communities across the region, including vacant buildings like schools, fish plants, and other structures. I also explored potential ways to use the asset inventory with regional stakeholders, gauging their perspectives on issues like how to share the findings in a publicly accessible format, how to keep it updated regularly, and which organizations or groups would have the capacity to undertake such efforts. Efforts to share the inventory publicly are still underway with local stakeholders. The updated asset inventory is listed in [Appendix 6](#).

Focus groups

Based on advice from CBDC Nortip and other stakeholders, I also conducted a series of focus groups across the region to engage community members directly in the design of the regional asset inventory. Focus groups allowed for a practical discussion on how to use the regional asset inventory once completed, engaging many of the potential user groups (e.g. municipal councilmembers, regional development organizations, business owners, etc.) and facilitating a discussion among a diverse group of local stakeholders (Kamberelis & Dimitriadis, 2011). These

discussions also intended to reveal how participants collectively viewed the stories about their communities, including stories told during interviews, in relation to the narrative of decline and to under-utilized community assets. I held four focus groups in December 2019 in different sub-regions of the peninsula, planned jointly by myself, CBDC Nortip, staff from the NL Department of Tourism, Culture, Industry, and Innovation, and staff from the Office of Engagement at Memorial University's Grenfell Campus. We invited all interview participants (as well as a broader list of community members) via telephone and/or email. 23 community members participated, including 15 women and 8 men, across the four sub-regions (4 participants in Port Saunders, 6 in Flower's Cove, 6 in Roddickton-Bide Arm, and 7 in St. Anthony). We engaged participants in a discussion about the regional asset inventory, showing them newly identified assets from the interviews and inviting participant feedback. After updating the inventory, we facilitated a more open-ended discussion about the best use of the regional asset inventory and options for making it more user-friendly for different groups.

Data analysis methods

I analyzed the information gathered during interviews and focus groups using thematic content analysis following an interpretive coding process based on emergent themes that evolved during analysis (Krippendorff, 1989; Stan & Stan, 2010). After transcription, I began forming initial observations and noting patterns in the data. I assigned each participant a code to ensure their anonymity, differentiating between interview participants (denoted with "I") and focus group participants ("F"). Via QSR Nvivo™ software, I used an inductive coding process informed by the stories that participants told about their communities or the region, ranging from personal

anecdotes to grand narratives about its past, present, or future. Coding also considered overarching regional narratives, considering narrative elements like heroes, villains, and victims, the roles assigned to outsiders coming into the region, key plot points in community stories, and the moral of local stories (Jones et al., 2014). I also considered the CCF in terms of six forms of community capital – natural, social, economic, cultural, human, and institutional – including key stocks of these capitals identified in reference to literature on the CCF, local resident perspectives, and the regional asset inventory (Butler, Emery, Fey, & Bregendhal, n.d.; Knippenberg et al., 2007; Parill et al., 2014). Figure 22 shows these areas of community capital and the stocks identified on the GNP during the analysis (discussed further below), which also informed the categories of the regional asset inventory.

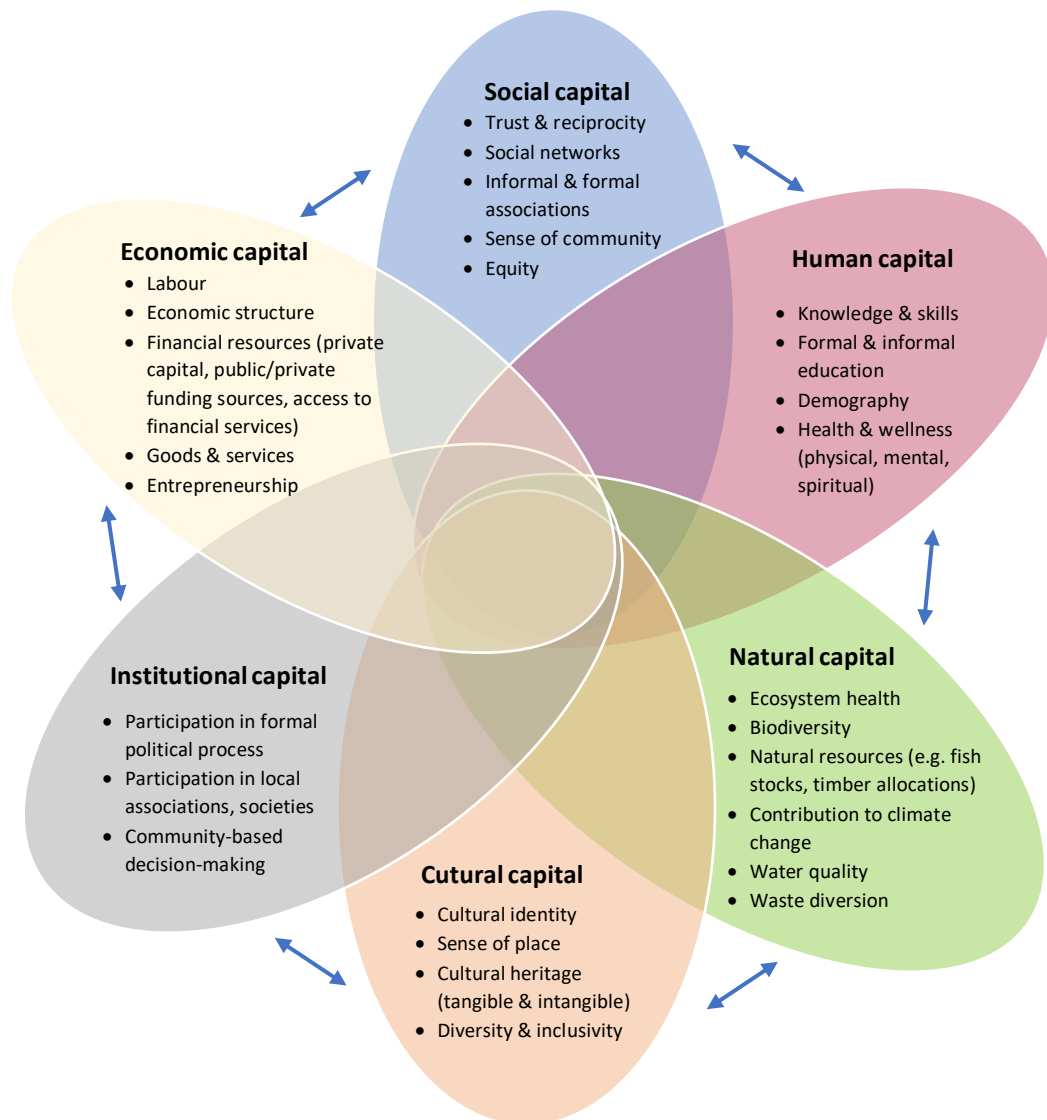


Figure 22. Community Capital Framework used in the study.

Informed by this capital-based analysis, I updated the regional asset inventory with community member perspectives. The original inventory was compiled on Microsoft Excel, which I revised based on interviews and participant observation, printed and shared with focus group participants (and have subsequently updated and shared with regional stakeholders in Excel and Word formats). I am still working with local stakeholders to identify how to share the expanded asset inventory with key local stakeholders like municipalities, regional development

organizations, and government agencies. This process revealed numerous stories about specific communities and assets and more sweeping regional sustainability narratives, discussed below.

5. A tale of two communities: Local narratives embedded in broader regional dynamics

Using the storytelling approach described above, I now recount the stories of two communities on the GNP which reflect both different experiences of community and regional sustainability and unique efforts to leverage local assets. The communities of Port au Choix and Conche are tied together by a common link to the French Shore, which represents both a period of Newfoundland's history and a geographical region marked by French migratory fisheries during the 16th to 19th centuries (French Shore Historical Society, n.d.a). These communities face very different socio-economic and geographical circumstances, shaped by their role in broader regional dynamics, local histories, and contemporary development initiatives. Local leaders from these two communities also expressed considerable interest in the research, with whom I met repeatedly over the duration of the project and who contributed significantly to its design and process. Informed by these interactions and framed through the systems-based CCF approach described above, the following stories are revealed both through local stakeholder perspectives and (where available) official indicators from Community Accounts and other sources.

‘There was more than one millionaire created in Port au Choix’³⁰

Port au Choix has a long story with a cast of characters spanning millennia and diverse cultures. Local stakeholders described how different people groups have migrated through the area over 6,000 years, including multiple Indigenous and European cultures. Thus, Port au Choix has been touched by many historical narratives found across the GNP, like that of seasonal Basque fishing that occurred across western Newfoundland and Labrador and the French Shore (French Shore Historical Society, n.d.a; Barkham, 1989). The long inhabitation by Indigenous groups like the Maritime Archaic, Dorset, and M’ikmaq is interpreted at the Port au Choix National Historic Site (Parks Canada, 2019a), and was the subject of extensive archaeological digs that began in the early 20th century and continue to the present day. The arrival of researchers to study the remains of these ancient cultures is a major plot point in the community’s recent history:

“...there were a number of archaeologists...that came through here between 1904 and the 1960s that did some work. Wintenburg was one...Dr. Elmer Harp in ’61, ’64, Dr. Harp was one of the first ones that done any extensive archaeological work over at Philip’s Garden. So he did that work, and Dr. Jim Tuck, and later Dr. Priscilla Renouff from MUN’s Archaeology department”.

I-6, November 25th, 2019.

These artefacts, including numerous human skeletons, are among the world’s most intact archaeological evidence of the Maritime Archaic (Heritage NL, 2020), as well as an ancient camp at what is now called Philip’s Garden. One local stakeholder explained why the artefacts were so well preserved in Port au Choix compared to other nearby sites:

³⁰ Personal communication, November 6th, 2019.

“Port au Choix is very unique because of the limestone barrens, the acidic, you know, and that...preserved the bone...cuz it was discovered, some of ‘em, in Cow Head, in other parts of the peninsula. But...it didn’t preserve like it preserved in Port au Choix”.

F-3, December 2nd, 2019.

After European contact, the story of Port au Choix was heavily influenced by French fishing activity. After the Treaty of Utrecht in 1713, France was allowed to fish along a section of western and central Newfoundland, but were restricted by Britain from settling permanently (French Shore Historical Society, n.d.a). This practice was maintained until 1904, when permanent settlement by English and Irish descendants was allowed. One unique element of Port au Choix’s French history is the story of deserters who jumped ship and hid until fishing crews returned to France, which one local stakeholder describes with a personal family anecdote:

“my great grandfather was a French sailor who came over and he was really young...probably 16, 17 years old or so. And they got treated really, really bad on the boats, and so, when the boats would sail back to France in the wintertime, so many of the men, so many of the families in Port Au Choix, like if you look back at the history, are men who hid from those boats going back to France and stayed on the Northern Peninsula”.

I-7, March 18th, 2019.

The most recent chapter in Port au Choix’s story is the boom and bust in the cod fishery. Known as the ‘fishing capital of western Newfoundland’ (Carroll, 2019), the community’s growth during the height of the industrial cod fishery – and subsequent decline – have left a permanent mark. Local stakeholders described how Port au Choix was unique on the GNP for the concentration of industrial fishing capacity and processing during the 1970s and ‘80s, a time in which the population grew rapidly. According to the 1981 Census (the earliest for which data were available), the permanent population of Port au Choix was 1,170, and 64.8% of the labour force worked in fish harvesting and processing (Statistics Canada, 2020a). Although most

communities in the region were involved in the industrial cod fishery (and had fish plants that employed much of the local workforce), Port au Choix was particularly active. One local stakeholder who was young during the boom describes this time:

“I was here in the last five years of the 70s and the early part of the 80s...there was 12 months of the year there was fishing going on because we had very mild winters. Now, one of the reasons that it could go on all year was because by now, it wasn't just because of the mild weather, it was also because the boats had become much larger. The 65-footers had been introduced with all this modern technology on them, so they could move up and down the whole coast from...in the winter they moved to Port aux Basques and fished – and of course that was part of the problem because we fished the spawning season...”

I-1, November 6th, 2019.

Just as pronounced as its boom, the bust that occurred after the moratorium was a cataclysmic event for Port au Choix. MacDonald, Sinclair, and Walsh (2013) described how real incomes (according to taxfiler data) dropped sharply between 1992-1996 due to the halt of cod landings from the dragger (65-footer) fleet. Although the fishery quickly pivoted to target shrimp – for which many harvesters re-equipped larger vessels and which the fish plant began processing – employment demands were less in this new fishery and fisheries declined drastically in its overall economic importance. Local stakeholders described the rapid flight of working-aged residents who had previously been employed either in fish harvesting or processing in 1992 and subsequent years:

“When the Moratorium happened, you saw people leaving...I recall so vividly watching the news and seeing...people in their 40s and 50s who lost their jobs at the fish plant. So these people were picking up their belongings and heading west”.

I-6, November 25th, 2019.

In the wake of the Moratorium, primarily young and middle-aged residents fled in search of jobs, relocating to places like Alberta and Ontario. Between 1981-1996, the proportion of

residents age 15-24 dropped from 22.2% to 15.7% of the population (Statistics Canada, 2019d), as younger generations left in search of work and older residents remained. Between 1996-2011, the overall population of Port au Choix dropped by 26.6% (Community Accounts, 2020f). Nonetheless, in more recent years Port au Choix has returned to a more stable population compared to some other communities on the peninsula. Between 2011 and 2016, the population declined by 6% to 790 residents, a relatively low drop compared with other GNP communities that have decreased by 15-30% in the same period (Community Accounts, 2020f).

However, today's fishery is characterized by fewer harvesters operating larger enterprises. One stakeholder explained that: “[they’re] still out doing well...but it’s a smaller group of people compared to...in the ‘90s when...the cod fishery was so big. You had a lot of smaller enterprises involved and small-boat fishermen” (I-6, November 25th, 2019). By 2000, only 35.8% of the labour force worked in fisheries activities (Community Accounts, n.d.), which has increased slightly in recent years to 37.3%, with 18% employed in natural resources (primarily fish harvesting) and 19.3% in manufacturing (i.e. shrimp processing) (Community Accounts, 2020f). Declines in under 65-foot vessels have occurred both due to the long-distance nature of shrimp harvesting compared to the inshore cod fleet (MacDonald et al., 2013), This shift from a primarily small-boat fishery with many participants to a large-scale fleet with fewer harvesters has been observed across NL, which in addition to target species requirements is also due to fleet consolidation policies introduced by provincial and federal government agencies to reduce fishing effort (Song & Chuenpagdee, 2015).

A major contributor to Port au Choix's economic sustainability is the continued presence of fish processing capacity. With only seven fish plants still operating on the GNP (NL Statistics Agency, n.d.), they serve as a major employer, including for smaller communities whose

residents often commute into larger centres like Port au Choix. One resident from Hawke's Bay, a smaller community in the Tri-town sub-region, reflected on the reduction in processing employment: "one time, half of Hawke's Bay worked in the fish plant, but now it's only three or four" (I-3, November 7th, 2019). Another stakeholder from Anchor Point, which also has a shrimp plant, reflected that "plants are becoming more and more automated, and require fewer employees" (F-7, December 3rd, 2019). This consolidation, along with automation in shrimp processing, has significantly reduced the role of processing in the regional labour market.

In Port au Choix this shift to a large-scale fleet has also coincided with the accumulation of great wealth by a small number of harvesters. One stakeholder from the Straits sub-region, where a similar phenomenon has occurred in Anchor Point, described that "they're big fish killers up there. And they got big houses, big, big houses...but of course, they got a few in Port au Choix" (I-13, November 21st, 2019). The term 'fish killer' originates from the cod fishery, describing a fisher (almost always a fisherman) whose prowess in landing cod was known throughout the community. The transition from cod to a shrimp-based fishery in Port au Choix strongly features these prominent fish harvesters who have successfully navigated the post-moratorium years, in some cases amassing great wealth in the process.

However, in parallel to this shift in the fishery, local stakeholders described that Port au Choix has experienced an overall erosion of social cohesion and growing divisions in the community. One local stakeholder reflected on this decline in social capital:

"...we have no community spirit, whereas when I grew up, everybody helped everybody...it happened because of money and this one had more than that one and, you know, it really divided...there's people who think they have money now, so they're better than you and they have more brains than you...it's really amazing how people think that because they have money in the bank".
I-1, November 6th, 2019.

Interestingly, poverty rates have not risen in this time period (from 11.3% in 1981 to 11.6% in 2016), but families earning over \$100,000 per year have risen from 2.9% of households in 1996 to 35% in 2016 (Statistics Canada, 2020a; Community Accounts, 2020f). Local residents' stories, as well as these indicators, suggest that a trade-off occurred during the boom years, and subsequent moratorium, in which economic capital was accumulated at the expense of social capital as trust declined and income inequalities grew. This trade-off appears to have been starker in Port au Choix than in other communities on the GNP, where local stakeholders often described still-strong social cohesion. This exchange of social capital for economic capital also coincided with the depletion of natural capital prior to the moratorium in the form of depletion of fish stocks. Another resident reflects that "see, they fished all year round...all the people, all the draggers from here went to Port aux Basques in the wintertime" (I-8, November 24th, 2019). Although national and international regulatory failure are often cited as major causes for the cod collapse (in addition to harvesting practices like bottom trawling) (Bavington, 2010), in Port au Choix the concentration of large-scale vessels and year-round harvesting in other parts of the province were described as particularly strong contributors to the moratorium.

Although the fishery has remained lucrative with shrimp, as well as lobster harvests which have been very successful in the last few years, there have been many business closures in other sectors. Boarded up businesses are a common sight in Port au Choix, and throughout the region, often linked to declining populations (and therefore customer bases). One stakeholder working in economic development reflected that "the economies of scale have done a job on convenience stores, grocery stores..." (F-9, December 3rd, 2019). The regional asset inventory confirmed this trend, in which many businesses that were open in 2014 have since shut down (see [Appendix 6](#)). Local stakeholders described that the operators of local grocery stores (i.e.

Foodland and Sharon's Village Mart) were delaying retirement because of a lack of young employees who could take over, as well as the common practice of driving to Corner Brook to buy cheaper goods at big box stores. As a result, vacant commercial space is abundant in Port au Choix, like Farwell's store pictured below.



Figure 23. Farwell's Store, Port au Choix.

Despite these downward trends, Port au Choix has recently experienced significant growth in tourism linked to its cultural heritage. The Port au Choix National Historic Site, which interprets the area's Indigenous history, is a popular local tourism destination to which visitation has more than doubled in five years, from 7,263 visitors in 2014 to 15,882 in 2018 (NL Department of Tourism, Culture, Industry, & Innovation, n.d.). In addition, the French Rooms Cultural Centre operates as a semi-autonomous heritage group linked to the municipality, operating a museum and café centered around the French shore heritage. A local resident who works with the French Rooms reflected on this recent tourism growth:

“From 2017 to 2019, we've tripled our visitation...for the years that I worked at Parks Canada, what I noticed was people came in and stayed a couple of hours.

If they went to the restaurant, you were lucky...Now, what I'm seeing is people are coming and staying a couple of days. And they're all excited and saying 'oh, there's lots to see here. We need more time'". I-6, November 25th, 2019.

This growth in tourism is directly linked to the community's cultural assets and the histories of various Indigenous and European inhabitants. The municipality's leadership in tourism development and cultural heritage preservation through its support of the French Rooms also represents a key institutional asset. Within broader sub-regional dynamics of the Tri-town area, Port au Choix is dependent on government institutions based in the neighbouring town of Port Saunders, like the hospital. As a result, 14.5% of the workforce in Port au Choix is employed in healthcare and social assistance (Community Accounts, 2020f). The National Historic Site located in the community represents a significant institutional investment by Parks Canada, which also includes a protected area with rare limestone barrens ecosystems (Parks Canada, 2019). In addition to the unique landscape, a resident caribou herd is also commonly spotted on the Parks Canada land, which also draws many tourists to the area. A local stakeholder mused that "of course those caribou, dear God! I mean, we'll have to reign them in. If they leave, we're ruined!" (I-6, November 25th, 2019).



Figure 24. Caribou at Port au Choix National Historic Site.

The story of Port au Choix is one of both decline and renewal punctuated by the boom and bust cycle of the industrial cod fishery and post-moratorium recovery. This dynamic is based in complex exchanges between assets across different forms of community that have affected both the community and the broader region. Local stakeholders described a shift from a pre-boom state in which the community had low incomes but very strong social and natural capital, relying on small-scale fish harvesting for their livelihoods, to the rapid accumulation of wealth during the boom at the expense of social and natural capital. In the post-moratorium years, sense of community has been low, with heightened social divisions (including increasing economic inequality) and a fishery characterized by fewer harvesters operating larger enterprises in a more mechanized fishery. However, recent tourism growth centered in the community's unique cultural heritage and natural assets, drawn by sites operated by both Parks Canada and local operators, represent a gradual spiraling up process (Emery & Flora, 2006; Winkler et al., 2016).

Conche: 'Everybody says we were isolated. I don't think we were'.³¹

Community sustainability in Conche features a different set of characters and plot points in its recent development. First, its role within regional dynamics is that of a smaller community dependent on the secondary service hub of Roddickton-Bide Arm. Although Conche is a much smaller community than Port au Choix, with 170 residents in 2016, it has also experienced a relatively moderate amount of population decline (5.6%) from 2011-2016 (Community Accounts, 2020c). With limited economic activity in the community, most of the workforce must commute to Roddickton-Bide Arm or other employment centres. Furthermore, many residents are retired, with 32.4% of the population over 65 years of age in 2016 (Community Accounts, 2020c). However, Conche does have a multi-species fish plant and a small number of fishing enterprises. Furthermore, the French Shore Historical Society (FSHS) operates a community museum and conducts cultural heritage activities in Conche, offering a significant tourism attraction that draws visitors to the region (Tucker, Gibson, Vodden, & Holley, 2011).

Conche is also distinct in its cultural and religious identity. Although Port au Choix also has a majority Catholic population (76% in 2011³²) (Community Accounts, 2020f), residents are a mixture of Catholic/Irish and Protestant/English descendants, as well as having French and Indigenous heritage. In contrast, Conche has a homogenous Irish Catholic identity. One local stakeholder, speaking about several communities in the GNP East sub-region, explained that “Conche and Croque are Catholic communities settled by Irish” (I-17, November 14th, 2019). Although many rural NL communities have Irish heritage, most majority-Irish areas are located on the Avalon Peninsula (Higgins, 2009), and only a few other areas have retained such a strong

³¹ Personal communication, December 4th, 2019.

³² 2011 is the most recent year for which the Census has collected data on religious affiliation.

Irish culture and identity, like the Cape Shore of the southwest Avalon and Tilting on Fogo Island (St. Croix, 2015; Irish Traditional Music Archive, 2018). Reflecting on Conche's strong Irish identity, one local stakeholder reflected that:

“...there was also a group of Irish artists that came over here...and I know one person here in Conche, every time they heard him speak - he has like this old brogue, right - every time they heard him, one of the guys that was in the group used to say...’you’re right from the Wicklow Mountains’...so it’s amazing that even that language, like after 200 years, right, still the same”.

I-16, March 7th, 2019.

This Irish identity is a major component of the community's cultural identity and contributes to social cohesion and sense of belonging. However, some residents described a religious divide between Conche and other communities, given that nearby communities like Roddickton-Bide Arm and Englee are predominantly Protestant. Although data on religious affiliation are not available for Conche due to data suppression, in 2011 the Roddickton Local Area was 45% Pentecostal, 29.5% Catholic, 7.4% Anglican, and 5.7% United Church³³, with the remainder consisting of other Christian denominations and unaffiliated people (Community Accounts, 2015). Despite these religious divides, local leaders in Conche partner with nearby communities (i.e. Roddickton-Bide Arm, Englee, Main Brook, Croque, and Grandois/St. Julien's) on several initiatives. A local leader described some of these regional collaborations:

“I’m a part of the Northern Peninsula East Heritage Corridor, in which...we do joint things for this region, for the seven communities. And so, for the last couple of years, we’ve been working on trails...that link us together...at the Underground Salmon Pool, one in Englee, and one in Conche”.

I-16, March 7th, 2019.

³³ The Roddickton Local Area includes Roddickton-Bide Arm, Conche, Englee, Main Brook, Croque, and Grandois/St. Julien's.

Conche has been a leader in regional heritage tourism related not to its Irish identity, but its connections to the French Shore. FSHS's establishment in 2000 aimed to help the community recover from the moratorium (Butters et al., 2017); however, its work reaches far beyond Conche, including direct links with partners in France leading to a community arts initiative completed in 2009 known as the French Shore Tapestry. Inspired by the Bayeux Tapestry in France, and completed by local artists working alongside French artists, the Tapestry depicts the French Shore's history in an embroidery that is the only of its kind in North America (FSHS, n.d.b). A regional stakeholder who assisted FSHS reflected that "...in the Conche, Croque areas and the French history...they've really capitalized on that whole piece, and it's really been a very big success story" (I-12, November 28th, 2019). The Tapestry's creation also showcased the skills of craftspeople, which many local stakeholders felt were overlooked since many of the crafts produced locally are given away to friends and relatives, rather than sold for profit.



Figure 25. A section of the French Shore Tapestry.³⁴

³⁴ Retrieved from <http://www.frenchshoretapestry.com/en/intro.asp>

Due in large part to this unique cultural asset, Conche has experienced a steady increase in tourism visitation. Another regional stakeholder described how “...it’s wonderful when they get something like a tour bus, a cruise ship that decides to come, and is interested in coming back next year. So that’s wonderful. Everybody is a little jealous (laughs)” (I-30, November 11th, 2019). The work of FSHS has also spanned across the sub-region into other communities, where it has worked in communities like Croque, Grandois/St. Julien’s, and Fischot Islands to preserve heritage sites like cemeteries and fishing stages. However, many of these cultural assets are sitting vacant or at risk of being lost. One resident of Croque reflected on finding French artifacts in their childhood home: “the old house we lived in, I tell you, there was a lot of pine boards with people’s names and...dates” (I-20, November 21st, 2019). Below is a picture of one of these pine boards with French inscriptions dated 1885:



Figure 26. French inscription from heritage home in Croque.

Other under-utilized cultural assets are more intangible, like stories and archival information retained by FSHS. The coordinator of FSHS described below one such story that demonstrates the community's unique links with the French Shore history:

"I've always felt that we've had... a story that...has Newfoundland potential and it has Canadian potential. It's just that I've never got it off the ground... in our collection here, our exhibit, is a gold and silver medal that was given to a man here in Conche in the 1850s, right. And I don't think there's another one of those in Canada...and it was given to him by Napoleon III, the Office of the Marine in France...that is something that is so rare...and the story behind it, like, he saved the lives of several French fishermen". I-16, March 7th, 2019.

These rare artifacts and stories represent under-utilized assets in both Conche and other French Shore communities. Local stakeholders also discussed the prospect of targeting tourists from France and Francophone areas like Quebec and St. Pierre and Miquelon who would be particularly interested in heritage tourism (although these avenues are on hold now due to COVID-19). Pending the resumption of international travel, these cultural heritage assets have potential to further increase tourism and cultural activity in Conche and other communities with links to the French Shore.

The successes of FSHS in forging linkages with partners both regionally and internationally also represents significant social capital assets both for local actors in Conche and partners across the region and beyond. Especially considering the linkages formed with French partners in creating the Tapestry, these efforts underline strong forms of bridging and linking social capital that can help local actors access resources and knowledge with the help of external partners (Mathie & Cunningham, 2005). The importance of these social ties on the GNP has been explored in previous social network analysis research that demonstrated local, provincial, national, and international collaborations among tourism operators and other actors (Tucker et

al., 2011; Stoddart et al., 2020). Tucker et al. (2011) highlighted a number of organizations at the core of regional networks, including FSHS, that help build collaborative relationships across communities and sectors. However, Stoddard et al. (2020) found that local actors on the GNP often struggle to maintain strong vertical collaborations, or links with partners at provincial, national, and international levels. In contrast, the linkages sustained by local actors in Conche show how a remote community can develop strong links with partners both locally and internationally to aid in its development is perhaps best captured in the reflection of a Conche resident who felt that “everybody says we were isolated. I don’t think we were” (F-11, December 4th, 2019). This sentiment juxtaposes the relative isolation of Conche during its history, which contributed to the preservation of its cultural identity and sense of community, with its deep-seated connections to its Irish and French roots and contemporary efforts that have strengthened external ties both within the region and internationally.

However, the role played by Conche within the regional labour market, particularly its dependence on the regional hub of Roddickton-Bide Arm, implies considerable vulnerabilities. Roddickton was once the forestry hub of the GNP, with several sawmills and a pellet plant. However, the gradual decline in the regional forestry sector has hit Roddickton hard, threatening smaller communities that depend on its services. The most recent shock to the forestry sector was the closure of Holson Forest Products in 2014, which operated a sawmill and pellet plant. A community member in Roddickton discussed the downward spiral initiated by Holson’s closure:

“...it’s a domino effect, really, because we’ve lost the enterprise. We lost what those couple of communities here flourished on, or the economic base of the communities – was forestry. We’ve lost that. We lost that, and then we got people moving away...So we’re losing our population asset...”
I-17, November 14th, 2019.

The shuttering of Holson was described as a result of several factors, namely the loss of a market for small-diameter wood (which comprises the majority of the region's forestry resources) when Corner Brook Pulp and Paper Ltd. (CBPPL) stopped purchasing timber from the GNP in 2008 (White & Hall, 2013). According to a local resident who works in forestry:

“...we got no market for the small-diameter wood. Like, you can harvest and sell the sawlog portion of a tree, but I mean that only represents...I'd say 30-35% of the forest is sawlog material. The other 65-70%...gotta be used for something else”.

I-14, November 8th, 2019.

Due to these realities, the withdrawal of CBPPL from the region in 2008 eliminated a major timber market, which affected Holson's viability and that of other forestry companies. In the years following Holson's closure, Roddickton-Bide Arm has been hit by several other setbacks, most recently the closure of the only bank in the GNP East sub-region. There are also many homes for sale, with one resident explaining that there are “...19 houses for sale right now in Roddickton, and there's only 975 people left, or so” (I-18, November 14th, 2019). Roddickton-Bide Arm's downward trends pose a significant threat to the long-term sustainability of the sub-region. Conche's major employment sectors are natural resources (35% of the labour force), manufacturing (25%), and retail trade, healthcare and social assistance, and public administration (10% each) (Statistics Canada, 2019b). Conche's economic structure is highly dependent on employers in Roddickton-Bide Arm like the regional health centre, government offices, and retail stores (since there is only one store in Conche), while showing the continued importance of fish harvesting and processing in the community. These interdependencies highlight the need for a regional approach to economic development that considers the dependency of smaller communities with limited economic activity on employers in larger regional hubs.

This story of community and regional sustainability reveals both great strengths and threats. Conche's unique cultural identity and sense of community have been central to its revitalization efforts, allowing local actors to leverage the community's cultural and social capital to attract tourism and forge partnerships with external groups. The formation of FSHS as a local development driver represents a significant investment of institutional capital, especially considering its activities across the sub-region. Perhaps due to this strong sense of community and identity, residents described the effects of the moratorium less vividly than in Port au Choix, followed by a more robust process of community renewal. However, as a smaller community with limited local employment, its economic fortunes are tied to that of Roddickton-Bide Arm, which has been severely affected by the decline of the forestry sector.

6. Linking community and regional narratives: A deep story of rural sustainability

These stories of community sustainability reveal several major plot points while pointing to broader regional dynamics. Local stakeholders discussed a variety of characters: heroes like local heritage committees, entrepreneurs, archaeologists and other researchers, newcomers and people who had returned to the region, teachers, and municipal leaders; villains such as corporations, provincial government officials, and fish harvesters; and victims ranging from individuals to regional industries (e.g. forestry) and the region overall. Some stakeholders cast the same individual or group into a very different role in their story than others, like the 'fish killers' of Port au Choix who were celebrated as enterprising pioneers by some and decried as greedy opportunists by others. The community-level stories also highlight the interdependence of local assets across different forms of community capital, showing both how events like the

moratorium created cascading impacts threatening community sustainability and how community revitalization efforts have drawn on various types of assets.

The stories of Port au Choix and Conche, as well as those of community members from across the region, also highlight several cross-cutting regional sustainability narratives. Returning to the concept of the deep story (Hochschild, 2016), the following section identifies three underlying conceptions of community and regional sustainability on the GNP. These messages directly address the story of decline which provincial media and academic voices have often perpetuated (Roberts, 2016a; Simms & Ward, 2017), while highlighting other dynamics observed across local stakeholder perspectives. In each narrative, I present a key tension related to regional sustainability, reflecting both a problem-based message of vulnerability and a message of strength and hope. This section also underlines lessons learned to inform community and regional development efforts, including future research opportunities on the GNP and other rural remote areas. In keeping with the storytelling approach of this article, I have named these narratives after song lyrics that capture the main associated tension.

‘The good old days may not return’³⁵

The first tension in the region’s deep story is a sense of ingrained nostalgia about the pre-moratorium days based in memories of the region in its heyday. One of the strongest themes from the research was the fondness with which residents regarded the past, reflected in the strong focus on heritage within efforts to create communities that can be sustained into the future, partly

³⁵ Lyric from “Learning to Fly”, by Tom Petty and the Heartbreakers (1991, UMG Recordings, Inc.).

through heritage-based tourism. However, local residents simultaneously expressed a pragmatic acknowledgment that this Golden Age could not be recreated.

Yearning for the past

The story of Port au Choix portrays how the community's history was associated with a strong sense of community spirit, while the more recent boom and bust in the cod fishery led to a hollowing out of social capital:

“...we built the community when we had very little...we were concerned about the citizens. I say ‘we’ as in the whole community. Now, we had leaders but everybody was on board for the most part. Otherwise, we wouldn’t have what we got. Didn’t come from the boom in the fishery because it was already here”.

I-1, November 6th, 2019.

Simultaneously, the boom also represented a sense of glory days for Port au Choix. Local residents painted a portrait of a more prosperous time, when wharves were full of fishing boats, streets were busy with traffic, and the community's numerous nightlife venues were bustling:

“...we had everything. We had a movie theatre. We had three or four clothing stores...you know, there was...how many gas stations? There was three take-outs and a restaurant and, there was two clubs, and there was a live band at each club every weekend. You had to choose where you were gonna be, right. And I’m not talking like just local...bands, but it’d be also bands coming down from Corner Brook for the weekend”.

I-7, March 21st, 2019.

At the centre of this nostalgic vision was the fishery that employed almost the entire community in either harvesting or processing. Fish processing in particular played a central role in the nostalgic view of the past, both in Port au Choix and other communities. Today,

processing still plays an important role, but due to mechanization and other factors it is not the major employment provider that it once was. Fish plant workers are also aging, as expressed by participants of the focus groups and corroborated in a 2013 study of fish plants on the GNP that found that up to 75% of workers in some facilities were over the age of 45 (MacDonald et al., 2013). At the same time, residents also acknowledged that this abundance of processing capacity was linked to the over-exploitation of cod that led to the Moratorium. According to one stakeholder: “every community had their own little fish plant, which is another reason why we devastated the cod fishery” (I-1, November 6th, 2019).

Gender roles also featured strongly in reflections on the past. Another community member from GNP East described the workforce of the pre-moratorium days as “100% employment...the men fished and the women worked in the fish plant, for the most part” (I-17, November 14th, 2019). The gender-based division of labour, in which men fished or worked in forestry, and women raised children while engaging in a variety of paid and unpaid labour closer to home, was an essential part of the social fabric of communities. One community member from Conche shared this childhood memory:

“I remember one time, my mother...we had sheep, so she used to collect the wool and send it into Briggs & Little in St. John’s to get spun into wool, right, for knitting...after she washed all the wool...she would have to wait for a nice day with no wind to lay out all the wool...and she had just put all the wool out in the meadow, and the wind came out. And, like, we were running helter-skelter, all over the meadow...well, there was 10 of us running around, getting the wool, collecting the wool. And she was almost in tears because she knew that if she lost her wool, she wouldn’t get nothing knitted for the winter, right”.

F-11, December 4th, 2019.

There was a sense that both local residents and mainstream development strategies often overlooked the central role that women have played in sustaining rural communities, especially

since much of the work they performed was unpaid. This story also highlights that although the pre-moratorium years may hold nostalgic value, local stakeholders acknowledge that life was often very hard. Stories of grueling physical labour, economic uncertainty tied to seasonal resource harvests, and limited access to healthcare and educational services went hand in hand with the sense of nostalgia.

Pragmatism about the future

Despite these nostalgic recollections of the past, local stakeholders often expressed a pragmatism that these days would not return. For example in the forestry sector, which has experienced a much more prolonged decline than other sectors like fisheries and tourism, this sentiment was particularly strong. One stakeholder involved in forestry reflects on its heyday while looking pragmatically to the future:

“...there was at least 20-25 trucks a day moving...and that was just moving down the coast, right...And besides the logs that were going to the sawmills...Now, we can never go back to that...because at the time...people were harvesting manually, right, so...most of them were people with chainsaws in the woods”.

I-14, November 8th, 2019.

Whether due to mechanization (as with forestry operations which shifted from chainsaws to large harvesting equipment), or ecological collapse like the moratorium, the perceived inability to return to the heyday was prevalent. A similar reflection was expressed by a stakeholder involved in fisheries: “...all those plants that died over the years, they’re not coming back, unless they got something to come back to” (I-26, November 18th, 2019). This sentiment

also reflected frustrations over the existing quota and processing regulations for species like cod, which is now caught in low volumes on the GNP and shipped unprocessed out of the region.

This narrative suggests that local stakeholders have a pragmatic view about the past and its role in understanding the region's present and future. Considering the power of political myths, which often portray a romanticized view of an imagined community or people's origins (Blumenberg, 1985; Bottici & Challand, 2006), it could be alluring for local leaders to invoke 'the good old days' to pursue community development efforts that seek to recreate the past. In contrast, local stakeholders seemed willing to part with some aspects of the pre-moratorium days, while drawing upon others, in creating more sustainable communities. In particular, stakeholders identified a need to recognize the importance of women in sustaining communities and the need to prevent the depletion of natural resource stocks as during the moratorium.

'I'm holding out for a hero'³⁶

The second overarching tension is a prevailing sentiment that a person or entity from outside will come in to save a community or the region as a whole. I refer to this tension as the 'saviour complex', borrowing a term from psychology describing the compulsion to rescue others from real or imagined crises, often to deflect attention away from one's own problems (Benton, 2017). Paradoxically, the common narrative on the GNP was the inverse in which hope was often placed in external actors who were perceived to have the power to alleviate challenges facing the

³⁶ Lyric from "Holding out for a Hero" by Bonnie Tyler.

region. Although this theme was pervasive, so was a skepticism about this reliance on external saviours and a desire to strengthen local control and autonomy in regional development.

Individual saviours

In many ways, the story of the GNP is one of heroes coming in and bringing things that were perceived to be lacking among the local population. The most celebrated individual hero in the region's history is Dr. Wilfred Grenfell, whose medical missions and other community development efforts were based in St. Anthony but touched communities across the peninsula. According to a local stakeholder in St. Anthony: "even in...Englee, Conche... Roddickton, I mean Dr. Grenfell's legacy...even through Flower's Cove, Daniel's Harbour, that area, right. Got a connection pretty much all over" (I-27, November 17th, 2019). The tourism offerings in St. Anthony focus largely on Grenfell's personal story, including his journey from Britain to the Northern Peninsula and Labrador to alleviate poor health conditions among the population (Wood & Lam, 2019). As impactful as the Grenfell Mission's work was, the preoccupation with Grenfell's personal story can create a sense that he singlehandedly brought healthcare and other services to the region. This narrative has also been critiqued for omitting controversial aspects of Grenfell's work like its close ties to Christian evangelism and reinforcement of colonial power relations with Indigenous peoples in Labrador (Higgins, 2008).

Among more recent heroes were researchers who helped uncover cultural heritage assets that feature in current tourism development. For example, Dr. Selma Barkham, a British historian whose research informed the Red Bay National Historic Site in Labrador and highlighted the GNP's Basque history (Barkham, 1989), is celebrated by many local leaders. One

local stakeholder expressed a desire to share her knowledge to raise awareness of the area's Basque heritage sites:

“...you have to have a way of turning people's minds in to thinking about where we came from, who was here first? Our history...We need more about the Basque than what we have...And I guess we could do it, but you need to get it right, to have the right people to do it. Selma was the right person”.

I-8, November 24th, 2019.

Unfortunately, Barkham's recent death implies that someone else must now interpret the region's Basque history (CBC, 2020). Ironically, reverence for these individuals who journeyed to the region in search of historical artefacts parallels the histories of many of the groups that they came to the region in hopes of finding, while reinforcing a reverence for colonial settlement and histories. This veneration of external heroes resonates with previous observations that NL political culture is often characterized by hero worship surrounding charismatic figures like premiers or other elected officials (Vodden, 2010; Deshayé, 2017). On the GNP, this pattern creates a pre-occupation with individuals making heroic voyages to the region and bringing something of value that the region did not possess, for example particular types of expertise or financial resources.

Large infrastructure projects

Another kind of saviour that featured prominently in regional development discussions is large-scale infrastructure and industry investments by senior levels of government and/or external business actors. Several proposed developments were being discussed at the time of the research, including a pellet plant in Hawke's Bay which had been proposed by the British firm Active

Energy Group (AEG), a fixed transportation link between the peninsula and Labrador (which is now connected by ferry) under discussion within the provincial government, and a proposed port development at Crémaillère Harbour (near St. Anthony) which would service the oil and gas sectors. One stakeholder saw two of these proposed developments as the key to establishing a new economic development vision for St. Anthony:

“That oil base...if we build a tunnel in the Straits, and with the Northwest Passage opening up, this could be the Prince Rupert, BC of Newfoundland, cuz you could come here and land here, put it on a train, and it'd be in Montreal within 24 hours”.

I-26, November 18th, 2019.

Optimism about the proposed Crémaillère Harbour development was particularly strong, since at the time this project was under review by the provincial government, and an economic impact study had projected that it could create between 1,426-1,775 full-time jobs and contribute between \$169-\$221 million to the region's GDP in its first 10 years (Locke & Moore, 2020).

Simultaneously, local stakeholders expressed skepticism about these large infrastructure projects due to their reliance on external decision-makers. One stakeholder expressed frustration over the loss of timber rights to AEG: “...we're in a precarious situation...because two thirds of our timber rights now have been given to AEG, their office in England. So, all we can do is look at it grow. We got no control over it” (I-17, November 14th, 2019).

Saviours fallen from grace

This skepticism also relates to the theme of failure in regional development projects both large and small. Lingering bitterness about previous failed initiatives often left local stakeholders unwilling to support a similar project later on, even if led by a different proponent and taking a

distinct approach. The most prominent of these, again in the forestry sector, was Holson Forest Products, which operated the sawmill and pellet plant in Roddickton-Bide Arm, supported by significant provincial government funding (White & Hall, 2013), until its closure in 2014. A local stakeholder in Hawke's Bay, once a forestry-dependent community, recounted that:

“...we thought we had something moving when they give the money to Holson Forest Products, who started the chip plant. We thought that would be the bright spot, or the saviour of the forest industry, but that didn't work out”.

I-3, November 7th, 2019.

As seen in the story of Conche, the closure of Holson affected not only Roddickton-Bide Arm, but the entire GNP East sub-region. A community member in Conche described how this event contributed to an overall downward spiral:

“...we're losing a lot too, like losing the bank, and just so many things that start up that, you know, like...the sawmill and that...I was hoping that, you know, things would happen with Roddickton to, you know, have more industry there, because I mean that is the larger community”

I-22, November 7th, 2019.

Similar examples were mentioned in multiple sectors, from proposed tourism developments to aquaculture initiatives, that failed for one reason or another. As damaging as these were not only for community economic development, but also morale, there was often a sense that one day the right project would come along. This phenomenon could also represent a form of collective trauma, as the news of another proposed development leads to new hope for economic renewal, only to be dashed when the project later fails. It also reflects a tendency for regional development to be characterized by an external locus of control. One stakeholder, a recent newcomer to the region, expressed that: “...there is a lot of Newfoundlanders who live up here who have lost an internal locus of control. Everything is because of an external source, and

they feel so little ability to affect their situation” (I-18, November 13th, 2019). Similar observations have been made about the province’s export-oriented political economy as a whole, which stem from its colonial origins and are perpetuated in natural resource exchanges to the present day (Ommer, Neis, & Brake, 2016).

Cultivating a new generation of leaders

An important counterpoint to the saviour complex was described as a need to find a sense of local control by supporting champions in the region to assume leadership positions. The sense of loss of control to external actors was extremely prevalent, particularly in terms of provincial and federal government agencies that control key decisions around resources like fisheries, forestry, and Crown Lands. Even outside of these policy jurisdictions, local stakeholders often felt the need for residents to become empowered to take action to affect their well-being. There was a common frustration that often people complain about a problem but no one comes forward offering a solution:

“...this is another thing that bothers me about where we went after the boom. Before that happened, we took responsibility for our communities, and for us, and for what was gonna happen, and for what we needed, and what we wanted – we took responsibility...now [that’s] somebody else’s responsibility. You will hear everybody complain that nobody is doing anything. You know, you’re right. Nobody is doing it. Neither are you”. I-1, November 6th, 2019.

Multiple stakeholders described this sense that there has been a loss of sense of responsibility, and consequently self-determination, due to the external locus of control discussed above. A related theme was the loss of individuals who could take on leadership roles, particularly in terms of succession planning for local businesses and organizations, which is a

common concern for rural economic development (Bosworth, 2012). Previous research in the region has highlighted human resource scarcity as a major issue for local businesses and non-profit organizations (Stoddart et al., 2020), which can lead to burnout among communities' most engaged leaders, thus exhausting an essential human asset. One regional development stakeholder explained that: "...it's one or two people from the community that are doing everything. So people are getting tired and people are getting older (I-12, November 28th, 2019).

To shift to an internal locus of control, while ensuring succession for local organizations, a new generation of champions must be recruited to take on leadership roles. This finding is consistent with ABCD, which emphasize the individual as a key asset in community development (Fuller et al., n.d.; Kretzmann & McKnight, 1993), while also reflecting notions of place-based leadership that highlight how risk-taking individuals can seize on regional development opportunities while mobilizing other stakeholders in making use of local assets (Grillitsch & Sotarauta, 2019). Local stakeholders expressed the need for new leaders in all kinds of roles, including Town Council seats, many of which are acclaimed due to lack of candidates and which require significant work since rural municipalities often have no full-time staff (in many cases one part-time Town Clerk) (Vodden et al., 2016). One example of a newly created organization, the Norpen Status of Women Council, exemplifies the importance of champions who step forward to lead:

"...trying with this Status of Women Council...I could have give up a dozen times along the way, and said 'oh this is too much work'...And you run into little obstacles that...you want to throw your hands up and say 'I'm giving this up!', or whatever. But I think...you have to be persistent, persistent, and be positive..."

F-3, December 2nd, 2019.

Devolution of power to the regional level

Another antidote to the saviour complex, which has been discussed on the GNP for many years, is regional governance. The region has a special history linked to the formation of some of the first Regional Development Associations in NL, which later became a province-wide model of regional social and economic development (Vodden, Hall, & Freshwater, 2013). The region's role in the creation of the RDAs is a source of pride and institutional memory in regional collaboration. Like in other rural regions in NL, communities on the GNP currently have no regional institutional capacity for planning and development, following the successive disbanding of the Regional Economic Development Boards (which had two regional boards on the peninsula: Red Ochre and Nordic) and later the Rural Secretariat (Gibson, 2014; Hall et al., 2016). Since these regional institutions were eliminated, there has been no level of government between the Province and municipalities, many of which in the region have no full-time staff and struggle to recruit candidates for competitive elections.

Partly due to these municipal capacity constraints, efforts for regional collaboration between communities on the GNP have been underway for some time. One municipal representative reflected that "...there's mayors that have been around for 30 years that say we've been talking about some form of regional governance" (I-9, March 7th, 2019). Examples of regional governance efforts include drinking water management among the communities of the Straits (Chireh, 2018), and a Joint Council in which most of the region's municipalities participate (Gibson, 2014). The desire for regional governance among Town Councils is especially strong, since many local municipalities are adjacent to unincorporated areas or Local Service Districts, which have some basic services provided to them by the Province which incorporated communities must provide for themselves using municipal taxes. Major questions

remain about how to equitably share costs between incorporated and unincorporated communities, which local stakeholders both on the GNP and other rural regions have long explored, as well as provincial-level research led by Municipalities Newfoundland and Labrador (MNL, 2013). Nonetheless, the desire for regional governance is strong.

There are several ways that regional governance could increase local control and reverse external dependency on the GNP and other rural regions. First, the demise of the REDBs eliminated territorially-based financing for community development, with funding now accessed through a disjointed array of competitive funding programs administered by provincial and federal agencies. Instead of the current system in which one municipality or organization must compete against its neighbours to secure funding disbursed by senior government agencies, regionally-based funding could provide a stable basis for community development funding while being administered by regional actors. The design of territorially-based development funds could investigate a wide array of existing funding arrangements from other jurisdictions, including Community Development Corporations in the U.S. (Imbroscio, Williamson, & Alperovitz, 2003), regional development trusts (Stott, 2019), channeling philanthropy towards strategic regional development priorities (Levett, Markey, Gibson, Vodden, & Furst, 2020), and the growing sector of social finance which uses various tools to link private capital with community development needs (Rosenman, 2019). Future research should examine how such financing models could be incorporated into regional governance, including how these arrangements have been designed in other Canadian provinces and territories (Vodden et al., 2019)

Second, regional governance could be designed to gain greater local control over information and resources that are currently controlled by provincial agencies. For example, access to Crown Lands within municipal boundaries, which constitutes a large portion of

available land in communities, is controlled by a provincial assessment process under the Department of Fisheries and Land Resources (Government of NL, 2019c). Local stakeholders described the Crown Lands assessment process as inefficient and prohibitive to local development. One local business owner explained that:

“... if you gotta wait to be able to build a house in a place by obtaining Crown Land, you could be anywhere from one year to five. Now who’s gonna wait around for get a house built up to five years. Not gonna happen, ok. The system that they got in place is obsolete and outdated”. I-15, March 22nd, 2019.

This frustration was shared by municipal leaders, business owners, and non-profits alike, echoing similar concerns from recent research in the region and elsewhere in rural NL (Chireh, 2018; Uthman, 2020). Although the multi-year wait times are significant barriers to timely development themselves, this process also reveals the more fundamental issue of centralized authority over land use, which reflects the hierarchical nature of provincial governance and the weak powers of municipal institutions (see Chapter 4). Regional governance models (which have been explored in-depth by groups like MNL (2013)) could include the devolution of some land use planning powers in a way that eliminates the Crown Lands bottleneck while ensuring that these lands are used in accordance with relevant provincial and federal legislation.

Finally, regional governance could make more effective use of information (such as title and ownership data retained by Crown Lands) to support integrated regional planning. In contrast to other Canadian jurisdictions, NL has a relatively weak tradition of community and regional planning, with a 2008 survey of 250 municipalities finding that only 14% of municipalities had an economic development plan (Daniels, Peckham, Vodden, & Woodford, 2010), and regional planning capacity formerly housed in the REDBs and Rural Secretariat now stripped from rural regions (Hall et al., 2016). Given that municipal staff capacity is extremely

limited on the GNP, regional land use planning was identified as a potentially viable approach to pursuing economic development that emphasizes collaboration between communities and shared benefits from development decisions. In fact, regional land use planning and assessment was identified as a potential use for the asset inventory that was developed during this research (see [Appendix 6](#)), since many under-utilized physical assets in communities require a regional approach to planning for their most appropriate use to maximize social and economic benefits across communities while reducing unnecessary competition with existing businesses. Further research could investigate how land use planning could be incorporated into potential regional governance models while exploring public data-sharing of land use through Community Accounts or other platforms.

In this way, local stakeholders offered two main antidotes to the saviour complex that has influenced how residents conceive the sustainability of their communities. To facilitate the shift towards an internal locus of control, cultivating local champions to take on leadership roles is essential, as well as ongoing efforts towards regional governance. These shifts represent an inward focusing of attention that has often been given to individuals and institutions from outside of the region, which in many cases have contributed positively to regional sustainability but also perpetuate the story of external dependence. This need for self-determination at individual and institutional scales is not mutually exclusive with large-scale industrial or infrastructure investments, but rather underlines the need for such developments to be guided by local development priorities (and decided through a regional approach based on inter-community collaboration and shared benefits) rather than left to the vagaries of external actors. Given the concepts discussed such as the saviour complex, locus of control, and collective trauma, future

research in social psychology should examine whether (and how) these phenomena manifest themselves in communities and impact efforts toward community sustainability and resilience.

‘Teach your children well’³⁷

The final key message and related tension in the deep story proposed here is the contradiction between the demographic decline facing the region and the phenomenon of ‘learning to leave’ – in which young people in the region are taught from a young age that they should leave the region to have a good life. This phenomenon was explored in-depth by Corbett (2007), who examined how schooling in rural Nova Scotia instills a sense that rural lifestyles are not valuable. However, local stakeholders on the GNP described that this lesson is taught just as much at home as in the classroom. One resident from Port au Choix reflected that:

“One of the things that we never did – and that goes back even from when I was in school – we never, never, never told our children the benefits of living in rural regions. Oh, and I’m still hearing it – you get your education and you leave, cuz there’s nothing here for you”.
I-1, November 6th, 2019.

Local residents often relayed personal accounts of being taught to leave while growing up and then passing that message to their children. Sometimes this sentiment was linked to stigmas about occupations like fishing and fish processing, which were often associated with poverty, as well as cultural attitudes that valued university education and white collar work over the trades and blue collar professions. These sentiments echo previous research on fisheries decline in the region that observed commonly held attitudes that fish plant work was lowly or low-paid

³⁷ Lyric from “Teach Your Children Well” by Cosby, Stills, Nash, & Young.

(MacDonald et al., 2013), as well as international fisheries research that often conflates fishing livelihoods with poverty (Chuenpagdee & Juntarashote, 2011). Local stakeholders also felt that a generational divide had occurred in which young people left *en masse* and decided not to return (as seen in the region's demographic trends). In the Port au Choix story, this occurred during the post-moratorium years, as described by this participant:

“...we've lost the connection. So we've got the aging people, aging parents who by now are dead, a lot of them, you know. So the middle-aged people, some of them will come back and retire, but the younger people's not coming back...My boys, they moved away to get work out of school, basically, because, you know, there wasn't no longer work available here. So they went west and they got full-time jobs”
I-6, November 25th, 2019.

At first glance, this severed intergenerational connection presents a bleak outlook, confirming the narrative of decline so often told about the region and offering an explanation for Roberts' (2019) assertion that “the educated youth are not staying in rural Newfoundland” (para. 26). However, if education is only seen as preparing youth for a career that exists outside of rural regions, then brain drain is the logical outcome. Instead, gearing education and training towards local labour market needs was often expressed as essential for staving off youth out-migration. During the 2016 conference in St. Anthony which partly sought to address the narrative of the ‘Great Northern Decline’, and which helped to identify the need for this study, one youth participant expressed that: “we need to focus more on the youth coming up – we need more youth activities to keep us here” (“Why live in St. Anthony? A panel of local residents,” 2016).

This problem is related to commonly held attitudes of well-being and ideals of the good life among GNP residents. Local stakeholder perspectives had parallels to theoretical conceptions of well-being, which includes both tangible and intangible aspects and in rural areas is often bound up in place-based attachments and identities (Abraham, Sommerhalder, & Abel,

2010; Osborne & Taylor, 2010; Markey et al., 2019). In this holistic and place-based understanding of well-being, it seemed that many core values and components of the good life on the GNP had failed to transmit to younger generations.

For example, self-provisioning activities have long been a key part of the lifestyle on the GNP, like moose hunting, firewood harvesting, and berry-picking. These activities are important across the province where, according to Food First NL, residents engage in wild food-gathering practices at rates 14-22% above the national average (Atkinson, Liboiron, Healey, Duman, & Van Harmelen, 2020). These activities are much more common in rural areas than among urban residents (Vodden, 2010), representing a significant local knowledge asset that has been documented on the GNP and in other rural areas (Hall & community collaborators, 2020). Anecdotal evidence suggests that self-provisioning may be particularly high on the GNP, with one resident estimating that “...just on very broad strokes, I’d say 20% of people’s income is on average from berries or getting your moose, or you know, dragging scallop, or getting fish during the recreational fishery” (Personal communication, November 13th, 2019). A recent study on the region’s roadside gardens, a tradition that traces back to the Grenfell missions, offered similar findings on high rates of household agricultural production (Wood & Lam, 2019). Another resident from a resettled community reflected that:

“...we grew our own vegetables, we sustained ourselves. I mean, there was no grocery, there was no refrigerator, there was no power. So we had to sustain ourselves on the wild, and do our own gardening, and keep it all winter in our cellars and everything else”.

F-15, December 4th, 2019.

Considering the high proportion of self-provisioning and community histories of self-sufficiency, the region has an enormous asset in terms of individual sustainability and food

security to increase household resilience. These memories of self-sustaining communities and foodways highlight a place-based conception of well-being rooted in the concept of sufficiency, which has been explored in fisheries-based communities in Thailand often labelled as poor by official indicators (Chuenpagdee & Juntarashote, 2011). This sufficiency concept is also a key element of personal sustainability notions that highlight the need to reframe conceptions of the good life within ecological limits and catalyze societal transitions by beginning with individual values and practices (Parodi & Tamm, 2018).

On the GNP, place-based conceptions of well-being are also related to the identified external locus of control, wherein local stakeholders expressed the need to take pride in local ways of life and identities rather than striving to subscribe to external notions of success and happiness. Instead of teaching youth that they have to get as far away as possible to be successful, instilling an appreciation of the value of the region's rural culture and lifestyle was underlined as a strategy for combatting the phenomenon of 'learning to leave'. One former teacher called for a revision of school curriculum to achieve this goal:

“...this is the stuff kids should be learning in school, right? Like this should be integrated into the curriculum in social studies. And there's some done, but I don't think there's enough of it, because we learn about everybody else's culture but we don't learn about our own”.

I-22, November 22nd, 2019.

This call to embed locally appropriate themes into curriculum could be especially effective for fostering an appreciation among youth for their communities and cultures, paralleling the acknowledged role of education in developing pro-environmental attitudes (Dobson, 2007). This value for local identity must be balanced with multi-cultural education that instills a value for openness and inclusivity, including encouraging young people to gain experience and perspective by spending time outside of the region – but returning later in life.

This balancing of local values and identities with inclusive and open-minded attitudes can draw on the many links that communities on the GNP have with the cultures that have come and gone in the area, like the Basque history in Port au Choix and Conche's linkages with France (French Shore Historical Society, n.d.; Barkham, 1989).

One especially important, and often undervalued, aspect of the region's place-based identity is the importance of Indigenous Peoples in its history and current cultural identity, which could be more effectively used to instill a greater respect and appreciation for this aspect of the region's history. According to one local Indigenous leader: "along our coast...I think there is a very big lack of knowledge...of the Indigenous history, or Indigenous culture" (F-3, December 2nd, 2019). This lack of knowledge and appreciation was described both in terms of ancient Indigenous groups like the Maritime Archaic and self-identifying Indigenous individuals in the region today, many of whom were excluded from the official registration process for the Qalipu Mi'kmaq First Nation and are represented by a recently formed nation known as the Mekap'sk Mi'kmaq Band (The Telegram, 2018). Considering the increasing interest among NL residents about Indigenous identity and culture, which has long been stigmatized but many residents are now exploring (CBC, 2020), the strong Indigenous heritage of the Port au Choix area (and elsewhere in the region) could be more effectively highlighted to instill respect and appreciation for the region's Indigenous history and culture. Both in terms of Indigenous cultures and overall local identity, future research is needed to investigate societal values and stigmas towards rural livelihoods such as fishing or fish processing that could help reveal the deeper attitudes that have influenced young people to leave, as well as educational research to investigate the development of curriculum that celebrates rural cultures and lifestyles from NL or other jurisdictions.

7. Conclusion: New rural visions in the COVID era

The stories offered here seek to explain the origins of the narrative of decline often told about the GNP while exploring alternative narratives that point to a more sustainable future. The communities of the GNP have survived crisis and leveraged their local assets in innovative approaches to socio-economic revitalization during the post-moratorium years. This experience is central to the deep story of the GNP, reflected in nostalgia for the region's heyday, the hope and disappointment brought on by external saviours, and the lessons parents teach their children.

Today, the communities of the GNP – like the rest of the world – are in the midst of the COVID-19 crisis, which has fortunately made minimal direct impact on the region's healthcare system, with only three cases of the virus in the region since March 2020 (Government of NL, 2020b). However, as the quarantine period has receded a second crisis rises, which will have differential impacts on rural communities due to factors like the reconfiguration of supply chains and reduced tourism volumes (Bailey et al., 2020; Cooke, 2020). Given the provincial government's dependence on volatile oil prices and the importance of tourism for rural regions like the GNP, rural areas will be doubly vulnerable to contractions of private sector activity and public services (Gushue, 2020). However, at the same time rural regions may see positive impacts stemming from the shortening of supply chains as businesses and consumers seek more local products, as has already been observed in the NL agriculture sector (Bird, 2020). Elsewhere in rural Canada, experiences from past social and economic crises highlight the need for place-based approaches to navigating these anticipated shocks while keeping an eye open for opportunities (Hall et al., 2020). In this context, I conclude with reflections on how this story of regional sustainability on the GNP can offer lessons both for local stakeholders and research and practice in other rural peripheral regions to navigate the current crisis.

The deep story offered here documents how the GNP has already lived through an unimaginable crisis in living memory. The collective trauma experienced after the moratorium imparted the communities of the GNP and elsewhere in rural NL with valuable lessons for social and economic recovery. Resonating with conceptualizations of political myths and storytelling, this engrained narrative can draw from the region's past for lessons of both successes and failures to guide the adaptation process to the new realities of the COVID era (Bottici & Challand, 2006; Hammond, 2013). It also stresses the need to avoid simplistic narratives that cast certain actors into the role of the villain, like the 'fish killers' who profited greatly during the cod boom, or the fixation on external actors who come to the region to solve its problems, or leave residents embittered when they prove not to be the region's saviour (van Hulst, 2012; Hochschild, 2016). This deep story also shows the paradoxical relationship that many residents have with the past, which is conceived both as idealized glory days and a cautionary tale highlighting mistakes to avoid in the future.

In the present context, in which society adapts to a potentially indefinite period of the realities of COVID-19, these past experiences can be compared with other communities that have survived natural or social disasters (such as the U.S. Gulf Coast after Hurricane Katrina (Costanza, Mitsch, & Day, 2006)), examining resilience strategies and social learning practices for reducing vulnerability to future crises. However, a place-based approach requires the centering of the insights and experiences of rural residents in interpreting these lessons (Markey et al., 2019), as seen in the investigation of socio-ecological crises in other resource-based communities and interrelated experiences of collective trauma and community resilience (Gutiérrez-Montes, 2005; Winkler et al., 2016). In this sense, learning from past cycles of growth and decline, and how other regions have adapted to crisis, are essential for crafting place-based

responses to the long-term effects of COVID-19, including by mobilizing new and existing community leaders to seize on development opportunities through place-based leadership (Grillitsch & Sotarauta, 2019). As the COVID era ushers in likely recessions and various social impacts (e.g. mental health challenges, educational inequalities, remote work and connectivity issues), rural resource-based regions in NL and across Canada can look to previous crises to craft place-based adaptation strategies while prioritizing environmentally and socially sustainable approaches to economic revitalization (Hall et al., 2020).

The community capital-based framework employed here reinforces previous findings on how rural and resource-based communities have reversed downward spirals by combining interdependent community assets (Emery & Flora, 2006; Emery et al., 2007; Winkler et al., 2016), while the storytelling approach brings a novel way of understanding and talking about the actors who have leveraged these assets across different phases of the region's development. For example, it has underlined how the great wealth amassed by many fish harvesters in Port au Choix during the fisheries boom represent both a major plot point in the community's downward spiral and a considerable financial asset that could be re-invested into community revitalization efforts, showing the importance of this asset in both the community's past and future. In future efforts to leverage these private financial resources, including in the search for regional governance and territorially-based funding strategies, social enterprise models could inform how re-investment strategies can be guided by sustainable community development goals (Tilley & Young, 2009; Stott, 2019), building on both well-documented rural NL experiments like the Fogo Island co-operative (National Film Board, 2020), recent research on the role of social enterprise in rural revitalization (Slawinski, Winsor, Mazutis, Schouten, & Smith, 2019), and investigations community-based financing strategies to leverage private capital and philanthropic

donations (Rosenman, 2019; Levett, Markey, Gibson, Vodden, & Furst, 2020). In light of the interdependencies between communities and sectors across the GNP, economic renewal strategies should take a regional and multi-sectoral approach, prioritizing the equitable siting of future developments and supporting the devolution of decision-making power to the regional level (MNL, 2013), while learning from previous regional governance experiences on the GNP and elsewhere in rural NL (Gibson, 2014; Hall et al., 2016; Chireh, 2018).

At the individual level, looking to traditional lifestyle practices that are unique to the region could offer guidance not only for adapting to the COVID era, but also for attracting potential residents to the region. Whether a looming economic crisis in the wake of the pandemic materializes or not, the high rates of self-provisioning activities noted on the GNP imply a unique asset for in-migration. As interest increases in NL around food security and self-sufficiency, including the re-discovery of traditional foodways like gardening and food preservation (Food First NL, 2018), the importance of self-provisioning activities represents a major lifestyle amenity on the GNP that could be marketed to potential new residents, while helping articulate alternative well-being conceptions rooted in the concept of sufficiency (Chuenpagdee & Juntarashote, 2011). Considering the shortening of supply chains and increased support for local agriculture (Bailey et al., 2020; Bird, 2020), the COVID era may offer new opportunities to prioritize increased agriculture and food security on the GNP. In this way, personal sustainability practices could offer an alternative vision of rural well-being to encourage young people to stay in the region or move there from urban areas (Parodi & Tamm, 2018). This focus on individual-level transformation follows the principles of ABCD, which emphasizes a multi-scalar approach to leverage community assets from individual skills to institutions (Kretzmann & McKnight, 1993), while reinforcing the interdependencies between sustainable

development assets such as natural resources, markets, transportation networks, and other systems (Emery & Flora, 2006; Zoeteman et al., 2016). Future research is needed to understand the preferences of urban residents and immigrants seeking to engage in these kinds of practices, including immigration strategies employed by other Northern rural areas with high rates of self-provisioning. More effort to support agriculture on the GNP is also needed, both in terms of research on appropriate crops and growing methods and adequate support from provincial and federal government to encourage new farms in the region.

In the context of both COVID-era adaptation and the wider view of storytelling for sustainable rural development, this study points to a number of alternative indicators to guide future research and practice. As discussed at the outset, standard indicators often do not provide a complete picture of rural assets and challenges to inform a sustainability transition (Stone & Nyaupane, 2018; Main et al., 2019), which have been reflected across the stories told here. Based on the storytelling approach on the GNP in this article, the following place-based indicators merit further research and discussion among local stakeholders, which may also be relevant for other rural and peripheral contexts:

- The average amount of self-provisioning activities (e.g. hunting, berry-picking, backyard agriculture) among households and to what extent these activities supplement household income and contribute to the holistic well-being of residents
- The prevalence of craft skills among local residents, including different kinds of craft practices and techniques
- Gendered divisions of labour with these activities (and strategies to encourage greater pursuit of these practices across traditional gender roles)

- Registry of vacant buildings across communities with potential uses (e.g. commercial, industrial, residential)
- Identification of Crown Lands located within municipal boundaries, based on current zoning designations and potential land uses
- Inventory of culturally important place names (e.g. Basque, French, Indigenous) in communities
- Assessment of local financial capital available for community financing (e.g. private savings, municipal discretionary funds, etc.)

In conclusion, this article offers a new perspective on the sustainability of rural regions by delving into the deep story of the GNP and exploring alternatives to the narrative of decline often used to portray it. This story seeks not to ignore the reality of decline on the GNP and other areas facing similar trends, but rather examine the contradictions in community and regional dynamics that point to alternative stories and potentials. Therein, it offers a novel contribution to research on sustainable community development by linking a capital-based assessment of community and regional assets with storytelling, made possible through the insights and perspectives of local residents. As rural and peripheral areas around the world brace for uncertain times in response to the pandemic and attendant crises, this account intends to offer guidance for communities by learning from the past to create a sustainable future.

Chapter 7: Summary, conclusions, and policy recommendations

This dissertation offers several contributions to scholarly discourse on sustainable community and regional development in rural areas, as well as practical outcomes for policy and development in rural Newfoundland and Labrador. In this chapter, I summarize the key findings and scholarly contributions of the dissertation, demonstrating how its manuscript chapters have answered the identified research questions and provided new insight into relevant areas of scholarship. This chapter also identifies limitations of the study and suggests future research directions to build on its empirical outcomes. I conclude by proposing recommendations for rural policy and development at the local, provincial, and national levels.

1. Overview of main findings and scholarly contributions

The primary contribution of the study is the introduction of a storytelling approach to identifying and mobilizing sustainability assets in rural regions. This approach, proposed in Chapter 5 and further developed in Chapter 6, represents a novel contribution to research on sustainable community development and sustainability indicators (SI). Although much research on SCD has applied a community capital-based approach, including by engaging in thick description of case studies in rural communities through the concept of ‘spiraling up’ (Gutiérrez-Montes, 2005; Emery & Flora, 2006; Winkler et al., 2016; Stone & Nyaupane, 2018), to my knowledge no research has deliberately applied this framework through a storytelling lens. Similarly, the SI field has made only initial inroads into the exploration of narrative approaches to indicator-based tools. Although there have been calls for a more narrative lens for examining the role of

indicators in knowledge and action towards SD (Bell & Morse, 2008; Hák, Janoušková, Moldan, & Dahl, 2018), and explorations of metaphors in SI research and practice (Hermans et al., 2011; Lyytimäki et al., 2014; Lyytimäki, 2019), I have found no research that has explicitly examined these tools through a storytelling lens.

The study also extends current thinking on the roles of SI and asset mapping tools in governance for SD. By integrating theoretical insights from interactive governance and collaborative and multi-level governance (Kooiman, 2003; Chuenpagdee & Jentoft, 2007; Ansell & Gash, 2008; Bache et al., 2017), storytelling approaches to policy and planning (Sandercock, 2005; van Hulst, 2012; Bourgeois et al., 2017), and conceptions of the use of SI tools in governance (Holman, 2009; Lyytimäki et al., 2014; Ramos, 2019), this dissertation helps to address knowledge gaps on the uses of these tools in governance for SD. In particular, by integrating these research areas and expanding analysis into the under-researched area of rural and resource-based communities, this dissertation has helped to fill empirical gaps while broadening the focus on actors beyond government authorities, which have often been the focus of SI research (e.g. Hezri & Dovers, 2006; Moreno Pires & Fidélis, 2015). This contribution has been framed by a multi-stakeholder governance framework highlighting the importance of horizontal interactions among rural actors and how the dynamics of bottom-up versus top-down interventions affect the role of such tools in rural governance (Fraser et al., 2006; Chuenpagdee & Jentoft, 2007). Approaching AM and SI tools as soft policy instruments (Wurzel et al., 2013), and delving into the structural barriers to multi-stakeholder governance and effective use in hierarchical environments featuring path-dependent policy outcomes (Tonts et al., 2014), the study brings new insights to the examination of these instruments for supporting more participatory governance and regional development.

Each manuscript chapter has made an incremental contribution to the novel storytelling approach offered here. The inventory of rural Canadian SI initiatives (Chapter 3) fills an empirical gap in understanding the use of SIs in rural communities across a variety of geographic, demographic, and economic contexts. Nonetheless, the majority of initiatives were in areas with fairly stable populations, more diversified local economies, and near a major urban centre, suggesting a geographic divide in the use of rural SI tools. Keeping in mind that these initiatives tended to occur in areas with these particular conditions, this analysis offers a rough portrait of a rural Canadian SD agenda, highlighting the central role of socio-cultural indicators that prioritize meeting basic needs like healthcare and education. This strong focus on social sustainability reinforces the findings of Hallström et al. (2017), who found a strong emphasis on social issues in rural Canadian sustainability plans. Chapter 3 provides a broad overview of these rural SD priorities by mapping them along the CCF, showing concerns over local development pressures such as the influx of residents and visitors from urban areas or shifts in natural resource markets. The strong focus on socio-cultural priorities is also reflective of the major role of non-profits in leading rural Canadian SI initiatives, of which nearly 75% of initiatives examined were Vital Signs projects led by local community foundations. A rather surprising finding was the relatively low emphasis on natural resource indicators across the inventory of rural SI tools. This pattern may partly be explained by the prevalence of urban-adjacent communities and regions, but resulted in a low representation of sustainability challenges facing, for example, single resource communities or regions recovering from socio-ecological shocks related to natural resource sectors.

This chapter also shows the strong influence of lead organization in the approach to measuring rural sustainability. In the context of ongoing knowledge gaps surrounding the most

effective role of SIs in local governance (Holman, 2009; Ramos, 2019), the analysis of governance factors in rural Canadian SI initiatives highlights how lead actor and initiative scale influences the priorities and indicators chosen, while revealing the pitfalls of a data-driven approach to crafting rural SIs. Therein, the chapter reveals that many Vital Signs initiatives (and other projects modeled after national-level frameworks) followed a data-driven and largely non-collaborative approach that muted community context and substantive sustainability goals. In contrast, communities that developed their own grassroots indicator tool presented a much more nuanced image of rural SD, in several cases using locally-generated sustainability goals to guide local development. The analysis found that initiatives led by municipalities had much greater longevity than ones led by other stakeholder groups, while Indigenous-led initiatives approached sustainability and well-being through holistic and relational knowledge systems.

This chapter also identifies a typology of SI use in rural Canadian regions framed through collaborative and multi-level governance concepts, thus contributing to the literature which can be explored further in the context of collaborative regional governance efforts underway across rural Canada (Vodden et al., 2019). Although much research has discussed how SIs should be used in local governance, debates continue on the value of direct policy use versus more indirect communicative roles for SIs (Bell & Morse, 2018; Ramos, 2019), and often there is little focus on user groups outside of government agencies (Hezri & Dovers, 2006; Lyytimäki, 2019). By identifying a wider range of SI users, including foundations who drove most of the initiatives examined here, this chapter highlights how rural communities and regions can use SIs for supporting diverse aims like informing charitable activity and grants, encouraging multi-stakeholder dialogue, and highlighting local economic development pressures and opportunities for private and public sectors, in addition to the formal instrumental use by municipal planning

and policy authorities (Brugmann, 1997; Holden, 2006; Moreno Pires & Fidélis, 2015).

Interestingly, some of the most collaborative and locally contextualized initiatives examined were conducted by Indigenous peoples in remote Northern communities, highlighting intended SI uses such as reinforcing self-determination, portraying holistic and relational Indigenous ways of knowing, and anticipating the impacts of resource industries on Indigenous well-being (Natcher & Hickey, 2002; Klinck et al., 2015; Tagalik, 2018).

Ultimately this chapter offers a cautionary tale about the perils of data-driven indicator design, highlighting the widespread use of standard indicators without attention to local context and genuine collaboration with diverse stakeholders. Although Vital Signs offers a valuable service to local community foundations by providing access to standardized national datasets and lending related expertise, the process by which these data are related to rural priorities and concerns exposes capacity gaps at the local level. This chapter suggests that the Vital Signs process starts with standardized indicators across pre-determined priority areas, leaving it up to local actors to contextualize these inputs and engage rural stakeholders in identifying other important aspects of rural SD (Community Foundations of Canada, 2018). Thus, Vital Signs is likely to become a cookie-cutter exercise if local actors lack the capacity and will to take the process further. This chapter demonstrates how such a data-driven approach to SIs, when combined with uneven capacity and expertise across rural communities and regions, wears these potentially useful instruments into blunt tools. There were a few exceptions of rural SI initiatives that were highly collaborative and sought to ground national-level tools in local priorities, particularly in the Indigenous-led projects and others that blended quantitative indicators with local stories and linked them to concrete policy and planning goals. However, in most cases the use of these tools often failed to provide more than a blurry picture of rural SD, whose

illustrators seemed more interested in instrumental goals than prompting genuine reflection about the sustainability of their communities and regions. When approached in this monotone way, it is questionable whether SIs ever come ‘off the shelf’ and into societal discourse to inform what SD can look like in rural communities and regions.

Moving to the provincial context in Chapter 4, the scope broadens to both SI and asset mapping (AM) tools, which have been used more often in rural NL than indicators. Conducting a more in-depth analysis within provincial institutional frameworks and assessed through the Step Zero approach of interactive governance (Powers, Locke, Felt, & Close, 2006; Hall, Vodden, & Greenwood, 2016; Chuenpagdee et al., 2017), this manuscript examines the complex governance factors surrounding the inception and design of rural AM/SI initiatives. Situated in the context of the search for socio-economic renewal in the wake of the 1992 groundfish moratorium and provincial fiscal anxieties (Davis, 2014; Gushue, 2020), this analysis considers how various approaches to measuring and mobilizing local assets can aid rural NL communities in enhancing well-being and long-term sustainability. This assessment considers similar geographic and socio-economic factors as in Chapter 3, but delves deeper into the governance dynamics of three initiatives that occurred at different scales and using divergent frameworks. Informed by interactive governance and other governance insights (Kooiman, 2003; Peters & Pierre, 2016), this chapter uses Step Zero analysis, which has been used extensively in fisheries governance research but has had limited application in other policy areas (Chuenpagdee & Jentoft, 2007; Barragan-Paladines & Chuenpagdee, 2017). Extending this approach by examining AM/SI tools as soft policy instruments (Wurzel et al., 2013), this chapter examines the crucial inception stages of these initiatives at the interplay of local and external actors and policy forces. Through this lens, the chapter traces the origins of each initiative and identifies the actors involved at

various levels and their motivations, and how top-down and bottom-up forces converged to situate these initiatives within local governance dynamics. This assessment thus identifies how these factors contributed to the realization (or impediment) of intended outcomes within rural well-being and sustainability, as well as potential for follow-up to make use of their findings.

This chapter reveals that there was a pronounced role of external actors in all three initiatives, in which individuals and groups outside of the rural communities and regions examined were heavily involved in their inception and design. Particularly central were academic researchers and provincial or federal government agencies, but local actors also played strong initiating roles. The initiatives varied in the relative importance of internal versus external actors, with the Western NL AM study primarily driven by academics and senior government, contrasted to the Clarenville-Bonavista SI initiative that emerged from local development priorities with subsequent support from university and provincial government partners. Branch's cultural heritage asset mapping initiative represented a middle ground, in which local and regional actors collaborated with academic and provincial government actors to document the community's unique cultural heritage. The strong role of external actors in these initiatives provides further evidence of critical capacity gaps in designing AM/SI tools in rural areas, complementing the findings of Chapter 3 while highlighting the particularly hierarchical nature of the NL governance system and reflecting broadly observed patterns of path-dependent developments in peripheral regions (Tonts et al., 2014; Grillitsch & Sotarauta et al., 2019). The role of the university was particularly pronounced in all three AM/SI initiatives, suggesting that the needed capacity to design and use these tools was imported from academic researchers, in contrast to in Chapter 3 where Vital Signs played this role (I return to this point in the policy recommendations below).

All three initiatives envisioned various uses in governance, from linking directly with the provincial System of Community Accounts to informing multi-stakeholder discussions about the changes affecting rural communities. However, despite the lofty goals of these initiatives, they were each cut short due to a combination of lost momentum among the key driving actors and removal of institutional supports resulting from regime changes in senior government (in the case of Branch, the closure of the REDBs in 2012, and in Clarenville-Bonavista, the Rural Secretariat in 2016). In the case of the Western NL AM study, it was also unclear who was meant to take action based on the regional asset inventory created, since it was commissioned by a federal funding agency (ACOA) but that body does not initiate community development projects (instead evaluating funding proposals submitted by local actors). The vulnerability of all three initiatives, and the regional institutional capacity on which they depended, to the vagaries of macro-level policy structures was a major barrier to their achievement of long-term outcomes, reinforcing provincial research on the demise of regional development institutions and the persistent need for new regional governance institutions (MNL, 2013; Hall et al., 2016).

This chapter also demonstrates how rural AM/SI initiatives were shaped by competing narratives of rural sustainability in NL, in which rural regions experiencing growth in tourism and other sectors are often pitted against areas portrayed by a narrative of decline rooted in demographic and socio-economic indicators (Simms & Ward, 2017; Roberts, 2019). These competing rural narratives occur both between different regions, with struggling areas often pressured to follow the example of more prosperous areas like the Bonavista Peninsula, and between communities in the same region. This chapter highlights how the frameworks used by each initiative relate these rural narratives in different ways, with the Branch project particularly rooted in local stories and place-based identities. Ultimately, this chapter shows that these rural

initiatives represent largely unrealized potential, in which their lofty goals of rural revitalization, due to a combination of internal and external forces, generally failed to take rural AM/SI initiatives off ‘the shelf’ and onto the tables of decision-making and forums of public discourse.

The failures revealed by the first two phases of the study exposed major contradictions and limitations in indicators-based approaches to sustainable rural development. The tools that I had originally set out in this research to show as a keystone of sustainable communities were instead demonstrated to contain fundamental tensions – both in their epistemological approach and through the empirical findings of Chapters 3 and 4. On one hand, the nuances and contextualized realities of rural communities – which mainstream sustainability theory and practice often fail to acknowledge (Markey et al., 2010; Hajer et al., 2015; Ellsmoor, 2019) – are in tension with a rationalistic and reductionist vision of societal transformation (Lyytimäki et al., 2014; Reid & Rout, 2020). Despite an overall transition to more bottom-up approaches and citizen participation (Reed et al., 2006; Holman, 2009), SIs somehow did not seem to be fostering this transformation in rural regions according to the evidence presented. Instead, as shown in Chapter 3, the use of SIs across rural Canada was dominated by a data-driven and uncollaborative approach in which rural sustainability becomes what is most easily measured by standard tools. Later, Chapter 4 showcased how these tools, even when done in a participatory manner, can be swept away in the ebb and flow of political tides and the shifting priorities of internal and external actors, or when they do not immediately generate regional development outcomes that may take years to achieve through a collaborative process. As described in the personal reflection in the preface, these unexpected findings and encounters with community members in rural Newfoundland prompted me to critically re-evaluate the usefulness of these tools for addressing the problems that my dissertation set out to address.

Are indicators not then the powerful tool that this study set out to demonstrate in the context in rural communities? Are community asset mapping tools – close cousins to SIs – also plagued with the same challenges despite having less technocratic origins? In Chapter 5, these questions give way to a new but complementary approach that reconsiders these tools within the larger story of change towards a sustainable society. In this story, we must acknowledge the fundamental conflict within the SI approach itself, which despite its ability to be employed in societal dialogue and exchange, still originates from a mechanistic theory of change rooted in technocratic rationality that seeks to compartmentalize interconnected socio-ecological system components in order to isolate, measure, and control (Bell & Morse, 2008; Reid & Rout, 2020). Rather than treating SIs like a Russian doll capable of perfectly capturing the complexities of these systems in which rural communities are situated (Lyytimäki et al., 2014), or a perfectly conducted orchestra through which omniscient leaders can conduct the actions of diverse community stakeholders (Sayer et al., 2008), what if instead we approach them as part of an unfolding and dynamic story of community transformation?

Borrowing from storytelling approaches to community planning and public policy (Sandercock, 2005; Bottici & Challand, 2006; Jones et al., 2014), and calls for narrative analysis of sustainability transitions (Dobson, 2007; Hák et al., 2018; Veland et al., 2018), this chapter proposes that storytelling and indicator-based tools can be integrated to identify sustainability assets, and mobilize community stakeholders, in rural communities and regions. Acknowledging the epistemological tensions within SIs, this chapter proposes that rural communities can use them to help tell alternative stories to include these communities in SD narratives from which they have often been excluded. In these alternative narratives, indicators and asset mapping tools

are merely part of the vocabulary that rural communities can use to tell their own stories about sustainability transformations.

Finally, Chapter 6 tests out this proposed storytelling approach within a community-based asset mapping initiative on the Great Northern Peninsula. Therein, storytelling is interwoven with the CCF to document the evolution of two communities in the region and highlight how their stories reflect overarching narratives about regional sustainability. Indicators and assets collide in a deep analysis that examines the narrative of decline about this region – a paradigmatic case of deficiencies-based rural narratives (Flyvbjerg, 2006) – in which socio-economic indicators are levied in a fiscal argument against further support for rural communities (Simms & Ward, 2016; Roberts, 2019). This decline narrative overlooks the value of unique but under-utilized local assets that could be used to reverse these trends by catalyzing community economic development strategies. To disentangle these complexities, the chapter explores a concept known as the ‘deep story’ (Hochschild, 2016), considering how political myths and archetypes may be producing and reproducing narratives of decline (Bottici & Challand, 2006; van Hulst, 2012). Through a community-based research process rooted in community storytelling (Halseth, Markey, Ryser, & Manson, 2016; Christensen, Cox, & Szabo-Jones, 2018), this chapter tells a story in which community assets have been mobilized across periods of crisis and regeneration, revealing complex dynamics across forms of community capital and regional dynamics while pointing to divergent pathways for mobilizing under-utilized assets to take advantage of regionally-specific development opportunities (Grillitsch & Sotarauta, 2019).

The story told in this chapter is intended as a proof of concept for the conceptual framework developed in preceding chapters of the dissertation. By combining asset mapping, indicators of (un)sustainability, and storytelling, it shows a divergent approach to the linear

theory of change often exemplified in SI tools and their (intended) uses. Rather than relying on what is easily measurable (highlighted in Chapter 3), the transformational assets of communities are shown such as cultural heritage, identity, and social cohesion. Coincidentally, many aspects of these assets are difficult or impossible to measure with quantitative indicators (Stone & Nyaupane, 2018; Ramos, 2019), requiring alternative approaches to identifying, documenting, and mobilizing these assets. The stories of Port au Choix and Conche underline the importance of intangible cultural assets on the GNP, which have been central to economic and social revitalization in these and other rural communities. This chapter also shows how narrative elements impart new insight onto the past, present, and future of the GNP.

In this community storytelling approach, the plot of communities' past is punctuated by nostalgia for the glory days of pre-moratorium prosperity, while the trauma of this crisis, as well as failed development projects, have scarred the collective memory. Heroes are in abundance in these stories, although local stakeholders often called for a shift away from dependence on external saviours to a more self-determined identity, in which external investments and proposals are evaluated according to local priorities. This focus on internal locus of control confirms previous research on top-down vs. bottom-up forces in SCD (Fraser et al., 2006), while highlighting the importance of enhancing local control across individual and institutional scales (Mathie & Cunningham, 2005), and underlining the potential for place-based leadership to aid peripheral regions in enhancing local development (Grillitsch & Sotarauta, 2019). Finally, the origins of ongoing demographic declines are traced to the lessons that residents have learned from the crisis of the moratorium, often passed on to younger generations, highlighting a need to tell a new story about the region's future in which young people can see themselves playing a part, whether in the form of returning after gaining experience elsewhere or moving in from

urban centres. In this alternative narrative, a sustainable future is imagined in which regional assets like its history of self-sufficiency, subsistence activities, and rich natural resources could be used to attract new residents seeking a sustainable lifestyle, for example by capitalizing on provincial interest in food security, while also re-conceptualizing well-being through a lens of sufficiency and personal sustainability (Chuenpagdee & Juntarashote, 2011; Food First NL, 2018; Parodi & Tamm, 2018). Parallel to this individual-level approach, regional governance – which has long been explored on the GNP and across rural NL (MNL, 2013; Gibson, 2014; Chireh, 2018) – is required to build critical institutional capacity for regional planning and service-sharing to increase local control over land use planning and economic development.

In the context of the COVID-19 pandemic and attendant socio-economic crises (Bailey et al., 2020), these rural assets and lessons from previous crises can guide the way to a sustainable adaptation process rooted in local experiences of resilience and self-sufficiency. There is also value in sharing lessons with other communities and regions that have sought resilient futures in the wake of disaster (Gutiérrez-Montes, 2005; Costanza et al., 2006; Hall et al., 2020). Situated in this context of COVID-era adaptation, the chapter also suggests alternative indicators for which information gaps could be filled about some of the region's important, but under-valued, assets. For example, indicators to estimate the importance of traditional activities like self-provisioning and crafts, the gendered division of labour within these practices, and intangible cultural assets could be developed. Told through a combination of local stakeholder perspectives, community capital-based systems analysis, and storytelling, this chapter represents a novel approach to employing indicator and asset mapping tools through the proposed storytelling lens.

2. Limitations and future research directions

Limitations

This study has a number of limitations. Firstly, the dominance of Vital Signs initiatives in rural Canada limited the applicability of Chapter 3, in which there was difficulty locating non-Vital Signs initiatives to compare to this tool. This was partly due to the language barrier that inhibited identification of SI initiatives in Francophone areas of the country (primarily Québec), which may have inadvertently excluded some initiatives from the sample. Québec has shown leadership in rural regional governance (Breen, Markey, & Reimer, 2019), while also maintaining a provincial SD indicators platform (Government of Quebec, 2020); future research on rural SI tools in Francophone areas of Canada should close this gap. Furthermore, the reliance mostly on self-generated reports from Vital Signs and other initiatives led to differential amounts of secondary data across initiatives.

More broadly, the purposive sampling procedure used in Chapter 3 may have inadvertently excluded initiatives that could hold important lessons for rural SI initiatives, while also relating to potential bias in the kinds of initiatives included for further analysis. In particular, the exclusion of sectorally-based initiatives (e.g. forestry, mining) may have led to the under-representation of natural resource indicators in the sample, as well as the selection of cases that were mostly located in urban-adjacent areas. The predominance of socio-cultural indicators in this sample undervalues key ecological issues that are at the heart of crises like the NL groundfish moratorium and may also represent economic development opportunities through by-product innovation or other resource sector activities related to bio-economy development. Furthermore, the choice to examine only rural areas (with a few small cities serving rural

regions) omitted the important comparison of urban and rural SI tools and priorities, as well as the potential interdependencies between rural and urban areas that can be represented by integrated indicators. Development pressures highlighted by many of the initiatives examined in this chapter, like housing inaffordability and traffic, hinted at these rural-urban interactions but were not a central focus.

In Chapter 4, a potential limitation was the fact that I was personally involved in one of the initiatives (Clarenville-Bonavista), which required significant reflexivity to assess the initiative. Although I was only involved in the final stage of the project which dealt with knowledge mobilization (Lowery & Vodden, 2016), this involvement required personal reflection on my own subjectivity and awareness of the potential for a confirmation bias (Flyvbjerg, 2006). Although my assessment shows that this initiative had a particularly participatory approach (with the main impetus for the initiative coming from local stakeholders and extensive public engagement methods), those factors originate in stages of the project that predate my involvement. I also encouraged interviewees to reflect on the failures and limitations of the project, and met with community members who were not involved in the initiative (in both this case and the others).

Another limitation of this chapter was the low number of participants in Branch (where only three key informants agreed to an interview), due partly to the tight timeline for the research funding that supported this phase of the research. Snowball sampling was much more central to securing key informants in the other case study regions, due to personal and professional contacts in the other regions. I supplemented the low interview number with a number of informal conversations with local stakeholders in a follow-up visit to Branch, but their perspectives are not directly included in keeping with research ethics procedures.

The selection criteria in this chapter may also have inadvertently excluded valuable insights about other kinds of AM/SI initiatives in the province. For example, inquiry into single-sector SI initiatives (e.g. Model Forest indicators) could provide insights on integrating natural resource indicators with socio-economic measures for a more balanced portrayal of sustainability conditions, while highlighting potential bio-economy innovation opportunities for resource-based communities. Similarly to Chapter 3, the exclusion of highly urban-adjacent areas (e.g. Killick Coast region) led to an under-representation of rural-urban interdependencies like commuting patterns and non-usual residences in rural communities.

Finally, the length of the field season on the GNP was a limitation for the final stage of the study. Although there is no firmly agreed-upon length of fieldwork required in community-based research (in contrast to ethnography in which periods of 6 months or longer are usually expected (Halseth et al., 2016)), more time in the case study community or region is usually encouraged. My main field season in Port au Choix was about 2.5 months, which is relatively short compared to some community-based research studies (e.g. Ochocka, Moorlag, & Janzen, 2010). However, the main fieldwork period was preceded by numerous preliminary visits in which informal conversations and the first round of interviews helped establish rapport with community leaders and informed the research questions and methods. In addition, I have kept in communication with a number of community members who expressed interest in the study (including CBDC Nortip, one of the few organizations that has a regional scope across the GNP and is a major regional economic development actor). We continue to discuss appropriate knowledge mobilization efforts, including a dissemination plan for the regional asset inventory developed as part of this phase and the co-authoring of an article for local media outlets describing the research and its outcomes (as discussed in Chapter 2).

Future research opportunities

In light of these findings and limitations, there are numerous opportunities for further research to build on the study. Firstly, future research should compare the experiences of rural SI and asset mapping initiatives in NL and Canada (including Francophone areas like Quebec) to those of rural regions around the world. Communities and regions worldwide have approached AM in a number of ways, which may be very different from the tools that were examined in this dissertation. There are still limited experiences of SIs in rural Canada (as shown in Chapter 3), but there may be relevant cases in other jurisdictions that could be compared to the initiatives examined here. Expanding on the findings of Chapter 3, such as the range of leading organizations, types of stakeholders engaged and intended forms of use, a broader examination of these factors in other rural regions around the world and among a wider range of SI and asset mapping approaches would broaden the applicability of the findings.

Given the remote nature of the GNP, additional lessons can be learned from examining how regions in other peripheral regions have used AM and SI tools to harness untapped assets and rebound from crisis. The experiences of regions in other remote Northern areas or in jurisdictions facing similar governance challenges could serve as valuable comparisons to the experiences of the GNP, especially considering research programs considering how peripheral regions can break from path-dependent development outcomes (Tonts et al., 2014; Grillitsch & Sotarauta, 2019). Especially in jurisdictions with greater capacity for regional governance and institutional support from upper-level governments, (e.g. in the European Union under the LEADER/CLLD programs and Smart Specialization (da Rosa Pires, Pertoldi, Edwards, & Hegyi, 2014; European Commission, 2017)), valuable comparisons could be made guide future efforts in rural NL and Canada to integrate asset mapping and SI tools into rural governance. In

addition, the comparison of such tools in rural NL with other regions recovering from socio-ecological crises – including both rural areas and urban contexts with comparable structural conditions – could shed light on how local stakeholders can use SIs to anticipate and recover from such shocks. Returning to my personal research journey, which began with the desire to understand how communities like post-Katrina New Orleans can use SIs for sustainable recovery, there is ample opportunity for cross-jurisdictional comparative analysis to share lessons learned. As alluded to in Chapter 6, the current context of the COVID-19 pandemic gives newfound importance to the documentation of how communities and regions have survived crises and found more sustainable systems through post-disaster recovery efforts.

Secondly, there is a need for social psychology research on phenomena related to demographic decline and prevailing narratives in rural NL. Many of the findings of Chapter 6 draw on psychological concepts, such as internal locus of control, saviour complex, and collective trauma. This psychological element was not expected and represents an emergent area of the study, in part reflecting the transdisciplinary nature of the research which remained open to insights from disciplines outside of the immediate scope of the study. As these themes emerged, I engaged with them to the extent that I was able given my own disciplinary background. However, future research in social psychology should explore these concepts identified in-depth both on the GNP and in other rural regions, especially the phenomenon of the narrative of decline. Multiple stakeholders in the GNP and other regions expressed a belief that rural residents are psychologically affected by the common media and research portrayals of rural decline, suggesting that hearing these negative messages contributes to residents' decision to stay or leave. Future research should examine this hypothesis, utilizing expertise from social psychology and other relevant disciplines to understand the impacts of this messaging and how it

affects the individual choices of residents. Similarly, the findings about external locus of control, including the phenomenon of the saviour complex in relation to proposed developments, should be examined to understand the psychological forces at play in creating this dynamic and how individual and group attitudes towards external actors are created and reinforced. A related future research area is the integration of Step Zero analysis with these deficiencies-based narratives, in which the dynamics of path dependency examined by this approach could be combined with storytelling and psychology to understand whether these negative messages frame policy debates and subsequent decision-making in rural regions (Chuenpagdee & Jentoft, 2007).

Finally, there is a need for more research on amenity migration and the opportunities and challenges it represents in rural NL and Canadian regions. Especially in mountain communities and areas with extensive recreational opportunities, amenity migration has been prioritized as a strategy for in-migration, highlighting certain lifestyle factors such as recreational opportunities or scenic beauty to attract new residents (Chipeniuk, 2004; Columbia Basin Rural Development Institute, 2016). This dynamic was a strong component in Chapter 3, in which many rural Canadian SI initiatives sought to measure amenities that were valued by recent newcomers to the area, while at the same time expressing concern about development pressures connected to the influx of residents and visitors from nearby cities. On the GNP and across rural NL, the role of young residents was a pronounced dimension of rural sustainability. Given the narrative of decline addressed in this study on the GNP, contrasted to the narrative of growth in areas like the Bonavista Peninsula, rural regions both in NL and elsewhere are searching for ways to entice young professionals to relocate, often from cities, to offset youth out-migration.

In Chapter 4, rural residents often expressed interest in both attracting young professionals from urban areas like St. John's and encouraging young people originally from

rural regions to return. The town of Bonavista in particular has experienced considerable success in this strategy, which has been celebrated in prevailing discourse on rural sustainability in NL (e.g. Riche, 2015). Although there was no evidence that the SI initiative conducted in the Clarenville-Bonavista area has been used directly for this purpose, the community's unique built heritage and scenic beauty are often discussed as part of the allure for recruiting amenity migrants. However, Bonavista's amenity migration approach has received criticism on several fronts, particularly that this new influx of businesses and residents has led to gentrification and oriented development away from local priorities and towards external forces such as attracting tourists and new residents. Local stakeholders consulted in Chapter 4 expressed concern over growing divisions in the region between long-time residents and newcomers and seasonal residents, reflecting similar concerns in other rural Canadian regions identified in Chapter 3

Considering the competing narratives of rural decline versus growth in different regions, future research should delve further into how AM and SI tools could help rural regions pursue amenity migration in a socially sustainable manner. Especially in areas where this wave of new millennial migrants was not present, such as the GNP and Branch, there is an opportunity to learn from the experiences of regions that have relied on these strategies. Future research should examine tensions arising from amenity migration strategies, particularly those targeting young professionals from urban areas, and examine conflict within communities and effective strategies for balancing development to cater both to long-time residents and amenity migrants. These tensions have been examined in research on the rural creative class and information-based professions among recent migrants to rural areas (Roberts & Townsend, 2016), which can be compared to experiences in rural NL. On the GNP, where a different set of lifestyle assets like self-provisioning activities and winter sports like snowmobiling were expressed as amenities for

potential in-migrants, understanding where the region could target resident attraction strategies to search for potential migrants in search of these amenities should be examined in further research. Especially in light of development tensions arising from amenity migration in places like Bonavista (which other rural Canadian regions have been experiencing for much longer), research into effective strategies for balancing amenity enhancement with existing services and resources desired by long-time residents could inform equitable development in the future.

These efforts also relate to rural-urban interdependencies, particularly for rural regions hoping to attract ex-urban migrants seeking to take advantage of amenities like low-cost housing or outdoor recreation opportunities. Especially in the COVID-19 context, the transition to teleworking arrangements for office-based workers and fears about high-density areas could incentivize a wave of pandemic-related migration to urban-adjacent rural areas, while accentuating previously mentioned pressures like housing inaffordability (Hall et al., 2020). At the same time, the pandemic could represent a policy window for rural regions to advocate for improved high-speed internet access, partly as a strategy to attract migrants seeking to leave urban centres to take advantage of teleworking arrangements (Weedon & Kelly, 2020). As the far-reaching impacts of COVID-19 become more clear, future research should investigate the opportunities and risks of such ex-urban migration patterns for rural regions.

Another element of this amenity migration pattern that should be better understood is the role of the arts in sustainable rural development. During Chapter 4, stakeholders in the Bonavista region discussed that the arts and creative occupations were central to the revitalization of their regions. This activity has also been encouraged at the federal and provincial government levels by strategies like the Gros Morne Cultural Blueprint (Ginder Consulting, 2011) and more recently by the Strategic Tourism for Areas and Regions (STAR) process which both of these

regions have undergone (“STAR: Bonavista Peninsula,” n.d.; Broad Reach Strategies, 2016). Particularly where arts-based activities are linked to natural amenities like landscape (e.g. in the Gros Morne region), future research could explore how the literature around cultural ecosystem services may provide insights into the interdependencies between natural assets and arts-based developments like residencies or cultural tourism, while fully considering potential risks associated with such opportunities from a strong sustainability perspective. In light of these strategies for growing the arts and culture sector, AM/SI tools can be critical for understanding what assets exist to support creative practice in both tangible and intangible ways. This link between rural revitalization and the arts has also been explored in research (e.g. Winkler et al., 2016), as well as popular media - with even Richard Florida, who has received criticism for the urban-centric nature of work on the creative class, drawing attention to the role of the arts in rural community revitalization (Florida, 2018). On the GNP, arts-based development has been central to the revitalization of communities like Conche, with the French Shore Tapestry (French Shore Historical Society, n.d.b), and Cow Head (which falls within Gros Morne National Park but which has many similarities to communities farther north), which has a professional theatre company that has been a key part of its local economy.

As the attraction of young residents into rural NL continues, it is important to examine how a creative rural economy can be cultivated without creating (or exacerbating) cultural or class divisions in rural communities. It will be important to look to similar research on rural creativity and arts-based development in other parts of the world (Bell & Jayne, 2010; Roberts & Townsend, 2016). Priority should be placed on an asset-based approach that draws on the cultural heritage and identity of rural communities, such as the French Shore heritage on the GNP or Branch’s Irish roots, while engaging local residents meaningfully in arts-based

development. Further research is needed into how arts-based development has enhanced or degraded sustainability in communities that have had significant arts initiatives, including how rural creativity can employ local knowledge and practices in a respectful manner.

3. Policy recommendations

This section highlights the primary recommendations for rural policy and development flowing from the findings of this dissertation. Although not exhaustive, these recommendations identify the most salient areas of policy and planning, focusing on the NL context but also identifying relevant federal recommendations in the Canadian context. These recommendations are aimed at a combination of federal and provincial government agencies (which often jointly oversee certain rural policy arenas and in other cases have sole jurisdiction), as well as regional development actors on the GNP and elsewhere in rural NL. At the provincial level, these recommendations are intended for: the Department of Tourism, Culture, Industry, and Innovation (TCII), Fisheries and Land Resources (FLR), the NL Statistics Agency (NLSA), Advanced Education, Skills, and Labour (AESL), Transportation & Works (DTW), and Municipal Affairs (DMA). Relevant federal agencies include the Atlantic Canada Opportunities Agency (ACOA), Fisheries and Oceans Canada (DFO), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), the recently-formed Centre for Rural Economic Development (CENRED), and Parks Canada (PC). These recommendations also identify the role of local authorities and non-governmental actors who are implicated in proposed policy actions.

Need for regional governance with political support

The findings of this study point to a strong influence of provincial and federal political shifts on regional development institutions and efforts in rural regions of NL. In Chapter 4, two of the three rural AM/SI initiatives examined were directly affected by the dismantling of regional development institutions (first the REDBs, and later the Rural Secretariat). The history of regional governance in rural NL is inextricable from prospects for regional economic development, considering the central role that various regional development institutions have played in rural regions and the capacity gaps left by their disbandment. Whether through Regional Development Associations (RDAs), RED Boards, the Rural Secretariat, or other bodies, rural communities have relied heavily on these institutions for capacity and a regional focus for development projects (Hall et al., 2016). Although RDAs still play a strong role in community and regional development on the GNP, which is uniquely linked to the origins of this regional development model, the disbanding of the other rural development institutions is evident in the region, where REDBs and the Rural Secretariat played a major role in community and regional development initiatives until their successive decommissioning. This experience was echoed in Chapter 4, especially in the context of sub-regional divides that rural regions face due to differential levels of public and private sector investment and cultural-religious divisions between communities.

In light of the current regional governance vacuum, the Province and other levels of government have explored different models for regional governance, including in province-wide consultations in 2017 on regional government led by DMA (Government of NL, 2020a). Ample research has already been done to explore potential governance structures and models within the province (MNL, 2013), informed by regional government arrangements in other Canadian

provinces and other jurisdictions (Vodden et al., 2019). Previous experiments in rural NL can also provide important lessons, such as the Regional Collaboration Pilot on the GNP led by the Rural Secretariat (Gibson, 2014).

As regional governance models continue to be explored, it must be determined how asset mapping and/or SI tools can be part of this process. Key questions to consider include how individual communities can conduct their own asset mapping within a larger region-wide scope, whether regional organizations currently exist to carry these initiatives forward (or need to be established), how to pursue multi-stakeholder arrangements rather than government-driven solutions, and how to generate the funding for such work. Chapter 3 underlines the strong influence of lead organization on what rural sustainability issues are measured and how SIs are intended to be used, implying that regional actors must be identified with a holistic mandate and accountability to all communities and stakeholders within their region. Given the often-conflictual relations between incorporated and unincorporated communities (which is especially pronounced on the GNP), there must be ongoing negotiations between municipalities and LSDs and unincorporated areas about the equitable sharing of costs for basic services, including provincial departments like TW, which currently provide services such as snow-clearing to the latter. Current initiatives like the municipal asset management methodology being led by MNL (*BAM! NL*, 2019) should be built on to include other stakeholder groups (including community leaders in unincorporated areas and non-governmental leaders), to understand how regional assets can be fully considered and mobilized. Another critical requirement for local indicator-based and asset mapping work is the need for continual support of Community Accounts, which NLSA has maintained to date and which will continue to be a vital data source for community-level actors (Community Accounts, 2020a). Where data gaps still exist, either due to the

limitations of Statistics Canada data in rural areas or other reasons (Main et al., 2019), support for locally-collected data should be made available, particularly to supplement standard data with measures of intangible community assets like cultural heritage and sense of place.

In this exploration of regional governance on the GNP in particular, a major point of frustration was the provincial assessment process for the acquisition of Crown Land. This assessment is overseen by FLR, but requires a multi-layered environmental assessment to ensure that proposed land uses are consistent with provincial and federal legislation (Government of NL, 2019c). Given the frustration expressed by regional stakeholders over multi-year wait times for decisions over land use applications, as well as a lack of transparency in the process and poor access to relevant information, regional stakeholders suggested making some of this information publicly available. Without accurate and transparent data about land use and availability, large amounts of land that could be used in a sustainable manner to support local development cannot be mobilized. In addition to a public data tool that is easily usable and accessible to residents (in contrast to the existing Land Use Atlas which requires considerable GIS skill to use (Government of NL, 2020c)), regional governance models should explore how land use planning authority could be devolved from the provincial level to regional bodies. This recommendation was made by MNL (2013), which is echoed here while encouraging that asset mapping and regional indicators be incorporated into regional land use planning. Guidance from other provinces and jurisdictions where regional government bodies hold land use planning powers (e.g. regional districts in BC, MRCs in Québec) can provide examples for designing an appropriate regional planning process to manage Crown Land and oversee regional economic development to allow for sustainable use and greater local control.

Considering the vulnerability of previous AM/SI initiatives to changes in government and institutional reshuffling, future rural asset mapping and mobilization efforts would be greatly strengthened by regional governance structures that are more independent from provincial and federal government. Otherwise, the model adopted by one government could be scrapped after the next election (a common occurrence in highly partisan provincial politics). Within this search for greater resilience from political interference, the importance of non-governmental actors should be highlighted, considering local organizations who already play strong regional development roles and how these organizations could share decision-making power and resources with government agencies. On the tip of the Northern Peninsula, there are a small number of organizations that operate at the appropriate regional scale. Namely, CBDC Nortip, the Viking Trail Tourism Association, and the GNP Heritage Network each engage in different forms of regional development work with distinct mandates, but all have a regional scope that implies accountability to all communities. Investigation of multi-stakeholder governance models, such as the regional governance efforts underway elsewhere in rural Canada and which have been examined in some parts of rural NL (Gibson, 2014, 2019), can inform how provincial and federal agencies could share decision-making authority with non-government actors that play a strong regional development role. Furthermore, alternative funding models such as social enterprise, regional development trusts, and social finance should be examined (Imbroscio, Williamson, & Alperovitz, 2003; Rosenman, 2019; Stott, 2019), exploring how regional development organizations can be less financially dependent on provincial and federal agencies, thus reducing their vulnerability to sudden budgetary changes. In the incorporation of AM or SI tools into regional governance, consideration should be given to the range of user groups and

intended uses identified in this study to ensure that a wide range of rural stakeholders are engaged in the design and ongoing use of any tools developed.

Within ongoing explorations of regional governance models, a key finding from this study is the important role played by Memorial University in rural development. In Chapters 4 and 6, university research and engagement efforts were central to the identification and design of AM/SI tools, representing a key form of capacity and expertise to support local actors in rural communities. Since SI tools in particular place great demands of time and expertise on local actors like municipal staff (as discussed in Chapter 3 and previous research like Moreno Pires and Fidélis, 2015), which often face very limited human resource capacities in rural NL (Vodden et al., 2016), further exploration of these tools within an overarching regional governance structure should consider how university-community collaboration can play a role.

Contemporary models of university-community engagement emphasize the need for research institutions to become embedded in their communities and regions by practicing appropriate engagement and moving towards the co-creation of knowledge with community stakeholders (Gupton, Sullivan, & Johnston-Goodstar, 2014; Bammer, 2019), which has parallels with transdisciplinary research programs and alternative conceptualizations of the role of communication in innovation processes (Leeuwis & Aarts, 2010; Brandt et al., 2013).

University-community engagement in rural regions should also strive for respectful relations with community stakeholders and center rural experiences and priorities in research and engagement efforts (Halseth et al., 2016).

A key recommendation is thus for a re-imagining of Memorial's role in rural development as part of multi-stakeholder arrangements that leverage the university's capacity and expertise while foregrounding rural regions' development priorities. Memorial has played

varied roles in rural NL communities and regions, starting with the long-running Memorial Extension Service which maintained extension agents in rural areas to support local community development efforts from 1959-1991 (Webb, 2014), and now primarily coordinated through public engagement actors like the Harris Centre and one-on-one collaborations between individual researchers and community partners. As regionally-based campuses of the university, Grenfell Campus and the Labrador Institute have specific territorial obligations to their regions (western Newfoundland and Labrador, respectively), with long-standing relationships between particular researchers and communities. Considering the evolving role of research institutions in rural communities and regions, to which the Rural Policy Learning Commons has attributed a wide range of activities like applied research, capacity building, informing public policy, and even participating in regional economic development (Lowery, Kevany, Butters, & Valade, 2018), Memorial should be recognized for the significant role that it plays in providing essential capacity to support rural development initiatives. At the same time, given the hierarchical nature of the NL governance system, the university's role in perpetuating relations of dependency between rural communities and centralized institutions should also be acknowledged while striving for reciprocal relations between university actors and communities (Halseth et al., 2016). Research conducted with rural communities and regions (including my own) must continue to strive for embedded and respectful engagement with rural partners that supports localized decision-making and capacity building.

Within the exploration of regional governance models, another key consideration is the appropriate scale for regional collaboration. In both Chapters 4 and 6, rural stakeholders identified major socio-economic disparities across communities in a given region, often leading to inter-community divisions over the siting of public and private sector investment. In regions

like the Bonavista Peninsula, rapid new business creation (often based in tourism) and immigration of new residents is starting to create disparities between communities and sub-regions. The GNP does not have the same rapid growth, but tourism operators in smaller communities often express frustration that St. Anthony and the area around L'Anse aux Meadows are receiving disproportionate tourism benefits. Compared to other rural regions, the GNP has particular barriers to regional collaboration due to the sheer size of the region and environmental factors that inhibit collaboration between the sub-regions on the peninsula (e.g. harsh driving conditions in the winter). This gap was one of the key findings of studies that have carried out social network analysis in the region (Tucker et al., 2011; Stoddart et al., 2020). Furthermore, religious and cultural divisions often exist between communities in the same region (e.g. Conche and Roddickton, the Cape Shore and Placentia). Within the context of exploring regional governance and the role of AM/SI initiatives within it, these sub-regional dynamics must be considered while engaging regional stakeholders equitably so that no community or stakeholder group is excluded from the process.

Community storytelling as an alternative to top-down rural tourism strategies

The second major policy recommendation is for the storytelling approach proposed in this study to inform provincial and federal approaches to rural tourism development. Tourism has been a rapidly growing contributor to the provincial economy (Government of NL, 2019b), especially in a number of rural areas with well-known natural and cultural tourism sites (although COVID-19 has seriously reduced tourism volumes). A cross-cutting finding of the study was that rural tourism operators and other development actors often feel pressured by government agencies to copy the strategies that other rural communities have taken. This dynamic was a major

component of the competing rural narratives described in Chapter 4, which stakeholders on the GNP described in depth in Chapter 6. Local stakeholders often felt pressured to parrot the tourism strategies of rural areas with more pronounced tourism growth, such as Bonavista, Fogo Island, or Twillingate. This pressure is a complex issue, given that on one hand there may be valuable lessons to be learned from the strategies employed by local leaders in these communities (for example, built heritage restoration and targeting young professionals from St. John's for amenity migration in Bonavista); however, these lessons must be adapted using a place-based approach that prioritizes local knowledge and priorities. It must also be acknowledged that tourism is not a panacea for rural economic revitalization, which COVID-19 has made very clear.

To avoid a top-down approach, provincial and federal agencies should encourage rural tourism operators to interpret their own unique qualities and stories while staying abreast of prevailing market trends and visitor expectations. In this endeavour, AM tools could assist communities in discerning what makes their tourism offerings unique and craft an authentic story to tell to different audiences. Regional branding efforts that have been used in different parts of the world to market territorially unique products and experiences could be approached through such an asset-based approach (Oliveira, 2016). Community and regional storytelling can be done both for preserving community heritage – as seen in the Branch project – and for tourism product development. Learning from heritage AM tools like what was used in Branch, or the approach currently being used by the Heritage Foundation of NL called “People, Place, & Culture” (Heritage NL, 2020), could provide key support to local tourism product development.

In communities that have strong cultural links to international locations (e.g. France, Ireland), this place-based approach can be paired with targeted tourism marketing in these

countries (pending resumption of international travel in the foreseeable future) to understand how to attract visitors with an interest in exploring these cultural linkages. For example, the strong links between Branch and southeast Ireland (e.g. Counties Waterford and Wexford) could be strengthened by studying the kinds of heritage assets that the Irish tourism market is interested in experiencing and marketing the heritage assets of the Cape Shore in a way that is respectful to local priorities, learning from previous work like that of Aidan O’Hara (Irish Traditional Music Archive, 2018). Similarly, on the French Shore the links that local leaders in Conche have already made with partners in France could be strengthened, with an emphasis on highlighting under-utilized cultural assets like cemeteries, heritage buildings, and stories, or by exploring potential linkages to St. Pierre and Miquelon (once international travel resumes).

Similar efforts are needed to enhance Indigenous tourism and education that highlight the GNP’s unique heritage while contributing to national reconciliation goals. The major Indigenous heritage in Port au Choix could be more strongly marketed by PC, which operates the interpretation centre and trail network that interprets this heritage. However, priority must be placed on meaningful engagement of provincial Indigenous groups such as Qalipu Mi’kmaq First Nation, as well as the local Mekap’sk Mi’kmaq Band whose members were often excluded from official status, for guidance on increasing visitation with an emphasis on Indigenous education in the spirit of the call to action put forward by the national Truth and Reconciliation Commission (Government of Canada, 2019d). Given growing interest in Indigenous heritage among many Newfoundlanders and Labradoreans, the unique story of Port au Choix’s Indigenous heritage could be more effectively utilized to educate local residents and visitors alike and support reconciliation efforts. In working with local stakeholders, especially regional Indigenous groups,

federal authorities such as PC and CIRNAC should place priority on ensuring that local Indigenous peoples and experiences are at the centre of tourism and educational efforts.

Provincial and federal agencies (namely TCII, ACOA, and PC) will play an important role in providing support to communities and regions as they tell their unique stories both to honour their identity and heritage and develop new tourism offerings. In that effort, the Strategic Tourism for Areas and Regions program, which is overseen by ACOA and has been done on the Bonavista Peninsula, Gros Morne, and a number of other areas, can ensure a place-based approach while sharing insights from tourism development strategies from other jurisdictions (“STAR: Bonavista Peninsula,” n.d.; Broad Reach Strategies, 2016). In this context, asset mapping with a strong place-based orientation and based on local priorities will be essential for guiding rural communities and regions to tell their own story in a way that reflects both their unique identity and history while communicating the value of local assets to national and international visitors.

Promote resource-based value addition opportunities

Although Chapter 6 did not discuss these opportunities in detail, there was great interest among local stakeholders on the GNP in pursuing value addition for the region’s natural resource sectors (i.e. fisheries and forestry). A major challenge identified on the GNP was the high prevalence of fish that is landed in the region and shipped unprocessed to other parts of the province. Although there are several fish plants in the region processing numerous species (i.e. River of Ponds, Port au Choix, Anchor Point, St. Anthony, Cook’s Harbour, Conche, Main Brook), local stakeholders identified that a large amount of fisheries products are processed outside of the region, representing a major lost opportunity for value-added manufacturing and employment. Interest

was expressed in particular for renewed processing capacity for cod, which is currently trucked to Arnold's Cove in eastern Newfoundland and for which harvesters generally receive very low prices. These processing opportunities reflect a multi-dimensional set of rural sustainability priorities that provide a more nuanced portrait of the natural resource concerns identified in Chapter 3, which were under-represented in the national inventory of rural SIs but in the context of the GNP represent interdependencies between community capital stocks such as economic (e.g. employment), ecological (waste reduction), and cultural (community heritage and identity).

Given that fish processing is under the jurisdiction of FLR, while harvesting under federal control by DFO, these agencies should work with local actors to facilitate the creation of additional processing capacity. Local stakeholders expressed an interest in focusing on lower-volume, high value cod processing, which could potentially raise the price received by harvesters considerably (and present opportunities for experiential tourism). Other fisheries with under-utilized processing potential were discussed such as halibut, herring, mackerel, and turbot. Leadership from regional organizations like St. Anthony Basin Resources Inc. (SABRI) in other fish harvesting and processing techniques should be supported by provincial and federal authorities, with appropriate negotiations with Fish, Food, and Allied Workers (FFAW), the union representing fish harvesters and processors. These efforts should aim for the flexible application of regulations with an emphasis on the adjacency principle to enhance local processing capacity while continuing to monitor cod recovery rates and sustainable harvesting of other target species.

Opportunities in forestry were also discussed that provided other value addition avenues while potentially linking to fisheries innovations. The decline of the provincial newsprint industry, with only one of province's three paper mills still in operation in Corner Brook and

global newsprint demand continuing to drop (Government of Newfoundland and Labrador, 2016), has drastically reduced demand for small-diameter (pulp) wood on the GNP, which represents the majority of wood biomass. Although current provincial government priorities highlight new markets for this resource such as biofuels and pellets (Government of NL, 2018a), the dependence of the GNP's forestry sector on external actors is interwoven with the failure of large-scale forestry projects such as Holson, and most likely AEG. Rather than focusing all future efforts on large-scale forestry operations (which usually require external capital), small-scale opportunities should be pursued that are informed by community-based forestry practices (MacKendrick & Parkins, 2004). Local forest sector actors (who often are still engaged in the domestic firewood market) represent an existing skill base whose expertise should drive future forestry development efforts. Within this community-based approach, priority should be placed on high-value emerging markets for sustainable forest products, acknowledging ongoing interest in pellet production among many local forestry sector actors while exploring other products with national and international markets. Opportunities for combining waste streams from forestry (e.g. sawdust, chips) with that of fisheries should also be explored (and are already being investigated by local entrepreneurs on the GNP). Adequate supports from senior government agencies should be channeled to incentivize these by-product innovation opportunities, which can be informed by a broader range of natural resource indicators building on those identified in Chapter 3 but applied with an understanding of sectoral interdependencies and complementary flows of inputs and by-products between natural resource sectors.

Explore development of a common AM/SI methodology to support regional planning and development

The final policy recommendation is for provincial and federal agencies, as well as educational institutions like Memorial University and the College of the North Atlantic, to investigate the potential for a common, yet adaptable, methodology for applying AM/SI tools in rural communities and regions of NL to support regional planning and development efforts. Although this study has highlighted the pitfalls of cookie-cutter approaches to AM/SI tools in rural regions, there could be benefits to designing material that could guide rural communities and regions through the identification, measurement, and mobilization of local assets in a way that integrates lessons learned from these and other experiences. This methodology should emphasize participatory approaches to meaningfully engaging local residents, with a focus on fostering shared ownership of the process and flexibility in use of frameworks and methods. Such an approach could borrow from the concept of reflexive monitoring, which enshrines participatory methods of stakeholder engagement and co-creation while taking a flexible approach that allows for experimentation and adaptation (van Mierlo et al., 2010).

A direct application of this study's findings to this end would entail using the Community Capital Framework as articulated in Chapter 6 to design a flexible model that rural stakeholders could use to choose their own SD priorities and indicators. The six-capital model of the CCF shown in Figure 22 articulates capital stocks based on the in-depth research conducted on the GNP, including the consideration of cultural, human, and institutional capital separately based on the observed importance of these areas for regional sustainability. Borrowing from the Sustainability Balance approach to applying the CCF in a locally appropriate manner (Knippenberg et al., 2007; Zoeteman et al., 2016), these stocks could form the basis of a more in-

depth province-wide rural sustainability framework that could be adjusted to accommodate regional diversity and variable rural sustainability priorities. In such an effort to devise a province-wide CCF model, existing indicator-based and asset mapping tools should be incorporated, such as the frameworks considered in Chapter 4 and Community Accounts. This tool could be embedded into participatory regional planning processes, in which this basic model would inform the bottom-up identification of SD goals, indicators to measure progress towards them, and identification of community-level assets that should be leveraged in order to achieve them. This application of a rural SD framework would thus be embedded into future regional governance efforts, essentially serving as a planning tool to engage a wide range of rural stakeholders in setting a sustainable regional development agenda while using storytelling tools to craft this vision in light of place-based assets and narratives.

In pursuit of such a provincial rural SD framework, effort must be placed on incorporating relevant tools and efforts that are already underway while following a place-based approach that centres local values and experiences and remains flexible and responsive to the perspectives and priorities of rural stakeholders. This would include the examination of existing data platforms, primarily Community Accounts, but also other tools like People, Place, and Culture (which is used for identifying intangible cultural heritage assets at the community level), the STAR process, and BAM!NL (Broad Reach Strategies, 2016; *BAM! NL*, 2019; Heritage Foundation of NL, 2020), with a goal of incorporating relevant indicators and asset identification techniques. BAM! NL in particular should be examined, which a number of municipalities on the GNP have carried out (*BAM! NL*, 2019), in partnership with the Regional Analytics Laboratory (RANLab) based at the Harris Centre. The expertise of RANLab, NLSA, and other relevant centres should be consulted to incorporate a variety of indicators into the proposed framework. A

number of potential user groups should be considered, such as municipalities, non-profit organizations, social enterprises, and regional development associations, building on the findings of Chapters 3, 4, and 6.

Considering the important role of Memorial in rural development, the university could play a crucial role in the use of such a framework in collaborative regional planning and development. In particular, it should be explored how graduate student research and coursework requirements, internships and co-operative placements, and other sources of capacity and expertise could be matched with regional development priorities to support the implementation of stated SD goals in a given region. For example, the new PhD program in Transdisciplinary Sustainability at Grenfell Campus and the Master of Business Administration in Social Enterprise and Entrepreneurship are particularly relevant for rural development efforts with experiential components built into their programs. Looking to academic programs with similar overlaps (both at Memorial and the College of the North Atlantic), student internship and research projects can be channeled towards identified regional development priorities, based on active partnerships between these programs and rural stakeholders in regions like the GNP. If a regional governance structure were to be put in place (or a small-scale pilot project), regional planning priorities identified along the CCF agenda could be linked to identified research and internship project ideas developed jointly between regional governing bodies and relevant academic programs (building on a similar mechanism that existed during the Rural Secretariat that matched research with Regional Council priorities in the various regions). Such efforts should still strive to enhance rural capacity while leveraging university and college expertise and student training activities, both to reduce relations of dependency (as discussed above) and to ensure that no undue burdens are placed on rural municipalities or other actors.

Although these policy recommendations are mostly embedded in the NL context, similar efforts at the national level could be informed by the findings of the study. Particularly considering the CCF model articulated in Chapter 3 and the inventory of rural indicators, there are ample opportunities to mobilize these findings to inform national community data and indicator tools. There are two initiatives in particular that are relevant for this endeavour: firstly, a quality of life indicator framework currently being developed by the federal Department of Finance, which is holding consultations on rural well-being issues; and secondly, a technical committee of the Canadian Standards Association that is developing a set of rural well-being indicators to guide rural municipalities and other organizations in using public data. I am currently involved in the latter, in which I hope to use the rural SIs identified during Chapter 3 to help inform the committee's selection of indicators, with a priority on ensuring balance between social, economic, environmental, and cultural indicators. Both of these initiatives would be behooved to incorporate the key lessons from the national inventory, particularly by striving to fill gaps in the under-emphasized community capital stocks among existing rural SI tools (e.g. natural resources, gender equity). The three-capital model of the CCF developed in Chapter 4 (along with the inventory of rural indicators) could provide a menu of potentially appropriate indicators for both of these national efforts while highlighting the risks of relying only on already available indicators and calling for the need to expand the indicators collected by national agencies like Statistics Canada to represent under-emphasized areas like culture and identity.

4. Conclusion

This dissertation has aimed to advance the important exploration of how SD can be re-contextualized in rural and resource-dependent regions, pointing to a new pathway for measuring

and mobilizing rural assets through community storytelling. It has demonstrated how SIs, which have been both lauded and critiqued as tools of sustainable community development, have inherent tensions within competing epistemologies in the story of change for a sustainable society. Highlighting the need to shift from a rationalistic, linear approach to a transdisciplinary process of societal transformation, this research has shown that a storytelling lens can offer novel pathways to link knowledge and action in a transformative approach that engages communities and contributes to scholarship and practice. Through the future directions for research and policy outlined above, it aims to outline initial steps towards realizing the full potential of this alternative approach.

In this transition, rural and resource-based communities must be at the centre of strategies for identifying and mobilizing their local assets, which are often overlooked or under-valued in traditional SI tools, emphasizing the power of the stories told about these communities and how they have sustained themselves in the past and present. The findings offered here document the necessity of this storytelling approach, echoed in the cautionary tale of data-driven rural indicator tools, the competing narratives of sustainability among rural regions of NL, and the stories of crisis and renewal in the communities of the GNP. In these stories, indicators have been both the hero and the villain, sometimes used to highlight the trends affecting community or regional sustainability, and other times masking the richness of place in standard measures devoid of local context. On the GNP and in other regions portrayed by deficiencies-based narratives, these indicators can be used both to pronounce rural communities as non-viable, or to expose great assets that are inadequately valued in prevailing rural development strategies. Ultimately, the story must be told by rural stakeholders themselves, deciding how best to employ these tools as part of the vocabulary they use to challenge totalizing narratives and light a path towards a

sustainable future. Future applications of this approach should explore how this storytelling approach could be fully community-driven, embodying a participatory action-research process in which community members tell their own stories (with academic researchers supporting this process), thus moving to fullest measure of empowerment in engaged research (Arnstein, 1969; Bammer, 2019).

By way of conclusion, this study ends with a challenge for researchers, community development practitioners, policy-makers, and rural community advocates alike. This challenge is to seek novel ways to tell compelling stories in partnership with rural and resource-based places, especially those that have been subjected to external narratives based only on their challenges instead of their strengths. In communities recovering from crises both external and internal, it is all too easy to say that it cannot be done, when often it takes much more creativity and courage to imagine how it could be done. In this respect, rural regions like the GNP have a tremendous asset in their collective experience of recovering from disaster, an asset that communities large and small will need as the social and economic aftershock of COVID-19 comes into focus. As society seeks out more resilient systems and lifestyles during the path to recovery, the self-sufficiency and shared memory of the GNP and other regions around the world with recent experiences of crisis and recovery could prove to be invaluable assets (Chuenpagdee & Juntarashote, 2011; Hall et al., 2020).

However, care must be taken that these narratives remain grounded in a realistic understanding of the forces affecting rural and resource-based communities. As seen on the GNP, nostalgia is tempered with pragmatism – an important caution against seeing rural sustainability through rose-tinted glasses or searching for the ‘glory days’. In NL and similar jurisdictions, this pragmatism implies a need for local actors to reflect on past experiences to find

new ways to justify the continued support of rural and resource-based communities, simultaneously acknowledging the threats to their viability while calling attention to underutilized assets with transformative potential. Rural actors can also use storytelling to underline the importance of rural places and cultures for national identity and lessons for community adaptation and sustainability. In other rural resource-based regions, successes in leveraging community assets must be shared and stories of rural renewal told, building on the community storytelling experiment undertaken here through a process of social learning and reflexive action. Stories of failure and unrealized opportunities also have value, both at the level of local development strategies and large-scale policy interventions. In other rural peripheral regions around the world, the telling of these stories while engaging a holistic and ambitious sustainable development agenda can validate and expand the approach put forward here.

Research must play the important role of documenting both successes and failures experienced in rural resource-based communities or in other contexts with transferrable lessons. However, to realize the promise of transdisciplinary sustainability science and forge a new relationship between knowledge and action (Funtowicz & Ravetz, 1993; Bammer, 2016), these lessons must be conveyed effectively to, and even co-discovered with, those who decide the fate of rural regions. Researchers, together with their community collaborators, must learn to tell more compelling stories that engage policy-makers and other key rural development actors, and work with those in power to ensure those stories influence decision-making. At the same time, as these findings have reinforced, the story of societal progress must shift from one steered by state actors towards a more horizontal network of governance actors, seeking new roles for government partners and finding compelling stories that can compel them to act in support of rural sustainability. This effort requires strengthening of transdisciplinary, action-oriented

research training and support, with a key focus on co-creation of scholarly and practical knowledge between researchers and rural development practitioners. Echoing the challenge of Hák et al. (2018), society needs inspiring narratives to garner widespread support for a transition to sustainable development, which must remain sensitive to the unique assets and challenges of communities in rural and urban contexts alike. May this work serve as an invitation for researchers to become storytellers with a critical message to deliver to policy-makers, planners, investors, and other audiences while working hand in hand with rural citizens to ensure that these stories authentically portray the assets and challenges of their communities.

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Appendix 1: List of rural Canadian SI initiatives included and excluded in Chapter 3.

Initiatives Included in Inventory

Initiative	Location	Scale	Lead actor	Level of rurality
Alberni Valley Vital Signs	Alberni Valley, BC	Non-administrative region	non-profit	Non urban-adjacent
Barriers and Opportunities in Northern Community Engagement	Lacloche Foothills, ON	Non-administrative region	regional governing body	Urban-adjacent
Boundary Area Vital Signs	Boundary Area, BC	Non-administrative region	non-profit	Non urban-adjacent
Brandon MB Vital Signs	Brandon, MB	Metropolitan area	non-profit	Small city
Canmore Community Monitoring Report	Canmore, AB	Municipal	municipality	Urban-adjacent
Cape Breton Regional Municipality Vital Signs	Cape Breton, NS	Administrative region	non-profit	Non urban-adjacent
Centre Wellington Vital Signs	Centre Wellington Township, ON	Municipal	non-profit	Urban-adjacent
Clarenville-Bonavista Indicators	Clarenville-Bonavista region, NL	Administrative region	Regional governing body	Non urban-adjacent
Clayoquot Sound Vital Signs	Clayoquot Sound region, BC	Non-administrative region	non-profit	Non urban-adjacent
Columbia Valley Vital Signs	Columbia Valley, BC	Non-administrative region	non-profit	Non urban-adjacent
Comox Valley Vital Signs	Comox Valley, BC	Administrative region	non-profit	Non urban-adjacent
Cumberland County Vital Signs	Cumberland County, NS	Administrative region	non-profit	Urban-adjacent
Golden & Area A Vital Signs	Golden, BC	Non-administrative region	non-profit	Non urban-adjacent
Grey Bruce Vital Signs	Grey-Bruce Peninsula, ON	Multi-county	non-profit	Urban-adjacent
Headwaters Communities in Action	Caledon & Dufferin County, ON	Non-administrative region	non-profit	Urban-adjacent

Initiative	Location	Scale	Lead actor	Level of rurality
Huron County Healthy Rural Policy Lens	Huron County, ON	Administrative region	regional governing body	Urban-adjacent
Little Red River Cree Nation	Northern Alberta	Indigenous territory	Indigenous nation	Remote/Northern
Lunenburg County Vital Signs	Lunenburg County, NS	Administrative region	non-profit	Urban-adjacent
Medicine Hat Vital Signs	Medicine Hat, AB	Municipal	non-profit	Small city
My Perth Huron	Perth & Huron Counties, ON	Multi-county	Non-profit	Urban-adjacent
Napanee/Lennox & Addington Vital Signs	Lennox & Addington County, ON	Administrative region	non-profit	Urban-adjacent
Naskapi Nation Well-being Baseline Study	Northern Quebec	Indigenous territory	Indigenous nation	Remote/Northern
North Okanagan Vital Signs	North Okanagan, BC	Administrative region	non-profit	Urban-adjacent
Oxford County Index of Well-being	Oxford County, ON	Administrative region	Academic	Urban-adjacent
Powell River Vital Signs	Powell River, BC	Administrative region	non-profit	Non urban-adjacent
Prince Edward County Vital Signs	Prince Edward County, ON	Administrative region	non-profit	Urban-adjacent
Prince George Vital Signs	Prince George, BC	metropolitan area	non-profit	Small city
Robson Valley	Robson Valley, BC	Non-administrative region	Academic	Non urban-adjacent
Selkirk Vital Signs	Selkirk region, MB	Non-administrative region	non-profit	Urban-adjacent
South Okanagan Vital Signs	South Okanagan, BC	Administrative region	non-profit	Urban-adjacent
Squamish Vital Signs	Squamish, BC	Municipal	non-profit	Urban-adjacent
State of the Basin	Kootenay region, BC	Non-administrative region	Academic	Non urban-adjacent
Strait Region Vital Signs	Strait region, NS	Multi-county	non-profit	Non urban-adjacent
Sunshine Coast Vital Signs	Sunshine Coast region, BC	Administrative region	non-profit	Urban-adjacent

Initiative	Location	Scale	Lead actor	Level of rurality
Temiskaming Vital Signs	Temiskaming region, Ontario	Non-administrative region	non-profit	Remote/Northern
West Hants Vital Signs	West Hants, NS	Municipal	non-profit	Urban-adjacent
Whistler 2020	Whistler, BC	Municipal	municipality	Urban-adjacent
Winkler Vital Signs	Winkler, MB	Non-administrative region	non-profit	Urban-adjacent
Wolfville Vital Signs	Wolfville, NS	Municipal	non-profit	Urban-adjacent

Initiatives Excluded During Selection Process

Initiative	Location	Scale	Lead actor	Level of rurality
Banff Community Indicators	Banff, AB	Municipal	Municipality	Urban-adjacent
Campbell River Vital Signs	Campbell River, BC	Administrative region	non-profit	Non urban-adjacent
Grand Bend Vital Signs	Lambton County, ON	Administrative region	non-profit	Urban-adjacent
Grande Prairie Vital Signs	Grande Prairie, AB	Municipal	non-profit	Small city
Greater Peterborough Vital Signs	Peterborough, ON	Metropolitan ara	non-profit	Small city
Huronina Vital Signs	Huronina, ON	Non-administrative region	non-profit	urban-adjacent
Lanark County Vital Signs	Lanark County, ON	Administrative region	non-profit	Urban-adjacent
Lethbridge Vital Signs	Lethbridge, AB	Municipal	non-profit	Small city
Maple Ridge Balance Sheet	Maple Ridge, BC	Municipal	Municipality	Urban-adjacent
Muskoka Vital Signs	Muskoka, ON	Administrative region	non-profit	Urban-adjacent
Peninsula Action Committee for Education (PACE) - Schools as Anchors Project	Northern Bruce Peninsula, ON	Administrative region	non-profit	Non urban-adjacent
Pictou County Vital Signs	Pictou County, NS	Administrative region	non-profit	Urban-adjacent

Initiative	Location	Scale	Lead actor	Level of rurality
Red Deer Vital Signs	Red Deer, AB	Municipal	non-profit	Small city
Salt Spring Island Vital Signs	Salt Spring Island, BC	Non-administrative region	non-profit	urban-adjacent
Sault Saint Marie Community Quality Improvement Report	Sault Saint Marie, ON	Municipal	Municipality	Non urban-adjacent
Shuswap BC Vital Signs	Shuswap, BC	Administrative region	non-profit	urban-adjacent
Western Newfoundland Model Forest Indicators	Corner Brook & Gros Morne region, NL	Non-administrative region	Government	Small city/non urban-adjacent

Appendix 2: Priority areas and standard indicators used by Vital Signs.

Priority area	Example indicators
Arts and culture	<ul style="list-style-type: none"> • Library use • Employment in cultural occupations • Attendance at cultural events
Belonging and leadership	<ul style="list-style-type: none"> • Percent of tax filers making charitable donations • Volunteering rate • Voter turnout
Health and wellness	<ul style="list-style-type: none"> • Low birth weight • Physicians per 100,000 • Obesity rate
Housing	<ul style="list-style-type: none"> • Gross shelter income ratio • Ratio of average housing prices to median family income • Rental vacancy rate
Work	<ul style="list-style-type: none"> • Employment rate • Unemployment rate • Employment levels and growth
Safety	<ul style="list-style-type: none"> • Violent crime rate • Property crime rate • Criminal Code traffic violations
Gap between rich and poor	<ul style="list-style-type: none"> • Overall poverty rate • Child poverty rate • Elderly poverty
Learning	<ul style="list-style-type: none"> • Proportion of population 15 and over with completed post-secondary education • High school non-completion rate • Standardized student test scores
Getting started	<ul style="list-style-type: none"> • Net migration • Unemployment rate of immigrants • Immigrant income
Environment	<ul style="list-style-type: none"> • Water consumption • Household GHG emissions from private vehicle operation • Air quality

Appendix 3: Most common indicators used in Vital Signs and other initiatives.³⁸

Vital Signs			Non-Vital Signs		
Indicator	Stock (capital)	Frequency	Indicator	Stock (capital)	Frequency
Population of community or region	Demography (SC)	23	Unemployment rate	Labour (SC)	6
Population change (5-year, 10-year, or 15-year)	Demography (SC)	21	% of residents who have a strong or somewhat strong sense of belonging to community	Sense of belonging (SC)	6
% senior population (65+)	Demography (SC)	21	Total waste diversion rate	Waste reduction (EK)	5
Poverty rate	Social inclusion (SC)	21	% of workforce that commutes outside of the community/region to work	Labour (EC)	5
% of residents with a post-secondary education	Education (SC)	18	Population of community/region	Demography (SC)	5
Child poverty rate	Social inclusion (SC)	18	Population change (5-year, 10-year, or 15-year)	Demography (SC)	5
Seniors' poverty rate	Social inclusion (SC)	18	% of residents with a post-secondary education	Education (SC)	5
% of residents who have a strong or somewhat strong sense of belonging to community	Sense of belonging (SC)	18	% of residents who volunteer	Community participation (SC)	5
% of children aged 0-14	Demography (SC)	16	% of overall households spending over 30% of income on housing	Housing (SC)	5
High school graduation rate	Education (SC)	16	Voter turnout in municipal elections	Political participation (SC)	5
Workforce (% or #) employed in arts and culture occupations and/or sports and recreation	Arts and culture (SC)	15	Poverty rate	Social inclusion (SC)	5
Median household income	Economic equity (EC)	19	Median household income	Economic Equity (EC)	4

³⁸ Capital abbreviations: Socio-cultural (SC), ecological (EK), economic (EC).

Major employment sectors	Economic structure (EC)	19	# of new and/or existing business licenses per year	Economic Structure (EC)	4
Unemployment rate	Labour (EC)	19	Employment rate	Labour (EC)	4
Employment rate	Labour (EC)	16	% visible minority population	Cultural Diversity (SC)	4

Appendix 4: List of indicators identified in Chapter 3, by community capital stock and indicator type.

Stock	Indicator	Indicator type	Number of initiatives using indicator
Ecological capital indicators			
Agriculture	# of active farms in the region	official	9
Agriculture	land cover used for agricultural area/% change	official	8
Agriculture	# or % of farms by crop type	official	5
Agriculture	Value of agricultural sales (\$)	official	4
Agriculture	#/% of people working in the agriculture sector	official	3
Agriculture	# of farm operators	official	2
Agriculture	# of community pastures	official	1
Agriculture	Promote environmental best practices	Aspirational	1
Agriculture	# of frost-free days for agriculture	official	1
Agriculture	Plant growing zone in which the region is located	official	1
Agriculture	% of residents who are concerned about loss of farmland	perceptual	1
Agriculture	Median age of farmers	official	1
Agriculture	Average farm size (land area)	official	1
Agriculture	# of part-time farmers in the region	official	1
Air quality	Particulate matter in air	official	8
Air quality	Sulfur dioxide levels in air	official	2
Air quality	Atmospheric ozone levels	official	2
Air quality	Air Quality Index ranking	official	2
Air quality	# of smog advisory days per year	official	2
Air quality	Nitrogen dioxide levels in air	official	1
Air quality	% of residents who feel that clean environment/good air quality are one of top 3 things they like about living in their community	perceptual	1
Air quality	Main sources of particulate pollution	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Air quality	% of residents who feel there is good air quality	perceptual	1
Climate change & energy	Average annual precipitation	official	3
Climate change & energy	Greenhouse gas emissions from major emitters/industries	official	3
Climate change & energy	Mean temperature	official	2
Climate change & energy	Total GHG emissions of community/region	official	2
Climate change & energy	Total energy use	official	2
Climate change & energy	Estimated precipitation changes related to climate change	official	2
Climate change & energy	Estimated temperature increases related to climate change	official	2
Climate change & energy	# of trees planted in the area	official	2
Climate change & energy	Renewable energy production (MW)	official	2
Climate change & energy	Snowpack distribution and amount over the year	official	1
Climate change & energy	Total natural gas consumption	official	1
Climate change & energy	# of proposed renewable energy projects to be developed in the region	policy	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Climate change & energy	Reduce toxins, waste and greenhouse gases	aspirational	1
Climate change & energy	Foster an energy conscious culture	aspirational	1
Climate change & energy	Exhibit municipal leadership in energy awareness	aspirational	1
Climate change & energy	Maximize energy conservation	aspirational	1
Climate change & energy	# of green buildings	official	1
Climate change & energy	Average household electricity costs	official	1
Climate change & energy	% of residents who are concerned about climate change	perceptual	1
Climate change & energy	Average annual snowfall	official	1
Climate change & energy	Types of renewable energy production	official	1
Climate change & energy	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	aspirational	1
Ecosystems	#/land area of protected areas	official	5
Ecosystems	# of species at risk in the area	official	4
Ecosystems	Wastewater effluent compliance	policy	3
Ecosystems	Wetland cover in the area/quality of wetland cover	official	3
Ecosystems	# of human/wildlife conflict incidents	official	2
Ecosystems	# of carnivore deaths/removals for wildlife management	official	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Ecosystems	Phosphorous loading into waterways	official	2
Ecosystems	# of trees infested by tree diseases (e.g. mountain pine beetle)	official	2
Ecosystems	Waterfowl populations in local wetlands	official	2
Ecosystems	Caribou populations	official	1
Ecosystems	# of unique threatened ecosystems in the area	official	1
Ecosystems	# of fish species that live in local waterways	official	1
Ecosystems	Value (\$) of ecosystem services provided by local ecosystems	official	1
Ecosystems	Land area affected by forest fires	official	1
Ecosystems	% of residents who feel that wildlife management is a major concern for the community	perceptual	1
Ecosystems	# of animal crossings of wildlife corridors	official	1
Ecosystems	# of carnivore deaths by road or rail accidents	official	1
Ecosystems	# of human/ungulate incidents	official	1
Ecosystems	# of municipalities that have committed to municipal stewardship agreement	policy	1
Ecosystems	# of invasive species in the area	official	1
Ecosystems	Ammonia nitrogen loading into waterways	official	1
Ecosystems	River Flow Quantity Index	official	1
Ecosystems	Algae concentration in waterways	official	1
Ecosystems	Rate of fish disease prevalence in commercially valuable fisheries	official	1
Ecosystems	Age of the oldest fish caught on record in the area	official	1
Ecosystems	% of residents who cite a landscape feature as one of the most valued aspects of where they live	perceptual	1
Ecosystems	Protect natural heritage systems and support biodiversity	aspirational	1
Ecosystems	Reduce timber harvesting along the Caribou Mt. slope to maintain lowland bison habitat.	aspirational	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Ecosystems	Protect critical habitat blocks of old growth conifer along the Caribou Mt. slope.	aspirational	1
Ecosystems	Protect bison migration routes.	aspirational	1
Ecosystems	Protect critical habitat of blocks of spruce (availability of cones) necessary for squirrel habitat.	aspirational	1
Ecosystems	Limit the harvesting of white spruce along river drainages.	aspirational	1
Ecosystems	Expand buffers along creeks and streams to limit windfall across waterways.	aspirational	1
Ecosystems	Maintain stand integrity of buffers along critical habitat areas and travel corridors.	aspirational	1
Ecosystems	Limit access to areas representing critical ungulate habitat.	aspirational	1
Ecosystems	Songbird abundance	official	1
Ecosystems	Top local priorities to improve and/or maintain the local environment	perceptual	1
Ecosystems	% of residents who feel that the community is doing enough to help preserve/enhance the environment	perceptual	1
Ecosystems	% of residents who are concerned about loss of natural landscape	perceptual	1
Ecosystems	% of riparian areas lost due to agricultural and urban development	official	1
Ecosystems	Salmon escapement	official	1
Ecosystems	# of wildlife sightings per year	official	1
Ecosystems	# of food-conditioned animal reportings/incidents	official	1
Ecosystems	% change in egg mass of endangered frog populations	official	1
Ecosystems	% change in contaminated shellfish habitat due to fecal coliform bacteria	official	1
Ecosystems	Prevalence of sea star wasting syndrome	official	1
Ecosystems	# change in phytoplankton in local waterways	official	1
Ecosystems	# change in harmful toxins in local waterways	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Ecosystems	Area of riparian forest and stream habitat restored	official	1
Ecosystems	salmon smolts observed per year	official	1
Ecosystems	% of residents who feel that the natural environment contributes to attracting and retaining residents	perceptual	1
Ecosystems	% of residents who feel that natural beauty/scenery are one of top 3 things they like about living in their community	perceptual	1
Ecosystems	% of residents who feel the region is doing well at helping to preserve/enhance the environment	perceptual	1
Ecosystems	% of residents who feel that the community is environmentally responsible	perceptual	1
Ecosystems	# of fires per capita	official	1
Ecosystems	% of locking garbage bins that are used properly to deter bears	official	1
Land use	# of km of hiking/walking trails in the region	official	8
Land use	Proportion of community or region dedicated to parks/green space	official	4
Land use	# of parks in the community	official	4
Land use	Population density (ppl. Per square km)	official	3
Land use	Local spending on parks, recreation, & arts and culture	policy	2
Land use	Developed land area (square km)	official	2
Land use	Total land area of community/region	official	2
Land use	% of residents who live within walking distance to green space	official	2
Land use	% of residents who feel that there is good availability of trails in the area	perceptual	1
Land use	Proportion of land area by land use category (e.g. residential, agricultural, parks, etc.)	official	1
Land use	Population density per km of roadway	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Land Use	Create accessible, aesthetically pleasing, people friendly spaces within downtowns	aspirational	1
Land Use	Promote downtowns as the economic, social and cultural centres of the community	aspirational	1
Land use	% of voters who voted in favour of watershed management planning	policy	1
Land use	# of public trees in the area	official	1
Land use	Overall tree canopy cover of area	official	1
Land use	Parkland per capita	official	1
Natural resources	% of residents who believe that natural resources (air, water sources, forests) are well managed	perceptual	1
Natural resources	% of workforce employed in fisheries (harvesting and processing)	official	1
Natural resources	Land area actively logged by forestry industry	official	1
Natural resources	Quality and abundance of large game	official	1
Natural resources	Groundfish recovery rate	official	1
Natural resources	Shrimp biomass	official	1
Natural resources	Crab biomass	official	1
Natural resources	Discontinue scarification following harvesting, as it impedes human and animal travel.	aspirational	1
Natural resources	Continued availability of balsam poplar near trapline cabins and camps.	aspirational	1
Natural resources	Buffers along all known hunting, trapping, and camping trails used by LRRCN band members.	aspirational	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Natural resources	Protective buffers placed around mineral licks located throughout the management area.	aspirational	1
Natural resources	Long-term harvesting rotation in registered trapline areas.	aspirational	1
Natural resources	Satisfaction with visual quality of local landscape	perceptual	1
Waste reduction	Waste generation rate (per capita or total) sent to landfill	official	15
Waste reduction	Total waste diversion rate	official	11
Waste reduction	Recycling rate (total or per capita)	official	7
Waste reduction	Amount of compostables diverted from landfill annually	official	3
Waste reduction	% of residents who feel the region is doing well at increasing recycling and composting	perceptual	3
Waste reduction	Waste stream breakdown	official	2
Waste reduction	% of residents who report actively engaging in recycling	perceptual	2
Waste reduction	Residential and ICI waste generation rate (per capita) sent to landfill	official	1
Waste reduction	Construction and demolition (C&D) waste generation rate (per capita) sent to landfill	official	1
Waste reduction	# of recycling centres	policy	1
Waste reduction	# of recycling bins in public areas	policy	1
Waste reduction	Local spending on waste management	policy	1
Waste reduction	Hazardous waste diversion rate	official	1
Waste reduction	Total material use	official	1
Waste reduction	# of municipalities in the top 10 in the province for waste diversion	policy	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Waste reduction	Municipal spending on waste management	policy	1
Waste reduction	% of participants in local microplastic beach surveys who felt encouraged to reduce their plastic consumption	perceptual	1
Waste reduction	volume of marine debris collected during remote beach cleanups carried out in the area	official	1
Waste reduction	Volume of waste buried at the landfill	official	1
Waste reduction	Remaining lifespan at the local landfill	policy	1
Waste reduction	% of residents who feel that there are good waste management services	perceptual	1
Waste reduction	Contamination rate of local recycling stream	perceptual	1
Water	Water consumption per capita	official	12
Water	Drinking water quality (Drinking Water Quality Index or otherwise)	official	5
Water	# of communities that experience boil water advisories or water quality advisories	official	3
Water	Total water production/water supply	official	2
Water	Industrial, commercial, and institutional (ICI) water consumption	official	1
Water	Municipal water loss	official	1
Water	Drinking water pH	official	1
Water	# of communities with public drinking water systems	policy	1
Water	Water Quality Index ranking	official	1
Water	# of municipal sewer connections	policy	1
Water	Consider water quality and quantity	aspirational	1
Water	E coli levels at public beaches	official	1
Water	Average household water payments	official	1
Water	% of residents who are worried about water quantity	perceptual	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Water	% of residents who don't feel comfortable drinking their tapwater	perceptual	1
Water	# of residents who feel there is good drinking water quality	perceptual	1
Water	% of residents who feel that there are good supports for water conservation	perceptual	1
Economic capital indicators			
Economic Equity	Median household income	official	23
Economic Equity	% of families led by a single parent	official	13
Economic Equity	Median household income by income brackets	official	13
Economic Equity	Living wage for the region	aspirational	10
Economic Equity	Median income of single parent families	official	8
Economic Equity	Median individual income	official	7
Economic Equity	Mean individual income	official	4
Economic Equity	Main income sources of residents	official	4
Economic Equity	Average employment income	official	4
Economic Equity	% of residents who believe that the gap between rich and poor is a major concern	perceptual	3
Economic Equity	median earnings of immigrants compared to non-immigrants	official	2
Economic Equity	% of income earners who are working poor	official	1
Economic Equity	Mean investment income of residents	official	1
Economic Equity	Mean capital gains income of residents	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Economic Equity	Spatial price index for living in community/region	official	1
Economic Equity	Modify existing annual allowable cut to ensure subsistence activities are not limited by forestry operations.	aspirational	1
Economic Equity	Implementation of a trappers' compensation program.	aspirational	1
Economic Equity	Income inequality among African Nova Scotians	official	1
Economic Equity	% of residents who earn less than 50% of the median wage	official	1
Economic Equity	GNI co-efficient for the region	official	1
Economic Equity	% of residents who feel they cannot afford to participate in the activities that they enjoy and experience reduced quality of life	perceptual	1
Economic Equity	# of earners making less than \$30,000/year	official	1
Economic Structure	Major employment sectors	official	22
Economic Structure	#/% self-employed individuals	official	12
Economic Structure	# of new and/or existing business licenses per year	official	7
Economic Structure	Annual tourism visitation rate	official	6
Economic Structure	Total building permit values	official	4
Economic Structure	Annual tourism revenues	official	4
Economic Structure	Hotel occupancy rate	official	4
Economic Structure	# of social assistance (income support) recipients	official	4
Economic Structure	% change in total local businesses	official	4

Stock	Indicator	Indicator type	Number of initiatives using indicator
Economic Structure	proportion of small businesses among local businesses	official	4
Economic Structure	Main sectors of local businesses	official	3
Economic Structure	GDP	official	3
Economic Structure	Productivity per worker (GDP)	official	3
Economic Structure	GDP per capita	official	3
Economic Structure	GDP growth rate	official	2
Economic Structure	# of home-based businesses	official	2
Economic Structure	Commercial building permits	official	2
Economic Structure	Place of origin of tourism visitation	official	2
Economic Structure	Chamber of Commerce membership	official	2
Economic Structure	Campground occupancy rate	official	2
Economic Structure	# of visits to visitor information centres	official	2
Economic Structure	# of workers employed in tourism-related industries	official	2
Economic Structure	# of co-operatives in the area	official	2
Economic Structure	#\$ value of loans given by Community Futures agencies	policy	2
Economic Structure	# of short-term rentals listed on Airbnb	official	2
Economic Structure	# of business licenses issued for accommodation services	official	2
Economic Structure	# of resident businesses vs. non-resident businesses	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Economic Structure	% of residents who are concerned about their ability to maintain their economic security	perceptual	1
Economic Structure	Institutional building permits	official	1
Economic Structure	Commercial lease rates	official	1
Economic Structure	Annual budget of local university	policy	1
Economic Structure	Ratio of vacant vs. occupied commercial space	official	1
Economic Structure	Annual wine tourism package sales	official	1
Economic Structure	Economic Dependency Ratio for social assistance recipients	official	1
Economic Structure	% change in businesses with less than 10 employees	official	1
Economic Structure	Availability of employment in mining or related activities	official	1
Economic Structure	Create long-term infrastructure plans	aspirational	1
Economic Structure	Help mitigate the impacts of big box development	aspirational	1
Economic Structure	Ensure a diversity of economic opportunities	aspirational	1
Economic Structure	Create an economy that supports the triple bottom line	aspirational	1
Economic Structure	Assist with the retention and expansion of local businesses	aspirational	1
Economic Structure	Strengthen the agriculture industry through diversification	aspirational	1
Economic Structure	Increase the number of individually owned primary, secondary, or value-added community services.	aspirational	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Economic Structure	Economic diversity index	official	1
Economic Structure	Number of jobs in forest sector	official	1
Economic Structure	Proportion of spending in local businesses	official	1
Economic Structure	Number of forest companies (mills) working in the valley moving towards/maintaining certification	official	1
Economic Structure	Proportion of annual cut (volume) from small operators (woodlots and community forests) and small-scale salvagers	official	1
Economic Structure	Anticipating a business in 2 years by a household member	perceptual	1
Economic Structure	Visitor satisfaction with local atmosphere and ambiance	perceptual	1
Economic Structure	Visitor satisfaction with overall experience	perceptual	1
Economic Structure	Tourism average length of stay	official	1
Economic Structure	Total number of room nights/year	official	1
Economic Structure	Retail sales growth per year	official	1
Economic Structure	Top 3 inquiries at visitor information centres	official	1
Economic Structure	Self-reported growth or decline of local businesses	perceptual	1
Economic Structure	# of local businesses that plan to expand	perceptual	1
Economic Structure	# of people employed by co-operatives	official	1
Economic Structure	Maple syrup production	official	1
Economic Structure	Fastest-growing industries in the area	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Economic Structure	Most declining industries in the area	official	1
Economic Structure	Main reasons why visitors come to the area	perceptual	1
Economic Structure	# of social enterprises in the area	official	1
Economic Structure	#\$ value of Community Futures agencies loans by sector	policy	1
Economic Structure	Average internet speeds (upload and download)	official	1
Economic Structure	Non-residential construction value (\$)	official	1
Economic Structure	% of residents who feel that new businesses are encouraged and supported	perceptual	1
Economic Structure	% of residents who feel that the local economy will get better in the future	perceptual	1
Economic Structure	# of businesses that participated in the local business walk event	official	1
Economic Structure	Main areas in which local employers requested support	official	1
Economic Structure	Bus tour traffic	official	1
Economic Structure	# of film productions that have been located in the community	official	1
Financial Resources	Residential property tax rates	policy	6
Financial Resources	Bankruptcy rate among consumers	official	5
Financial Resources	Commercial tax rates	policy	4
Financial Resources	Tax revenue generation of tourism sector	official	3
Financial Resources	Business bankruptcy rate	official	2
Financial Resources	Tax base ratio (residential/non-residential assessment share)	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Financial Resources	Tax revenue per capita	policy	1
Financial Resources	Average debt-service ratio of municipalit(ies)	policy	1
Financial Resources	Per-resident cost of fire services	policy	1
Financial Resources	Per-resident cost of police services	policy	1
Financial Resources	Total resident income	official	1
Financial Resources	Total municipal financial reserves	policy	1
Financial Resources	Main sources of municipal revenue	policy	1
Financial Resources	Residential tax burden	policy	1
Financial Resources	% change in non-market proportion of municipal tax revenue	official	1
Labour	Unemployment rate	official	25
Labour	Employment rate	official	20
Labour	% of workforce that commutes outside of the community/region to work	official	12
Labour	% of residents on EI benefits	official	10
Labour	Youth unemployment rate	official	9
Labour	Size of labour force	official	6
Labour	labour force participation rate	official	6
Labour	Median hourly earnings, all sectors	official	6
Labour	Proportion of full-time and part-time workers in the workforce	official	5
Labour	Average # of hours worked per week	official	4
Labour	Unemployment rate by gender	official	3
Labour	# or % of people receiving other kinds of unemployment benefits	official	3

Stock	Indicator	Indicator type	Number of initiatives using indicator
Labour	Dependency Ratio (# of dependents to every 100 working-age people)	official	3
Labour	% of workforce that works from home	official	3
Labour	Resident satisfaction with career and employment opportunities	perceptual	3
Labour	Employment rate by gender	official	2
Labour	% of workforce that works outside of the province	official	2
Labour	% of residents who leave for work before 6am	official	2
Labour	% of population that feels people can easily earn a livable wage	perceptual	2
Labour	Job growth rate	official	2
Labour	# of jobs created due to loans given by Community Futures agencies	policy	2
Labour	% of youth who work part-time/full-time in the summer	official	1
Labour	% of residents who feel that good employment opportunities are the first priority for attracting and retaining residents	perceptual	1
Labour	# of former residents who indicated that lack of employment options were the primary reason for moving away in the past 5 years	perceptual	1
Labour	% of residents who earn a paycheque in the region	official	1
Labour	% of residents who identify employment/economic environment as the main issue or concern in the community	perceptual	1
Labour	% of residents who feel there are quality job opportunities for graduates entering the workforce	perceptual	1
Labour	% of workforce that commutes in from other communities to work	official	1
Labour	% of residents who believe that the community is generating local solutions to provide suitable work for residents	perceptual	1
Labour	% change in job supply (job loss or gain)	official	1
Labour	Economic Dependency Ratio for EI recipients	official	1
Labour	Self-reliance ratio	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Labour	# of job orders (employers seeking employees) at local employment centre	official	1
Labour	% of seniors in the workforce	official	1
Labour	# of foreign workers holding work permits in the area	official	1
Labour	# of TFW positions with positive labour market impact assessments	official	1
Labour	# of temporary residents living in the community/region through TFW or International Mobility Program	official	1
Labour	# of residents who feel there are ample entry-level jobs available	perceptual	1
Labour	% of residents who feel there are ample professional job opportunities	perceptual	1
Labour	% of workforce that has weekday regular (9 to 5) work hours	official	1
Labour	% of workforce that has flexible working hours	official	1
Labour	Satisfied with job opportunities	perceptual	1
Labour	Employment status of residents	official	1
Labour	% of residents who live and work in the same community	official	1
Labour	% of residents who work casual and/or on-call	official	1
Labour	% of residents employed in their preferred career	official	1
Labour	# of people with disabilities receiving income support	official	1
Labour	Maximum income assistance that individuals can receive per month	policy	1
Labour	% of youth who feel that it is easy to find a job	perceptual	1
Labour	% of residents who indicate that a job opportunity was their primary reason for moving to the area	perceptual	1
Labour	% of youth on EI benefits	official	1
Labour	% of residents who feel that full-time jobs are growing in the region	perceptual	1
Labour	# of job seekers served by local job fairs	official	1
Labour	Top 5 occupations in the local workforce	official	0

Stock	Indicator	Indicator type	Number of initiatives using indicator
Transportation	Average commuting times of residents	official	11
Transportation	Modal split of commuting to work	official	11
Transportation	Modal split overall	official	9
Transportation	Annual ridership on public transit	official	8
Transportation	Annual ridership on point-to-point transit service	official	5
Transportation	Municipal spending on public transportation	policy	5
Transportation	Resident satisfaction with public transit	perceptual	5
Transportation	km of bike lanes/paths	official	5
Transportation	Highway traffic volumes	official	4
Transportation	Annual ridership on transit service for seniors and people with disabilities	official	3
Transportation	% of streets with sidewalks/meters of sidewalks	official	3
Transportation	# of homes within walking distance of public transit	official	3
Transportation	% of residents who feel that lack of transportation doesn't affect ability to commute to work or appointments	perceptual	2
Transportation	% of residents who feel that lack of transportation doesn't affect ability to attend social/community events	perceptual	2
Transportation	# of participants in bike to work/school week events	official	2
Transportation	Modal split of senior population	official	1
Transportation	# of parking spaces in the downtown area	official	1
Transportation	# of residents who feel the community has enjoyable surroundings and walking routes	perceptual	1
Transportation	% of residents who feel that walking routes provide good access to key local amenities	perceptual	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Transportation	Distance to the nearest airport	official	1
Transportation	Cost of shuttle service to nearest airport	official	1
Transportation	% of residents who believe there are adequate transportation options	perceptual	1
Transportation	% of local university students who use public transit	official	1
Transportation	# of licensed drivers in the community/region	official	1
Transportation	% of residents with access to a car	official	1
Transportation	Ratio of vehicles to adult-age residents	official	1
Transportation	Develop an accessible, efficient and integrated transportation network	aspirational	1
Transportation	Ensure municipal transportation system is environmentally and economically feasible	aspirational	1
Transportation	# of visitors who arrive in community by bus	official	1
Transportation	# of registered vehicles	official	1
Transportation	Length of total paved roads	official	1
Transportation	Average commuting distance	official	1
Transportation	Average transit fares	policy	1
Transportation	km of paved shoulders	official	1
Transportation	School board spending on bussing	policy	1
Transportation	% of local students who use the school bus	official	1
Transportation	# of electric vehicle charging stations	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Transportation	% of youth who have missed a sports activity or other social activity due to lack of transportation	official	1
Transportation	% of youth who have missed school due to lack of transportation	official	1
Transportation	# of youth who hitchhike occasionally	official	1
Transportation	# of weekends, evenings, or holidays that public transit is operated	policy	1
Transportation	Airport passenger traffic	official	1
Transportation	% of residents who feel there is adequate cycling infrastructure	perceptual	1
Transportation	% of residents who feel there is adequate infrastructure for mobility devices	perceptual	1
Transportation	% of residents who feel there is adequate road infrastructure	perceptual	1
Transportation	Ferry fares	official	1
Transportation	% of residents who feel that it has become easier to get around without a car	perceptual	1
Transportation	% of residents who feel that ferry service is affordable	perceptual	1
Transportation	# of members of local rideshare group	official	1
Transportation	km of arrows on bike lanes	official	0
Socio-cultural capital indicators			
Arts and Culture	Workforce (% or #) employed in arts and culture occupations and/or sports and recreation	official	16
Arts and Culture	Value of federal or provincial arts grants (\$) given in the area	policy	7
Arts and Culture	Annual attendance at major festivals and events	official	6
Arts and Culture	% adults with an education in arts/performing arts	official	4
Arts and Culture	Local government spending on arts and culture	policy	4

Stock	Indicator	Indicator type	Number of initiatives using indicator
Arts and Culture	# of theatres/theatre performances in the community/region	official	4
Arts and Culture	# of heritage sites and museums in the community/region	official	4
Arts and Culture	Annual visitation at local museums	official	4
Arts and Culture	% of population who feels that arts and culture events are affordable	perceptual	3
Arts and Culture	Average attendance at arts and culture events	official	3
Arts and Culture	# of provincially or federally recognized historic sites	official	3
Arts and Culture	# of festivals in the region	official	3
Arts and Culture	# of art galleries/exhibits	official	2
Arts and Culture	# of sporting events held in the community/region	official	2
Arts and Culture	% of residents who feel that there is a diverse range of arts and culture activities	perceptual	2
Arts and Culture	#/% of people employed as artists or other creative professionals in the community	official	2
Arts and Culture	Revenue generated by local arts events/festivals	official	2
Arts and Culture	Average # of arts and cultural events/programs offered by libraries per 10,000 residents	policy	1
Arts and Culture	# of residents involved in arts and culture-related outreach activities	official	1
Arts and Culture	# of members in local arts and culture cooperatives	official	1
Arts and Culture	# of works of art on display at local art galleries	official	1
Arts and Culture	# of participants in community theatre troupes	official	1
Arts and Culture	# of film screenings shown in the community	official	1
Arts and Culture	Ticket sales at local sporting events	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Arts and Culture	# of visits to local arts centre	official	1
Arts and Culture	Support and build arts, culture, and heritage	aspirational	1
Arts and Culture	Tourist attendance of arts and culture events	official	1
Arts and Culture	% of residents who feel that arts and culture benefit the community socially	perceptual	1
Arts and Culture	% of residents who feel that arts and culture benefit the community economically	perceptual	1
Arts and Culture	% of residents who feel that arts and culture is important	perceptual	1
Arts and Culture	% of residents who want more free or affordable programs and events	perceptual	1
Arts and Culture	Total arts and cultural facilities	policy	1
Arts and Culture	% of youth who participate in cultural activities	official	1
Arts and Culture	% of youth who play a musical instrument	official	1
Arts and Culture	% of youth who have a craft or hobby	official	1
Arts and Culture	% of youth who have a creative/artistic hobby	official	1
Arts and Culture	# of artists which local arts groups have commissioned for art projects	official	1
Community participation	% of residents who make charitable donations	official	16
Community participation	Median charitable donations	official	14
Community participation	% of residents who volunteer	official	13
Community participation	# of library visits (total # or per capita)	official	10
Community participation	# participants in library community programming	official	7

Stock	Indicator	Indicator type	Number of initiatives using indicator
Community participation	Average # of overall library programs (per capita or total)	policy	6
Community participation	# of registered non-profits/charities per capita	official	5
Community participation	# of volunteer hours worked by volunteers	official	5
Community participation	% of residents who provide unpaid help to others in their community	official	3
Community participation	# of food bank packages/baskets distributed delivered to families in need	official	3
Community participation	% of volunteer hours worked by youth	official	2
Community participation	Average # of adult programs offered by libraries per 1,000 adults	policy	1
Community participation	Average # of children's programs offered through public libraries per 1,000 children	policy	1
Community participation	# of volunteer organizations	official	1
Community participation	% of residents who feel that volunteering is the number one factor impacting community well-being	perceptual	1
Community participation	# of animals adopted from local animal shelters	official	1
Community participation	Social involvement	official	1
Community participation	People here are willing to contribute time and money for community projects	perceptual	1
Community participation	Participation in professional organizations	official	1
Community participation	Participation in social organizations	official	1
Community participation	# of residents who do not participate in any community activity	official	1
Community participation	Annual recruitment of local volunteer services	policy	1
Community participation	# of community events supported by local volunteer services	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Community participation	% of youth who volunteer	official	1
Community participation	Annual expenditures of registered charities	official	1
Community participation	% of residents who feel that volunteering is important to quality of life	perceptual	1
Community participation	Average value of food bank donations	official	1
Cultural Diversity	% visible minority population	official	18
Cultural Diversity	% Indigenous population	official	16
Cultural Diversity	% immigrant population	official	15
Cultural Diversity	Origin of new residents (intraprovincial, interprovincial, international)	official	13
Cultural Diversity	# of languages spoken by residents	official	10
Cultural Diversity	# of non-native English speakers	official	8
Cultural Diversity	% French-speaking population	official	7
Cultural Diversity	% of residents who were born abroad	official	5
Cultural Diversity	% of community who regularly speaks the Indigenous language at home	perceptual	4
Cultural Diversity	proportion of economic immigrants to refugees/refugee population	official	3
Cultural Diversity	% of residents with one or more parents born abroad	official	3
Cultural Diversity	# of immigrants who are permanent residents/landed immigrants	official	3
Cultural Diversity	Indigenous population by Indigenous group	official	3
Cultural Diversity	% population who speak English and French	official	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Cultural Diversity	% of residents who feel the region is welcoming to newcomers	perceptual	2
Cultural Diversity	average age at time of immigration	official	2
Cultural Diversity	% African Nova Scotian/Black population	official	2
Cultural Diversity	First Nations/Metis population	official	1
Cultural Diversity	# of residents who live on reserve	official	1
Cultural Diversity	% of Indigenous population who feel that settler population is making a sincere effort at reconciliation	perceptual	1
Cultural Diversity	Indigenous 5-year population change	official	1
Cultural Diversity	% of residents who are not Canadian citizens	official	1
Cultural Diversity	Top 5 origin countries of local immigrants	official	1
Cultural Diversity	% of school students from underrepresented groups	official	1
Cultural Diversity	% of residents who report being discriminated against due to ethnicity, race, or sexual orientation	official	1
Cultural Diversity	% of residents who declare a religious affiliation	official	1
Cultural Diversity	Ensure Huron is a welcoming community for new residents	aspirational	1
Cultural Diversity	Harper Creek caves are protected from resource development activities.	aspirational	1
Cultural Diversity	Protective buffers are placed around all cabins and settlements of historical and cultural significance.	aspirational	1
Cultural Diversity	Protective buffers are placed around all burial sites located in the management area.	aspirational	1
Cultural Diversity	Traditional ecological knowledge is used to inform management and planning objectives.	aspirational	1
Cultural Diversity	People in my community are open to opinions that are very different from their own	perceptual	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Cultural Diversity	Participation in religious organizations	official	1
Cultural Diversity	% of immigrants who have been sponsored by family members	official	1
Cultural Diversity	# of schools who are part of the Gay Straight Alliance network	official	1
Demography	Population of community/region	official	28
Demography	Population change (5-year, 10-year, or 15-year)	official	26
Demography	% senior population (65+)	official	23
Demography	% of children aged 0-14	official	19
Demography	Median age	official	18
Demography	Marital status of population	official	14
Demography	Population by age group/population pyramid	official	10
Demography	Gender make-up of population/population pyramid	official	9
Demography	Average length of residency of population	official	8
Demography	% of population age 19 and younger	official	7
Demography	Average number of inhabitants per household	official	7
Demography	Birth rate	official	4
Demography	Net migration (# of migrants and % of total population)	official	4
Demography	Semi-permanent/seasonal resident population	official	2
Demography	Projected % change in the senior population	official	2
Demography	Number of children per family	official	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Demography	Average age of mothers at time of giving birth to children	official	2
Demography	Death rate	official	1
Demography	Residual net migration	official	1
Demography	# of residents above age 100 in the community	official	1
Demography	# of residents aged 55+	official	1
Demography	% university student population	official	1
Demography	Support moderate and sustainable population growth	aspirational	1
Demography	Net migration by age group	official	1
Demography	Number of communities in the region	official	1
Demography	Youth (15-24) population	official	1
Demography	Young resident (25-24) out-migration	official	1
Demography	% of 20-29 aged people living with their parents	official	1
Demography	Proportion of population under 25	official	1
Education	% of residents with a post-secondary education	official	23
Education	High school graduation rate	official	19
Education	% of adult population that has an education in the trades	official	15
Education	# of active members of public libraries/library card holders	official	14
Education	Annual student enrollment in local schools	official	14
Education	% of residents with high school as highest level of education	official	10

Stock	Indicator	Indicator type	Number of initiatives using indicator
Education	# of items borrowed from public libraries	official	9
Education	Library circulation rate (per capita)	official	8
Education	student test scores in standardized tests (reading, writing, math)	official	8
Education	Indigenous high school graduation rate	official	7
Education	% of high school graduates go on to post-secondary education	official	7
Education	% of population without a high school diploma	official	7
Education	Use of computers at public libraries (per capita or hours used)	official	6
Education	Average annual tuition at nearby university or college	policy	4
Education	Local student enrollment at nearby university/community college	official	4
Education	Number of library branches in region	policy	4
Education	% of residents with a Master's degree or higher	official	3
Education	Resident satisfaction with local learning opportunities	perceptual	3
Education	Enrollment in private schools	official	3
Education	School board spending per student	policy	3
Education	Major fields of study of residents with post-secondary education	official	3
Education	Local spending on libraries	policy	2
Education	% of residents who attended university outside of Canada	official	2
Education	Most popular programs of study at local university/community college	official	2
Education	# of schools in the community/region	policy	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Education	International student enrollment in post-secondary institutions	official	2
Education	# of students enrolled in French immersion schools/number of schools with French immersion	official	2
Education	% of residents who are content with their level of education	perceptual	2
Education	Average class size	official	2
Education	Student scores on reading exams	official	2
Education	% of students who expect to continue to post-secondary or apprenticeship programs after high school	perceptual	2
Education	% of residents who feel that there is high quality public education in the community	perceptual	2
Education	% of residents who feel that post-secondary education is affordable	perceptual	2
Education	Youth participation in traditional activities	official	1
Education	Origin of local university student body (local, provincial, national, international)	official	1
Education	% of residents who have increased well-being and life satisfaction by learning in the past year	perceptual	1
Education	% of high school graduates who stay in the region	official	1
Education	% of local schools that measure student progress in health and well-being	policy	1
Education	% of local schools that measure progress in the school learning environment	policy	1
Education	% of local schools that measure students' socio-emotional skills	policy	1
Education	% of local schools that measure students' citizenship skills	policy	1
Education	% of local schools that measure student creativity	policy	1
Education	% of children who are not ready for school in two or more developmental domains	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Education	Encourage local training and learning opportunities	aspirational	1
Education	Forestry educational program delivered at K-12. Delivery of a post-secondary training program.	aspirational	1
Education	Training and employment program with industry partners.	aspirational	1
Education	Training and employment programs with industry partners - planning to production.	aspirational	1
Education	% of residents who consider themselves a lifelong learner	perceptual	1
Education	Main perceived barriers to obtaining additional training and education	perceptual	1
Education	% of residents with an education in trade	official	1
Education	% of residents with an education in math, IT, or computer science	official	1
Education	Average opening hours of local libraries	policy	1
Education	Average age of adult literacy program learners	official	1
Education	Gender of adult literacy program learners	official	1
Education	Dropout rate among students	official	1
Education	High school suspension rate	official	1
Education	% of residents who want better compensation for their work experience and education	perceptual	1
Education	Average wait time for children to be accepted into licensed childcare	official	1
Education	% of residents who want access to more early childhood development activities	perceptual	1
Education	Top summer reading categories from library loans	official	1
Education	% of community college students from outside of the region	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Education	Educational attainment among African Nova Scotians	official	1
Education	# of full and part-time teachers in local schools	policy	1
Education	% of students with individualized program plans and documented adaptations (for students with special needs)	policy	1
Education	Annual school board budget	policy	1
Education	# of universities and/or community colleges in the area	policy	1
Education	% of indigenous students who have a post-secondary degree	official	1
Education	Children's scores on Middle Years Development Instrument	official	1
Education	# of courses and educational events hosted by youth development groups	official	1
Education	# of local students who graduate from youth leadership programs	official	1
Education	% of residents who feel there is good access to education and training programs	perceptual	1
Education	% of residents who feel there are adequate learning opportunities for young people	perceptual	1
Education	# of course sessions offered at local community college	policy	1
Education	# of elders enrolled in local community college	official	1
Education	Student satisfaction among graduates with quality of education	perceptual	1
Education	% of residents who feel that there is adequate support for literacy	perceptual	1
Education	% of residents who feel that there are adequate supports for early years educational opportunities	perceptual	1
Education	% of residents who feel that broadband internet is important for learning	perceptual	1
Education	Total library collection	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Education	% of youth who feel that school prepares them for a job in the future	perceptual	1
Education	% of local graduates from trades who go on to work in the region	official	1
Education	% of local community college graduates who continue on to university	official	1
Food Security	# of individuals/families served by the local food banks	official	16
Food security	Average monthly cost of healthy eating	official	9
Food Security	% of residents who eat the recommended daily amounts of fruits and vegetables	official	9
Food security	# of free/subsidized meals consumed per year	official	5
Food security	% of residents/households who experience food insecurity	official	5
Food Security	Average # of times that food bank users use food bank per year by families	official	3
Food security	# of community gardens/garden plots	official	2
Food Security	# of visits to food bank	official	2
Food Security	% of seniors who eat the recommended daily amounts of fruits and vegetables	official	2
Food security	% of students who have experienced hunger because of lack of food or money	official	2
Food security	% of residents who feel they have access to adequate nutritious food to meet dietary needs	perceptual	2
Food security	% of residents who are able to grow their own vegetables	perceptual	2
Food security	# of food banks	policy	2
Food security	Farmers' markets sales	official	2
Food security	% of residents who engage in self-provisioning activities	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Food security	Average attendance at local farmers' markets	official	1
Food security	# of vendors at local farmers' markets	official	1
Food security	Frequency of eating traditional foods	official	1
Food security	Build support for local food	aspirational	1
Food security	Community elders receive the meat harvested from trophy hunts.	aspirational	1
Food security	Resident satisfaction with food services	perceptual	1
Food security	% of residents who have given up food quality or eaten less because of lack of money	official	1
Food security	% of residents who shop at farmers' markets	official	1
Food security	% of residents who feel they can afford the groceries they would like to purchase	perceptual	1
Food security	% of residents who regularly buy from local farmers	perceptual	1
Food security	% of residents who rely on the food bank to meet basic needs	official	1
Food security	Top perceived strategies for increasing access to nutritious food	perceptual	1
Food security	% of residents who feel that the cost of feeding their families is reasonable	perceptual	1
Food security	% of food bank users who don't have a car	official	1
Food security	% of income that individuals who use food banks spend on rent	official	1
Food security	% of youth who live in food insecure households	official	1
Food security	# of children 17 and under who experience food insecurity	official	1
Food security	# of seniors who experience food insecurity	official	1
Food security	% of residents' income spent on food	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Food security	Round-trip costs to go to the nearest grocery store	official	1
Food security	# of schools with a salad bar program	policy	1
Food security	Funding received by local schools for food awareness and support	policy	1
Food security	% of residents who feel that there are enough year-round farmers' markets	perceptual	1
Food security	% of residents who feel that grocery stores have local foods that are affordable	perceptual	1
Food security	% of residents who grow some of their own food	official	1
Food security	% of residents who feel that it has become easier to get locally grown food	perceptual	1
Food security	% of youth who regularly eat traditional foods or locally grown food	official	1
Gender equity	Gender pay/wage gap	official	7
Gender equity	proportion of women in managerial positions	official	5
Gender equity	# or % of women elected to town/city council	policy	4
Gender equity	Poverty rate by gender	official	4
Gender equity	Life expectancy by gender	official	4
Gender equity	Single parent families by gender	official	2
Gender equity	% of female representatives in provincial legislature	policy	1
Gender equity	% of non-profit board members who are women	policy	1
Gender equity	Fundraising by local women's groups	official	1
Gender equity	Educational equity ratio of men to women with a post-secondary degree	official	1
Gender equity	Community college enrollment by gender	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Housing	Average price/value of single family homes	official	16
Housing	# of affordable housing units (total or per capita)	policy	16
Housing	Rental vacancy rate	official	16
Housing	% of renters spending over 30% of income on housing	official	15
Housing	% of overall households spending over 30% of income on housing	official	13
Housing	% of homeowners spending over 30% of income on housing	official	12
Housing	Home ownership rate	official	12
Housing	Proportion of existing housing stock by housing type (single detached, townhouses, apartments)	official	11
Housing	Median monthly housing costs for renters	official	11
Housing	% of housing units requiring major repairs	official	9
Housing	New housing starts	official	8
Housing	Median monthly housing costs for homeowners	official	7
Housing	Housing price to income ratio - owner housing	official	7
Housing	# of homeless residents	official	7
Housing	# of emergency shelter beds	policy	6
Housing	# of residents on affordable housing waitlist	official	6
Housing	# of residential building permits issued per year	official	5
Housing	Median residential property values/housing price of a single detached home	official	5
Housing	# of seniors' affordable housing units	policy	5

Stock	Indicator	Indicator type	Number of initiatives using indicator
Housing	% of homes owned by local residents (vs. people who live outside of the region)	official	5
Housing	% of residents who feel that housing is affordable	perceptual	4
Housing	% of residents who feel that affordable housing is an important community issue	perceptual	4
Housing	Overall housing vacancy rate	official	3
Housing	New housing units by dwelling type	official	3
Housing	# of affordable rental housing units	policy	3
Housing	Housing stock density	official	3
Housing	# of homes that are not suitable for number of inhabitants	official	3
Housing	Total # of housing units	official	2
Housing	average age of housing stock	official	2
Housing	% of renter households	official	2
Housing	% of residents who feel there is a variety of housing options to meet community needs	perceptual	2
Housing	% of residents who feel that there are strong efforts to reduce homelessness	perceptual	2
Housing	Housing price to income ratio - rental housing	official	2
Housing	% of population living in affordable housing	official	2
Housing	# of residents receiving utilities subsidy	official	2
Housing	Distribution of homeless population by living locations	official	2
Housing	# of independent living seniors' units	official	2
Housing	# of student housing units on local university campus	policy	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Housing	% increase in housing construction	official	1
Housing	\$ value of residential construction/year	official	1
Housing	# of affordable ownership housing units	policy	1
Housing	Home occupancy rate (persons/dwelling)	official	1
Housing	Resident satisfaction with housing livability	perceptual	1
Housing	Average wait times to purchase affordable housing	official	1
Housing	# of building permits by housing type	official	1
Housing	Total # of private apartment units	official	1
Housing	% of residents who feel that short-term rentals are a threat to housing needs	perceptual	1
Housing	# of households that have used local affordable housing programs	official	1
Housing	# of housing units sold in 5-year period	official	1
Housing	# of vacant homes slated for demolition	official	1
Housing	Average shelter costs overall	official	1
Housing	Home ownership rate by age group	official	1
Housing	# of residents who accessed housing support services	official	1
Housing	Top reasons for homelessness among local homeless population	official	1
Housing	% of residents who want funding supports for low-income families and seniors to maintain their homes	perceptual	1
Housing	Number of people per household whose income covered housing and utilities	official	1
Housing	# of people employed in real estate	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Housing	# of residents living in Band housing	official	1
Housing	Canadian Rental Housing Index score	official	1
Housing	Average housing allowance for individuals on income assistance	official	1
Housing	Median value of strata residential housing	official	1
Housing	% of residents who have had difficulty accessing appropriate housing	perceptual	1
Housing	% of homeowners who have a mortgage	official	1
Housing	# of seasonal employees who need to find local housing	official	1
Housing	% change in rental housing stock	official	1
Housing	% of households living in core housing need (housing is unsuitable, inadequate, or unaffordable)	official	1
Mental health	% of youth with self-assessed mental health of good or excellent	perceptual	10
Mental health	% of population with mood and anxiety disorders	official	10
Mental health	% of residents who drink heavily	official	10
Mental health	% of residents with self-assessed mental health of good or excellent	perceptual	7
Mental health	% of residents who experience high levels of life stress	perceptual	6
Mental health	% of residents with self-reported depression	official	5
Mental health	# of calls to police based on mental health issues	official	3
Mental health	% of residents who feel that community has inadequate access to mental health services	perceptual	3
Mental health	% of seniors with a very good or excellent self-assessed mental health	perceptual	3
Mental health	% of residents who feel that most days are stressful	perceptual	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Mental health	% of residents who report feeling high levels of work-related stress	perceptual	2
Mental health	% of youth and young adults who report elevated depression symptoms	perceptual	2
Mental health	Suicide attempts by gender	official	2
Mental health	# of clients of addictions services	official	2
Mental health	Average level of happiness of residents	perceptual	1
Mental health	% of residents who report having high levels of time pressure	perceptual	1
Mental health	% of adults who report having seen a therapist in the past year	official	1
Mental health	% of youth experiencing mental illness	official	1
Mental health	% of residents with substance abuse issues	official	1
Mental health	% of residents who have access to mental health services	perceptual	1
Mental health	% of residents who don't know if there are addiction services available	perceptual	1
Mental health	Mental health conditions per capita	official	1
Mental health	% of residents who feel that their addiction needs are not being met	perceptual	1
Mental health	% of youth who report high self-esteem	perceptual	1
Mental health	% of youth who experience suicidal thoughts	perceptual	1
Mental health	% of youth who are happy	perceptual	1
Mental health	% of youth who feel anxious on a regular basis	perceptual	1
Mental health	% of youth who feel stressed on a regular basis	perceptual	1
Mental health	% of residents who are concerned about youth drug and alcohol use	perceptual	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Mental health	% of children who report being bullied	official	1
Mental health	Hospitalization rate from attempted suicide	official	1
Mental health	Suicide rate	official	1
Physical health	% of residents who are overweight and/or obese	official	17
Physical health	Life expectancy	official	16
Physical health	Smoking rate of overall population	official	16
Physical Health	% of population without a doctor	official	15
Physical Health	# of long-term care beds available	official	8
Physical health	% of residents who use their leisure time engaged in physical activity	official	8
Physical Health	# of general practitioners	official	7
Physical health	% of residents with very good or excellent self-assessed health	perceptual	7
Physical health	% of children/youth who get regular physical activity	official	6
Physical health	% of residents who report doing physical activity on a regular basis	official	6
Physical health	Diabetes rate	official	5
Physical health	Per capita healthcare spending	policy	5
Physical Health	# of specialists	official	4
Physical Health	Doctor to patient ratio	official	4
Physical health	Prevalence rate of chronic health conditions	official	4
Physical health	% of residents who are immunized against influenza	official	4

Stock	Indicator	Indicator type	Number of initiatives using indicator
Physical health	Average frequency and duration of physical activity among adults	official	4
Physical health	% of babies born with low birth weight	official	4
Physical health	Life expectancy of seniors	official	3
Physical health	Average wait times for high-priority medical procedures (e.g. hip replacements, knee replacements, cataract surgery)	official	3
Physical health	Average wait times for common medical procedures	official	3
Physical health	% of population that use illicit drugs (cocaine/crack or other hard drugs)	official	3
Physical health	Prevalence of disabilities	official	3
Physical Health	% of residents who feel they can afford to meet their healthcare needs	perceptual	2
Physical health	# of emergency room visits	official	2
Physical health	% of teens who smoke occasionally or daily	official	2
Physical health	% of residents who are exposed to second-hand smoke at home	official	2
Physical health	# of deaths due to overdose/overdose deaths per capita	official	2
Physical health	Rate of people with arthritis	official	2
Physical health	Rate of people with high blood pressure	official	2
Physical health	Resident satisfaction with healthcare services	perceptual	2
Physical health	% of residents who use alcohol	official	2
Physical health	% of residents who use cannabis	official	2
Physical health	# of seniors who receive senior pharmacare	official	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Physical health	Hours per year that local emergency rooms are closed	policy	2
Physical health	Most common health conditions in the population	official	2
Physical health	Average cost of keeping local physician	official	2
Physical health	Most common causes of death in the population	official	2
Physical health	Cancer rate	official	2
Physical health	% of residents who feel there is good access to health and wellness services	perceptual	2
Physical health	# of residents who walk as their main source of physical activity	official	2
Physical health	Youth who have tried alcohol	official	2
Physical health	Youth who have tried marijuana	official	2
Physical Health	Nurse to patient ratio	official	1
Physical Health	# of individuals receiving home care services	official	1
Physical Health	# of senior-specific physicians in the region	official	1
Physical Health	# of beds for addiction recovery patients	official	1
Physical health	Breastfeeding rate	official	1
Physical health	Average annual alcohol sales per capita	official	1
Physical health	Average frequency of physical activity among children	official	1
Physical health	Top 5 common forms of exercise among children in the community	official	1
Physical health	# of participants in public running events (e.g. marathon, 5k, etc.)	official	1
Physical health	% of residents living without any health or activity limitations	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Physical health	% of residents who get 7-9 hours of sleep on average	official	1
Physical health	# of needle kits dispensed by local health authority	official	1
Physical health	% of residents who report having people they could depend on if they had a major health issue	perceptual	1
Physical health	Promote active and healthy lifestyles	aspirational	1
Physical health	Support active transportation	aspirational	1
Physical health	Ensure accessibility to excellent healthcare and wellness services	aspirational	1
Physical health	Protective buffers placed around areas known to support rare, endangered, and medicinal plants.	aspirational	1
Physical health	Resident use of public healthcare services	official	1
Physical health	Average annual healthcare visits of residents	official	1
Physical health	% of residents who have transit to and from medical appointments	official	1
Physical health	% of residents who feel they don't have access to specialist healthcare services	perceptual	1
Physical health	Average wait time for surgeries among adults	official	1
Physical health	Average wait time for surgeries among children	official	1
Physical health	Life expectancy of Indigenous peoples	official	1
Physical health	Most common causes of hospitalization in the population	official	1
Physical health	Cancer radiation wait times	official	1
Physical health	% of emergency room visits among seniors	official	1
Physical health	% of individuals who are primary caregivers for long-term homecare clients who experience distress, anger, or depression	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Physical health	% of residents who feel that the community's healthy living needs are met	perceptual	1
Physical health	% of residents who feel that hospitals and emergency services needs are met	perceptual	1
Physical health	% of residents who actively travel to places using active transportation	official	1
Physical health	% of residents who feel that the community is meeting senior care needs	perceptual	1
Physical health	% of residents who feel that the community is meeting primary care needs	perceptual	1
Physical health	Rate of unintentional falls among population	official	1
Physical health	Areas of highest need for physicians	official	1
Physical health	Teen pregnancy rate	official	1
Physical health	# of hospitals in the region	policy	1
Physical health	# of hospital beds	policy	1
Physical health	Most prevalent types of cancer among population	official	1
Physical health	# of palliative care patients cared for	official	1
Physical health	Most common causes of death by gender	official	1
Physical health	Prevalence of disabilities by gender	official	1
Physical health	% of residents who feel that they do not have enough time to exercise	perceptual	1
Physical health	Most common physical activities among children	official	1
Physical health	Most common physical activities among adults	official	1
Physical health	% of low-income residents who report good health	perceptual	1
Physical health	# of expected suicide deaths in the region compared to provincial average	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Physical health	% of seniors who must travel to a different community to see their doctor	official	1
Physical health	Average # of healthcare services for which residents must leave the region to access	official	1
Physical health	infant mortality rate	official	1
Physical health	Average # of litres of liquor sold per person	official	1
Physical health	% of youth who report having a healthy lifestyle	perceptual	1
Physical health	% of youth who don't get enough sleep	perceptual	1
Physical health	% of youth who can prepare a healthy meal for family and friends	official	1
Physical health	Annual health bus ridership	official	1
Physical health	Death rate from substance abuse	official	1
Physical health	% of residents who believe that the community encourages a healthy lifestyle	perceptual	1
Physical health	% of residents who get more than 2 hours a day of screentime	official	1
Physical health	Youth obesity rate	official	1
Physical health	% of vape users who report using nicotine in their vapes	official	1
Physical health	% of seniors who are physically active	official	1
Physical health	Senior obesity rate	official	1
Physical health	% of youth with self-reported health that was very good or excellent	perceptual	1
Physical health	Substantially increase health financing and the recruitment, development, training and retention of the health workforce	aspirational	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Physical health	Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	aspirational	1
Physical health	By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	aspirational	1
Political participation	Voter turnout in provincial/federal elections	official	18
Political participation	Voter turnout in municipal elections	official	16
Political participation	% of residents who feel they have input on decisions affecting the community	perceptual	5
Political participation	Voter turnout in regional elections	official	2
Political participation	% of local electoral seats in contested elections	official	2
Political participation	Voter turnout in Band elections and referendums	official	1
Political participation	% of residents who belong to a political organization, or law/advocacy group	official	1
Political participation	% of budget that elected officials spend on communications	policy	1
Political participation	# of municipalities or other local government bodies in the region	policy	1
Political participation	% of residents who are satisfied with local government	perceptual	1
Political participation	Community members receive training in the technical and managerial aspects of forest planning and management.	aspirational	1
Political participation	Recognized point of contact is established between industry and each of the three LRR communities.	aspirational	1
Political participation	Information is disseminated in a format accessible to community members.	aspirational	1
Political participation	Community representation on the SMA Management Board is diversified.	aspirational	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Political participation	Forums to facilitate community participation in the management of the SMA are created.	aspirational	1
Political participation	Degree to which people perceive formal and informal leadership to be diversified and representative of the population	perceptual	1
Political participation	Participation in civic organizations	official	1
Political participation	Resident trust in decision-making	perceptual	1
Political participation	% of residents who attend neighbourhood or community meetings	official	1
Political participation	% of residents who have signed a petition in the last year	official	1
Political participation	% of residents who have participated in a neighbourhood/community project	official	1
Political participation	# of town halls in the region	policy	1
Political participation	# of community centres	policy	1
Political participation	# of community radio stations	official	1
Political participation	% of residents who want more forums on community issues	perceptual	1
Political participation	# of youth who don't feel they have a say in how their community is run	perceptual	1
Political participation	% of residents who feel that there should be a review of the local governance structure	perceptual	1
Political participation	% of residents who feel that local government adequately engages citizens	perceptual	1
Public safety	Crime severity index (per capita or total)	official	15
Public safety	# of property crimes (per capita or total)	official	15
Public safety	Violent crimes (total or per capita)	official	14
Public safety	Overall crime rate per capita	official	13

Stock	Indicator	Indicator type	Number of initiatives using indicator
Public safety	# of sexual assaults (total or per capita)	official	9
Public safety	Criminal code traffic violations per capita	official	7
Public safety	# of domestic violence shelters/annual users	policy	6
Public safety	# of police officers per capita	policy	5
Public safety	Violent crime severity index	official	5
Public safety	% of residents who feel that the community or region is safe	perceptual	5
Public safety	# of drug-related offences in the community	official	5
Public safety	# of vehicle thefts per capita	official	5
Public safety	Non-violent crime severity index	official	3
Public safety	# of search and rescue calls per year	official	3
Public safety	% of residents who feel safe walking alone after dark	perceptual	3
Public safety	% of residents who feel that local walking routes (e.g. sidewalks, shoulder) are adequate	perceptual	3
Public safety	# of impaired driving charges	official	3
Public safety	# of police calls per year	official	2
Public safety	% of residents who are satisfied with police service	perceptual	2
Public safety	% of residents who feel the region is prepared for emergencies	perceptual	2
Public safety	% of cyclists who report always wearing a helmet	official	2
Public safety	Vehicle crash incidents per year	official	2
Public safety	Rate of recreation injuries	official	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Public safety	Intimate partner violence per capita	official	2
Public safety	% of youth who feel safe at school	perceptual	2
Public safety	# of domestic abuse cases being handled by social workers	official	1
Public safety	# of spousal abuse cases reported to police	official	1
Public safety	# of campus safety patrol officers at local university	policy	1
Public safety	# of calls responded to by fire department per year	policy	1
Public safety	# of fire hydrants in the community	policy	1
Public safety	% of emergency room visits among children and seniors due to falls	official	1
Public safety	% of residents who feel that crime is the most important issue facing the community	perceptual	1
Public safety	% of residents who believe there are adequate crime prevention measures in place	perceptual	1
Public safety	Capacity of emergency (natural disaster) shelters in the area	policy	1
Public safety	# of illicit drug seizures per year (by weight)	official	1
Public safety	# of property offenses to homes incl. breaking and entering	official	1
Public safety	# of thefts under \$5,000	official	1
Public safety	# of thefts over \$5,000	official	1
Public safety	# of 24-hour driver's license suspensions	official	1
Public safety	% of residents who feel that emergency personnel are well-prepared to help	perceptual	1
Public safety	Top resident concerns for safety	perceptual	1
Public safety	# of youth incarcerations	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Public safety	Youth total crime rate	official	1
Public safety	Youth violent crime rate	official	1
Public safety	# of youth drug violations	official	1
Public safety	Youth property crime rate	official	1
Public safety	Youth criminal code traffic violations per capita	official	1
Public safety	% of residents who want support for neighbourhood safety programs	perceptual	1
Public safety	# of crystal meth investigations/arrests	official	1
Public safety	% of residents who feel that crime will increase in the community or region	perceptual	1
Public safety	Non-intimate partner family violence per capita	official	1
Public safety	# of police calls because of violent crimes	official	1
Public safety	# of hours volunteered by search and rescue team	official	1
Public safety	% of youth who feel safe walking alone	perceptual	1
Public safety	% of youth who feel safe in their community	perceptual	1
Public safety	Rate of non-recreation related injuries	official	1
Public safety	Death rate from traffic accidents	official	1
Public safety	# of volunteer search and rescue team members	official	1
Public safety	Average # of search and rescue helicopter missions per year	official	1
Public safety	Half the number of deaths and injuries from road traffic accidents	aspirational	1
Recreation	Visits to recreation facilities per capita	official	4

Stock	Indicator	Indicator type	Number of initiatives using indicator
Recreation	Citizen satisfaction with local recreation services	perceptual	4
Recreation	#/area of dog parks	official	2
Recreation	Annual visitation to parks or protected areas	official	2
Recreation	Local government spending on recreation	policy	2
Recreation	# of recreational facilities in the community /region	policy	2
Recreation	Resident satisfaction with local parks and green spaces	perceptual	2
Recreation	% of residents who have visited a library, community centre, or recreation facility in the past year	official	2
Recreation	# of youth registered in team sports	official	2
Recreation	Most commonly used outdoor recreation spaces by adults	official	2
Recreation	Km of bike trails for mountain biking	official	2
Recreation	% of residents who use local trail system at least once a month	official	1
Recreation	# of registered non-profits dedicated to recreation	official	1
Recreation	% of residents who believe that recreational facilities are very important	perceptual	1
Recreation	# of residents registered in recreation programming	official	1
Recreation	# of local kids involved in municipal recreation programming	official	1
Recreation	# of residents who use recreation facilities at local university	official	1
Recreation	Seating capacity at local sports venues (arenas, rinks, etc.)	policy	1
Recreation	Rate of participation and types of valley outdoor activities	official	1
Recreation	% of residents who have visited a park in the last year	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Recreation	# of local arenas	policy	1
Recreation	Average daily use of local arena	official	1
Recreation	Average cost of a waterfront recreational property	official	1
Recreation	Most commonly used outdoor recreation spaces by children	official	1
Recreation	% of residents who indicate that lifestyle/recreation are their primary reason for moving to the area	perceptual	1
Recreation	# of people employed in recreation fields	official	1
Recreation	% of residents who feel that sports and recreation opportunities are affordable	perceptual	1
Recreation	Funding requested to construct improvements to local water recreation infrastructure	policy	1
Recreation	% of local residents who buy recreation passes	official	1
Recreation	attendance at pool facilities	official	1
Recreation	% of winter recreation passes sold to seniors	official	1
Sense of belonging	% of residents who have a strong or somewhat strong sense of belonging to community	perceptual	24
Sense of belonging	% of population who is satisfied or very satisfied with life in general	perceptual	8
Sense of belonging	% of youth who have a strong or somewhat strong sense of belonging to community	perceptual	5
Sense of belonging	% of seniors who have a strong or somewhat strong sense of belonging to community	perceptual	4
Sense of belonging	% of residents who plan to move away/are considering moving away	perceptual	3
Sense of belonging	% of residents with a self-perceived quality of life of good or very good	perceptual	2
Sense of belonging	Leisure time use of residents	official	2

Stock	Indicator	Indicator type	Number of initiatives using indicator
Sense of belonging	% of residents who feel that a newcomer on their street would be welcomed into the neighbourhood	perceptual	2
Sense of belonging	Average length of residence in current home	official	2
Sense of belonging	% of residents who feel that there are good opportunities for newcomers to become part of the community	perceptual	2
Sense of belonging	Adult participation in hunting and fishing	official	1
Sense of belonging	Average amount of time that families spend practicing traditional activities	official	1
Sense of belonging	% of residents who feel that their neighbourhood gives them a sense of community	perceptual	1
Sense of belonging	% of students who perceive to have high-quality relationships with adults in their community	perceptual	1
Sense of belonging	% of children who eat 5 meals per week with their families	official	1
Sense of belonging	% of population who feels that family is whoever you choose to surround yourself with	perceptual	1
Sense of belonging	Promote Huron as a great place to live, work and play	aspirational	1
Sense of belonging	Foster pride and sense of community	aspirational	1
Sense of belonging	Preserve Huron's history and rural character	aspirational	1
Sense of belonging	Degree to which people are satisfied with their community	perceptual	1
Sense of belonging	I feel like I am definitely part of my community	perceptual	1
Sense of belonging	My community is an important part of who I am	perceptual	1
Sense of belonging	Overall, I'm very attached to my community	perceptual	1
Sense of belonging	Important personal relationships	perceptual	1
Sense of belonging	Resident satisfaction with the community as a place to live	perceptual	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Sense of belonging	% of residents who feel that they can trust most others in the community	perceptual	1
Sense of belonging	Main reasons of recent immigrants for moving to the region	perceptual	1
Sense of belonging	% of residents who agree or strongly agree that they belong and are accepted by the community	perceptual	1
Sense of belonging	Main reasons why residents would consider moving away	perceptual	1
Sense of belonging	Top 5 places that adults feel they belong in the community	perceptual	1
Sense of belonging	Top 5 places that youth feel they belong in the community	perceptual	1
Sense of belonging	% of youth who feel valued in the community	perceptual	1
Sense of belonging	% of adults who feel they belong in the community	perceptual	1
Sense of belonging	% of youth who do not expect to find a job or live in the region after school	perceptual	1
Sense of belonging	% of youth who have people in their lives who care about them	perceptual	1
Sense of belonging	% of youth who feel they have enough support from family and friends	perceptual	1
Sense of belonging	% of residents who has at least one generation of family members from the area	official	1
Sense of belonging	% of seasonal residents who feel very connected to the region	perceptual	1
Sense of belonging	% of year-round residents who feel very connected to the region	perceptual	1
Sense of belonging	% of residents who feel that their wallet would be returned with the money in it if lost	perceptual	1
Sense of belonging	% of residents who feel included and connected in the community	perceptual	1
Sense of belonging	% of youth who feel that there are adequate opportunities for young people's enjoyment, inspiration, and motivation	perceptual	1
Sense of belonging	Average # of people that local residents can confide in in the community	perceptual	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Sense of belonging	% of seniors who are satisfied with life in general	perceptual	1
Social inclusion	Poverty rate	official	26
Social inclusion	Child poverty rate	official	19
Social inclusion	Seniors' poverty rate	official	19
Social inclusion	Child vulnerability rate (Early Development Index)	official	11
Social inclusion	% of population living alone	official	8
Social inclusion	# of licensed childcare services/spaces in the community	policy	5
Social inclusion	% of children with access to licensed, centre-based childcare	official	4
Social inclusion	Poverty rate of single parent families	official	3
Social inclusion	# of children in permanent care	official	3
Social inclusion	Average wait times for admission to seniors' care homes	official	2
Social inclusion	% of residents who feel they are under-employed	official	2
Social inclusion	Unemployment rate of recent immigrants (<5 years)	official	2
Social inclusion	% of the senior population living alone	official	2
Social inclusion	# of children on waitlist for childcare services	official	2
Social inclusion	% of residents who feel the community offers support for those living in poverty	perceptual	2
Social inclusion	# of children in foster care	official	2
Social inclusion	% of residents who feel there are adequate supports in place for promoting wellness	perceptual	1
Social inclusion	# of activities offered by local seniors' club	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Social inclusion	Membership of local seniors' club	official	1
Social inclusion	# of local businesses given an age-friendly (to seniors) rating	official	1
Social inclusion	% of residents who work more than one job	official	1
Social inclusion	unemployment rate of African Nova Scotians	official	1
Social inclusion	Average # of days that employees were absent from work per year	official	1
Social inclusion	Median earnings for full-time, year-round employees	official	1
Social inclusion	Unemployment rate of older immigrants (6-10 years)	official	1
Social inclusion	Unemployment rate of non-immigrants	official	1
Social inclusion	Main reasons for youth employment	perceptual	1
Social inclusion	# of beds in women's and children's transitional housing	policy	1
Social inclusion	# of formerly homeless residents provided with housing and supports	official	1
Social inclusion	# of formerly homeless children provided with housing and supports	official	1
Social inclusion	% of residents with five or more close friends	perceptual	1
Social inclusion	% of children in custodial care who are Indigenous	official	1
Social inclusion	Enhance opportunities for youth, families, seniors	aspirational	1
Social inclusion	Ensure Huron is affordable and accessible to all	aspirational	1
Social inclusion	Foster compact communities that address local needs	aspirational	1
Social inclusion	Satisfaction with access to services	perceptual	1
Social inclusion	Satisfaction with community services	perceptual	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Social inclusion	Average resident proximity to services	official	1
Social inclusion	Top requests made by callers of local 211 service	official	1
Social inclusion	# of children registered in child and family centres	official	1
Social inclusion	# of child visits in child and family centres	official	1
Social inclusion	# of parents/caregivers registered in child and family centres	official	1
Social inclusion	# of parent/caregiver visits at child and family centres	official	1
Social inclusion	# of children receiving subsidized childcare	official	1
Social inclusion	% of residents who feel there are good opportunities to contribute to their community	perceptual	1
Social inclusion	Perceived benefits of local warming centre by clients	perceptual	1
Social inclusion	# of clients served by local warming centre	official	1
Social inclusion	# of clients of African Nova Scotian support programs	official	1
Social Inclusion	Demographic distribution of African Nova Scotian clients who use local employment services	official	1
Social inclusion	Average cost of childcare	official	1
Social inclusion	Rate of social deprivation	official	1
Social inclusion	# of children supported by program that assists families with team sports costs	official	1
Social inclusion	# of members of local seniors' drop-in centre	official	1
Social inclusion	% of youth who visit libraries	official	1
Social inclusion	% of children living in single parent families	official	1

Stock	Indicator	Indicator type	Number of initiatives using indicator
Social inclusion	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definiti	aspirational	1

Appendix 5: Selected socio-economic indicators of study areas examined in Chapter 4.³⁹

Community/region	Town of Branch	Tip of Northern Peninsula	Bonavista Peninsula	NL average
Scale	Municipal	Rural Secretariat region	Rural Secretariat region	Provincial
Population (2016)	228	11,315	27,425	519,715
Density (ppl./km2)	14.1	1.08	3.61	1.4
Top employment sectors	<ul style="list-style-type: none"> • Natural resources (33.3%)* • Construction (13.3%)* • Administrative & support, waste management & remediation services (13.3%)* 	<ul style="list-style-type: none"> • Healthcare & social assistance (16.1%) • Manufacturing (13.4%) • Natural resources (12.5%) 	<ul style="list-style-type: none"> • Construction (15.1%) • Retail trade (13.9%) • Healthcare & social assistance (13.3%) 	<ul style="list-style-type: none"> • Healthcare & social assistance (14.7%) • Retail trade (12.6%) • Construction (10.9%)
Employment in fish harvesting & processing (1996-2016)⁴⁰	<ul style="list-style-type: none"> • 1996: 26.6% fishers, 6.7% fish processing workers • 2016: 33.3% natural resources, 6.7% manufacturing* 	<ul style="list-style-type: none"> • 1996: 17.8% fishers, 6.1% fish processing workers • 2016: 12.5% natural resources, 13.4% manufacturing 	<ul style="list-style-type: none"> • 1996: 8.5% fishers, 7.0% fish processing workers • 2016: 6.1% natural resources, 13.3% manufacturing 	<ul style="list-style-type: none"> • 1996: 4.6% fishers, 3.5% fish processing workers • 2016: 3.5% natural resources, 6.6% manufacturing
Demographic change, 1996-2016	<ul style="list-style-type: none"> • 1996-2011: -30% • 2011-2016: -7.7% 	<ul style="list-style-type: none"> • 1996-2011: -28.3% • 2011-2016: -7.6% 	<ul style="list-style-type: none"> • 1996-2011: -17.6% • 2011-2016: -2.9% 	<ul style="list-style-type: none"> • 1996-2011: -6.8% • 2011-2016: +1.0%
Median age	54*	52	51	46
Youth population (15-24) in 2016	13.0%	8.3%	8.8%	10.6%
% senior (65+) population	24.2%*	24.3%	24.2%	19.4%

³⁹ Data sources: Community Accounts, NL Department of Tourism, Culture, Industry, & Innovation,

⁴⁰ Since 2011, Statistics Canada has not broken out labour force statistics by occupation at the community level, but rather by NAICS 2012 codes.

Community/region	Town of Branch	Tip of Northern Peninsula	Bonavista Peninsula	NL average
Residual net migration (2015)	-3.8%	-0.6%	+0.7%	+0.6%
% immigrant population	3.2%*	1.5%	1.1%	2.4%
Unemployment rate	32.4%*	37.3%	21.0%	15.6%
Average weeks worked by labour force	26*	31	35	41
% of workforce that reports income outside of NL	Not available	13.9%	9.7%	6.6%
Self-reliance ratio	67.4%*	69.8%	74.4%	80.6%
Median household income (before tax)	\$110,000*	\$76,400	\$74,000	\$89,000
Poverty rate	15.4%*	11.5%	14.0%	18.3%
% of households earning over \$150,000 (2015)	33.3%*	15.2%	15.9%	21.5%
Accommodation occupancy rate/proportion of provincial revenue (2017)	<ul style="list-style-type: none"> • 13,287 rooms sold per year (23.5% occupancy rate) • Total room revenue: \$1.86 million (0.9% of provincial total)*** 	<ul style="list-style-type: none"> • 38,381 rooms sold per year (46.6% occupancy rate) • Total room revenue: 4.69 million (2.2% of provincial total)**** 	<ul style="list-style-type: none"> • 118,695 rooms sold per year (56.1% occupancy rate) • Total room revenue: \$15.89 million (7.5% of provincial total) 	<ul style="list-style-type: none"> • 1,510,836 rooms sold per year (51.1% occupancy rate) • Total room revenue: \$211.36 million
Visitation to provincial/national sites (% change 2013-2018)	<ul style="list-style-type: none"> • Cape St. Mary's Ecological Reserve: 15,850 (+34.5% since 2013) 	<ul style="list-style-type: none"> • Port au Choix National Historic Site: 15,882 (+126.7% since 2013) 	<ul style="list-style-type: none"> • Bonavista Lighthouse: 31,468 (+192.2% since 2013) 	533,507 non-resident visitors to the province in 2018 (+5.0% since 2014)

Community/region	Town of Branch	Tip of Northern Peninsula	Bonavista Peninsula	NL average
		<ul style="list-style-type: none"> L'Anse aux Meadows National Historic Site: 33,553 (+52.8% since 2013) 	<ul style="list-style-type: none"> Trinity Interpretation Centre: 8,421 (+10.2% since 2013) Coaker Foundation Properties: 5,866 (+16.3% since 2013) 	
Highest level of education attained (population 25-64 years old)	<ul style="list-style-type: none"> Less than high school: 20.6% High school: 47.1% Postsecondary degree: 29.4% 	<ul style="list-style-type: none"> Less than high school: 27.6% High school: 29.2% Postsecondary degree: 43.2% 	<ul style="list-style-type: none"> Less than high school: 20.4% High school: 26.2% Postsecondary degree: 53.4% 	<ul style="list-style-type: none"> Less than high school: 15.7% High school: 22.7% Postsecondary degree: 61.7%
Current school enrollment (2019-2020), compared to 2014	452 (-17.4% from 2014)	1,159 (-13.2% from 2014)	2,875 (-9.1% from 2014)	63,722 (-5.3% from 2014)
% of population with a self-assessed health status of very good or excellent	44.2%**	55.9%	51.5%	62.0%
% of population with high overall life satisfaction	98.0%*	90.1%	89.4%	88.0%
% residents with strong sense of belonging to community	71.9%**	93.70%	86.40%	79.60%
% of residents who feel their community is safe (2010)	86.5%**	93.6%	95.6%	89.4%
Average mortgage debt per household	\$135,932*	\$104,880	\$130,884	\$159,691

Community/region	Town of Branch	Tip of Northern Peninsula	Bonavista Peninsula	NL average
Median housing costs (homeowners vs. renters)	\$484/mo. for owners, \$568/mo. for renters**	\$466/mo. for owners, \$617/mo. for renters	\$494/mo. for owners, \$728/mo. for renters	\$743/mo. for homeowners, \$802/mo. for renters
% of residents with a self-perceived life stress of extreme or quite a bit	Unavailable	13.1%	10.3%	13.6%
% of population who has seen a doctor in the last 12 months	80.7%**	49.4%	70.2%	77.9%
% of population who consider themselves overweight	72.4%**	55.8%	46.3%	47.5%
% of residents who eat less than 5 servings of fruit and vegetables per day	98.9%**	82.4%	85.2%	79.2%

* These indicators are not available at the community level in Branch due to data suppression; data have instead been retrieved from the Branch/Point Lance Regional Local Area.

** Data retrieved from Placentia-St. Bride's Local Area due to data suppression at both community and Regional Local Area level.

*** Data retrieved for Economic Zone 18 (southwest Avalon)

**** Data retrieved for Economic Zone 6 (St. Anthony to Plum Point to Roddickton), due to lack of available data at Rural Secretariat region level.

Appendix 6: GNP regional asset inventory, including under-utilized assets and changes from 2014-2019.

Social capital assets

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Sedler Group	Association and Organizations	Social clubs and associations	2019 study	Port Saunders	Tri-town	Y		New organization
Golden Oldies (50+ Club)	Association and Organizations	Social clubs and associations	2019 study	Port Saunders	Tri-town	Y		
Norpen Aboriginal Women's Circle	Association and Organizations	Social clubs and associations	2019 study	Port Saunders	Tri-town	Y		New organization
Housing units	Facilities	Other	2019 study	Roddickton-Bide Arm	Northern Pen East	Y		
Fish Food and Allied Workers	Association and Organizations	Social clubs and associations	Yellow Pages	Port Saunders	Tri-town			
Fish Harvesters Resource Centre	Association and Organizations	Social clubs and associations	Yellow Pages	Port Saunders	Tri-town			
Friends of Burnt Cape	Association and Organizations	Social clubs and associations	Western NL Business Directory	Raleigh	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Roncalli Air Cadets	Association and Organizations	Youth clubs and associations	Yellow Pages	Port Saunders	Tri-town			
United Towns Lion Club	Association and Organizations	Social clubs and associations	Yellow Pages	Port Saunders	Tri-town			
Status of Women Council	Association and Organizations	Social clubs and associations	2019 study	Port Saunders	Tri-town	Y		
Association of Community Living	Associations and organizations	Social clubs and associations	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Aurora Nordic Cross Country Ski Club	Associations and organizations	Sporting clubs and associations	Forest Sector labour report	St. Anthony	St. Anthony Basin			
Cook's Harbour 50+ Club	Associations and organizations	Social clubs and associations	northernpeninsula.ca	Cook's Harbour	St. Anthony Basin			Gone
Deep Cove Ski Club	Associations and organizations	Sporting clubs and associations	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Englee Youth Center	Associations and organizations	Youth clubs and associations	northernpeninsula.ca	Englee	Northern Pen East			
Family Resources Center	Associations and organizations	Social clubs and associations	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Family Resources Center	Associations and organizations	Social clubs and associations	northernpeninsula.ca	Main Brook	Northern Pen East			
Flower's Cove Lioness Club	Associations and organizations	Social clubs and associations	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Flower's Cove Lions Club	Associations and organizations	Social clubs and associations	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Green Island Cove Lions Club	Associations and organizations	Social clubs and associations	Western NL Business Directory	Green Island Cove	St. Barbe-Straits			
Lions Club	Associations and organizations	Social clubs and associations	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Anchor Point Lions Club	Associations and organizations	Social clubs and associations	2019 study	Anchor Point	St. Barbe-Straits	Y		
NL Cross Country Ski Association	Associations and organizations	Sporting clubs and associations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Northern Blades Skating Club	Associations and organizations	Sporting clubs and associations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Northern Drifter Snowmobile Club	Associations and organizations	Sporting clubs and associations	Forest Sector labour report	St. Anthony	St. Anthony Basin			
Northern Drifters Snowmobile Club	Associations and organizations	Sporting clubs and associations	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Quirpon Community Hall Committee	Associations and organizations	Social clubs and associations	White Bay North Business Inventory	Quirpon	St. Anthony Basin			
Raleigh Recreation Committee	Associations and organizations	Sporting clubs and associations	White Bay North Business Inventory	Raleigh	St. Anthony Basin			
Regional Community Youth Center	Associations and organizations	Youth clubs and associations	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Royal Canadian Air Cadets	Associations and organizations	Youth clubs and associations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Royal Canadian Legion	Associations and organizations	Social clubs and associations	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Sandy Cove Lions Club	Associations and organizations	Social clubs and associations	Straits Business Inventory	Sandy Cove	St. Barbe-Straits			
Save our char group	Associations and organizations	Environmental Group	Network Spreadsheet	N/A				
St. Anthony Boys and Girls Club	Associations and organizations	Youth clubs and associations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
St. Anthony Fitness and Health Committee	Associations and organizations	Sporting clubs and associations	Western NL Business Directory	St. Anthony	St. Anthony Basin			
St. Anthony Kinsmen Club	Associations and organizations	Social clubs and associations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
St. Anthony Lions Club	Associations and organizations	Social clubs and associations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
St. Anthony ??? Centre	Associations and organizations	Sporting clubs and associations	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Straits Minor Hockey Association	Associations and organizations	Sporting clubs and associations	Straits Business Inventory	Savage Cove	St. Barbe-Straits			
Women's Institute	Associations and organizations	Social clubs and associations	2019 study	Port au Choix	Tri-town	Y		
Hawke's Bay 50+ Club	Associations and organizations	Social clubs and associations	2019 study	Hawke's Bay	Tri-town	Y		
Croque Community Centre	Associations and organizations	Community centres	2019 study	Croque	Northern Pen East	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Lunaire-Griquet 50+ Club	Associations and organizations	Social clubs and associations	2019 study	St. Lunaire-Griquet	St. Anthony Basin	Y		
Canadian Rangers	Associations and organizations	Social clubs and associations	2019 study	???		Y		
St. Anthony & Area Girl Guides	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
St. Anthony & Area Minor Hockey	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Beavers	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Scouts	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Dolphins	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Minor softball team	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Soccer program	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Summer program at the Arena	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Grenfell Foundation	Associations and organizations		2019 study	St. Anthony	St. Anthony Basin	Y		

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
First Step Charity	Associations and organizations		2019 study	St. Anthony	St. Anthony Basin	Y		
Small Boat Basin Group	Associations and organizations	Social clubs and associations	2019 study	St. Anthony	St. Anthony Basin	Y		
Sacred Heart Catholic Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Bartlett's Harbour	St. Barbe-Straits			
Our Lady of Grace Roman Catholic Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Bird Cove	St. Barbe-Straits			
St. Mary's the Virgin Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Black Duck Cove	St. Barbe-Straits			
St. Anne's Chapel Catholic Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Castor River North	St. Barbe-Straits			
Our Lady of Angels Roman Catholic Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Castor's River South	St. Barbe-Straits			
St. Mary's Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Forrester's Point	St. Barbe-Straits			
Bethel Pentecostal Tabernacle	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Holy Innocents Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			
Fellowship Gathering	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
The Advent Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
St. Theresa's Catholic Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
St. Thomas Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Bethel Pentecostal Tabernacle	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
St. Anne's Guide	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
St. John the Devin Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Joseph Roman Catholic Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
St. Margaret's of Scotland Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	Reef's Harbour	St. Barbe-Straits			
St. Peter's Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	River of Ponds	Tri-town			
Trinity Pentecostal	General facilities	Churches	Red Ochre Community Profiles & Business Directory	River of Ponds	Tri-town			
St. Mary's Anglican Church	General facilities	Churches	Red Ochre Community Profiles & Business Directory	St. Barbe	St. Barbe-Straits			
Pentocostal Church	General Facilities	Churches	northernpeninsula.ca	Cape Onion - Ship Cove	St. Anthony Basin			
Roman Catholic Church	General Facilities	Churches	northernpeninsula.ca	Conche	Northern Pen East			
Englee Apostolic Faith	General Facilities	Churches	northernpeninsula.ca	Englee	Northern Pen East			
Englee Pentecostal	General Facilities	Churches	northernpeninsula.ca	Englee	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Englee Roman Catholic Church	General Facilities	Churches	northernpeninsula.ca	Englee	Northern Pen East			
Salvation Army	General Facilities	Churches	northernpeninsula.ca	Englee	Northern Pen East			
United Church of Englee	General Facilities	Churches	northernpeninsula.ca	Englee	Northern Pen East			
Roman Catholic Church	General Facilities	Churches	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
St. Barnabas Anglican Church	General Facilities	Churches	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
United Church of Flowers Cove	General Facilities	Churches	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Historical Church	General Facilities	Churches	northernpeninsula.ca	Grandois-St. Juliens	Northern Pen East			
Great Brehat United Church	General Facilities	Churches	northernpeninsula.ca	Great Brehat	St. Anthony Basin			
Anglican Church	General Facilities	Churches	northernpeninsula.ca	Main Brook	Northern Pen East			
Pentecostal Church	General Facilities	Churches	northernpeninsula.ca	Main Brook	Northern Pen East			
Roman Catholic Church	General Facilities	Churches	northernpeninsula.ca	Main Brook	Northern Pen East			
United Church	General Facilities	Churches	northernpeninsula.ca	Main Brook	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Gospell Hall	General Facilities	Churches	northernpeninsula.ca	Nameless Cove	St. Barbe-Straits			
Central United Church	General Facilities	Churches	northernpeninsula.ca	Noddy Bay	St. Anthony Basin			
Bide Arm Apostolic Faith Church	General Facilities	Churches	northernpeninsula.ca	Roddickton-Bide Arm	Northern Pen East			
Roddickton Apostolic Faith Church	General Facilities	Churches	northernpeninsula.ca	Roddickton-Bide Arm	Northern Pen East			
Roddickton Pentecostal Church	General Facilities	Churches	northernpeninsula.ca	Roddickton-Bide Arm	Northern Pen East			
Roddickton Roman Catholic Church	General Facilities	Churches	northernpeninsula.ca	Roddickton-Bide Arm	Northern Pen East			
Roddickton United Church	General Facilities	Churches	northernpeninsula.ca	Roddickton-Bide Arm	Northern Pen East			
St. Thomas' Anglican	General Facilities	Churches	northernpeninsula.ca	Sandy Cove	St. Barbe-Straits			
St. Mark's Anglican	General Facilities	Churches	northernpeninsula.ca	Savage Cove	St. Barbe-Straits			
St. Francis Xavier Church	General Facilities	Churches	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Mary's Anglican Church	General Facilities	Churches	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
United Church	General Facilities	Churches	northernpeninsula.ca	St. Anthony Bight	St. Anthony Basin			
St. Carols Anglican Church	General Facilities	Churches	northernpeninsula.ca	St. Carols	St. Anthony Basin			
Catholic Church	General Facilities	Churches	2019 study	Croque	Northern Pen East	Y	Y	
St. Matthew's Anglican Church	General Facilities	Churches	2019 study	Anchor Point	St. Barbe-Straits	Y		
Aurora Nordic Cross Country Ski Club	Tourism and Recreation	Skiing	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Cultural capital assets

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Ben's Studio	Association and Organizations	Artistic clubs and associations	Govt. of NL Travel Directory	Port au Choix	Tri-town			
Raleigh Historical Corporation and Craftcenter	Association and Organizations	Social clubs and associations	Western NL Business Directory	Raleigh	St. Anthony Basin			
French Shore Tapestry	Associations and organizations	Artistic clubs and associations	Tourism Spreadsheet	Conche	Northern Peninsula			
GNP Crafts	Associations and organizations	Artistic clubs and associations	www.newfoundlandlabrador.com	Shoal Cove East	St. Barbe Straits			
Grenfell Handicrafts	Associations and organizations	Artistic clubs and associations	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Petite Nord	Associations and organizations	Social clubs and associations	Network Spreadsheet	St. Lunaire-Griquet	St. Anthony Basin			Gone
Big Droke Heritage festival	Festivals and events	Multicultural Event	Tourism Spreadsheet	Bird Cove	St. Barbe Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Winterhousing (Designated National Historic Event)	Festivals and Events	Multi-Cultural festivals and events	nl.communityaccounts.ca	Anchor Point	St. Barbe-Straits			
French Historic Week	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	Conche	Northern Pen East			
Peter Jacobs-Live Concert	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	Conche	Northern Pen East			Gone
Live Music at the Norseman	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	L'Anse aux Meadows	St. Anthony Basin			
The Westward Viking Festival	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	L'Anse aux Meadows	St. Anthony Basin			
Grenfell Heritage Night	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	St. Anthony	St. Anthony Basin			
Canada Day Celebrations	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	St. Anthony	St. Anthony Basin			
The Great Viking Feast Dinner	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
The Iceberg Festival	Festivals and Events	Multi-Cultural festivals and events	Tourism Spreadsheet	St. Anthony	St. Anthony Basin			
Conche Garden Party	Festivals and Events	Cultural festivals and events	2019 study	Conche	Northern Peninsula East	Y	Y	
Flower's Island Lighthouse	General Facilities	Sightseeing Facilities	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Visitor's Centre	General Facilities	Sightseeing Facilities	Western NL Business Directory	L'anse aux Meadows	St. Anthony Basin			
Fishing Point Emporium & Interpretation Centre	General Facilities	Sightseeing Facilities	Western NL Business Directory	St. Anthony	St. Anthony Basin			
Bird Cove Archaeological	Heritage Sites	Archaeological sites	Tourism Spreadsheet	Bird Cove	St. Barbe-Straits			
Maritime Archaic Cemeteries	Heritage Sites	Archaeological sites	Community Accounts	Port au Choix	Tri-town			
Port au Choix National Historic Site	Heritage Sites	Heritage Districts	Community Accounts	Port au Choix	Tri-town			
Heritage Shop of Port au Choix	Heritage Sites	Historical buildings	Govt. of NL Travel Directory	Port au Choix	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Raleigh Historic Village	Heritage Sites	Historical buildings	Western NL Business Directory	Raleigh	St. Anthony Basin			
Raleigh Historical Craft Center/Fishing Stages	Heritage Sites	Historical buildings	Western NL Business Directory	Raleigh	St. Anthony Basin			
Cape Norman Lighthouse	Heritage Sites	Historical building	http://www.newfoundlandlabrador.com/	Cape Norman	St. Anthony Basin			
Cemetery	Heritage Sites	Cemeteries	northernpeninsula.ca	Croque	Northern Pen East			
Historic Sites (fishing)	Heritage Sites	Historical building	northernpeninsula.ca	Croque	Northern Pen East			
Englee Heritage Committee	Heritage Sites	Social clubs and associations	Heritage Cluster report	Englee	Northern Pen East			
Jenny's Runestone House (formerly Marilyn's Hospitality Home)	Heritage Sites	Historical building	www.newfoundlandlabrador.com	Hay Cove	St. Anthony Basin			
L'Anse aux Meadows National Historic Site	Heritage Sites	Heritage District	nl.communityaccounts.ca	L'Anse aux Meadows	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Norstead - A Viking Port of Trade	Heritage Sites	Heritage District	www.newfoundlandlabrador.com	L'Anse aux Meadows	St. Anthony Basin			
Heritage Shop of L'Anse aux Meadows	Heritage Sites	Historical building	www.newfoundlandlabrador.com	L'Anse aux Meadows	St. Anthony Basin			
Raleigh Traditional Fishing	Heritage Sites	Historical building	Tourism Spreadsheet	Raleigh	St. Anthony Basin			
Grenfell, Sir Wilfred (Plaque)	Heritage Sites	Historical building	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Sir Wilfred Thomason Grenfell Historical Society Archives	Heritage Sites	Historical building	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Grenfell Historic Properties	Heritage Sites	Historical building	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Leif Ericson Monument	Heritage Sites	Historical building	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Keppel Island	Heritage Sites	Other	2019 interviews	Port Saunders	Tri-town	Y	Y	
Philip's Garden	Heritage Sites	Archaeological sites	Community Accounts	Port au Choix	Tri-town		Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
French inscriptions from historic buildings	Heritage Sites	Other	2019 study	Croque	Northern Pen East	Y	Y	
Historic homes of Croque	Heritage Sites	Historical buildings	2019 study	Croque	Northern Pen East	Y	Y	
French Bread Oven	Heritage Sites	Historical buildings	2019 study	Port au Choix	Tri-town	Y		
Barbace Cove Archaeological Site	Heritage Sites	Archaeological sites	2019 study	Port au Choix	Tri-town	Y		
Kearney's Cove	Heritage Sites	Archaeological sites	2019 study	Croque	Northern Pen East	Y	Y	
Northeast Crouse (resettled community)	Heritage Sites	Historical buildings	2019 study	Conche	Northern Pen East	Y	Y	
Foxhead Lighthouse	Heritage Sites	Historical buildings	2019 study	Conche	Northern Pen East	Y	Y	
World War II Crash Site	Heritage Sites	Archaeological sites	2019 study	Conche	Northern Pen East	Y	Y	
Old Ferolle Island Basque Site	Heritage Sites	Archaeological sites	Selma Barkham research	Old Ferolle Island	St. Barbe-Straits	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
New Ferolle Lighthouse	Heritage Sites	Historical buildings	St. Barbe Development Association	New Ferolle	St. Barbe-Straits	Y	Y	
St. Margaret's Bay Winter Housing Settlement	Heritage Sites	Historical buildings	St. Barbe Development Association	Near Reefs Harbour	St. Barbe-Straits	Y	Y	
Deep Cove Winter Housing Settlement	Heritage Sites	Historical buildings	2019 study	Near Anchor Point	St. Barbe-Straits	Y		
Bearnie's Island?	Heritage Sites	Archaeological sites	2019 study	Port au Choix	Tri-town	Y	Y	
Dr. Grenfell's Gardens	Heritage Sites	Agricultural Heritage	Greg Wood study	Throughout	St. Anthony Basin		Y	
Quirpon Bread Oven	Heritage Sites	Archaeological sites	2019 study	Quirpon	St. Anthony Basin	Y	Y	
Trap berths from Goose Cove to Boat Harbour	Heritage Sites	Fisheries heritage	2019 study	Throughout	St. Anthony Basin	Y	Y	
Rufus Guinchard Site	Heritage Sites	Historical buildings	2019 study	Hawke's Bay	Tri-town	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Main Brook War Memorial	Heritage Sites	Sightseeing Facilities	2019 study	Main Brook	Northern Peninsula East	Y		
World War I Cemetery	Heritage Sites	Cemeteries	2019 study	Main Brook	Northern Peninsula East	Y		
Camp at Coles' Pond	Heritage Sites	Historical buildings	2019 study	Coles' Pond	Northern Peninsula East	Y		
50 Centuries Interpretation Centre	Spaces and Facilities	Museums	Tourism Spreadsheet	Bird Cove	St. Barbe-Straits			
Torrent River Salmon Interpretation Centre	Spaces and Facilities	Museums	Community Accounts	Hawkes Bay	Tri-town			
French Rooms Cultural Centre	Spaces and Facilities	Museums	Govt. of NL Travel Directory	Port au Choix	Tri-town			
Museum of Whales and Things	Spaces and Facilities	Museums	Community Accounts	Port au Choix	Tri-town			
French Shore Interpretation Centre	Spaces and Facilities	Museums	nl.communityaccounts.ca	Conche	Northern Peninsula East			
Casey House Artist's Retreat	Spaces and Facilities	Art galleries and studios	northernpeninsula.ca	Conche	Northern Peninsula East			Gone

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Norseman Gallery	Spaces and Facilities	Art galleries and studios	www.newfoundlandlabrador.com	L'Anse aux Meadows	St. Anthony Basin			
The Gaia Gallery and Café	Spaces and Facilities	Art galleries and studios	Tourism Spreadsheet	L'Anse aux Meadows	St. Anthony Basin			
Green Moose Interpretation Centre	Spaces and Facilities	Museums	nl.communityaccounts.ca	Roddickton-Bide Arm	Northern Pen East			
Ashton House Heritage Museum	Spaces and Facilities	Museums	nl.communityaccounts.ca	Roddickton-Bide Arm	Northern Pen East			
Salvage Fisherman's Museum	Spaces and Facilities	Museums	Tourism Spreadsheet	Salvage				
Sealskin Economuseum	Spaces and Facilities	Museums	nl.communityaccounts.ca	Shoal Cove East	St. Barbe-Straits			
Visitor Information Center (at Grenfell Interpretation Centre)	Spaces and Facilities	Museums	www.town.stanthony.nf.ca	St. Anthony	St. Anthony Basin			
The Jordi Bonet Murals	Spaces and Facilities	Art galleries and studios	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Grenfell House Museum	Spaces and Facilities	Museums	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Grenfell Interpretation Center	Spaces and Facilities	Museums	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Stagehead Carving Shop	Spaces and Facilities	Art galleries and studios	maps.google.ca	St. Lunaire-Griquet	St. Anthony Basin			
Dark Tickle Wild Berry Economuseum	Spaces and Facilities	Museums	nl.communityaccounts.ca	St. Lunaire-Griquet	St. Anthony Basin			
Fishermen's Centre, St. Lunaire-Griquet	Spaces and Facilities	Museums	nl.communityaccounts.ca	St. Lunaire-Griquet	St. Anthony Basin			
The Granchain Exhibit	Spaces and Facilities	Museums	www.newfoundlandlabrador.com	St. Lunaire-Griquet	St. Anthony Basin			
Chantier de Chaloupe / Chaloupe Exhibit	Spaces and Facilities	Museums	www.newfoundlandlabrador.com	Conche				
Basque Interpretation Site	Spaces and Facilities	Museums	2019 study	Plum Point	St. Barbe-Straits	Y	Y	
Story of the French deserters	Stories	Historical stories	2019 study	Port au Choix	Tri-town	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Dr. Grenfell Floating on an icepan	Stories	Historical events	2019 study	St. Anthony	St. Anthony Basin	Y	Y	
Granchain's Flotilla in St. Lunaire Bay	Stories	Historical events	2019 study	St. Lunaire-Griquet	St. Anthony Basin	Y	Y	
Ghost stories of L'Anse aux Meadows	Stories	Folktales	2019 study	L'Anse aux Meadows	St. Anthony Basin	Y		
Viking Ship replicas	Tourism and Recreation	Sightseeing Facilities	Western NL Business Directory	Noddy Bay	St. Anthony Basin			Gone
Oldest House (Heritage Structure)	Tourism and Recreation	Sightseeing Facilities	northernpeninsula.ca	Quirpon	St. Anthony Basin			Gone
St. Brendan's Rock	Tourism and Recreation	Sightseeing Facilities	Biophysical inventory	St. Lunaire-Griquet	St. Anthony Basin			
Test of Tykir Escape Room	Tourism and Recreation	Experiential Tourism	2019 study	L'Anse aux Meadows	St. Anthony Basin	Y		
Geocaching at L'Anse aux Meadows	Tourism and Recreation	Experiential Tourism	2019 study	L'Anse aux Meadows	St. Anthony Basin			

Economic capital assets

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Northern Taxi	Other services except public administration (81)	2019 study	Port Saunders	Tri-town			Gone
East Coast Hydraulic	Other services except public administration (81)	2019 study	St. Anthony	St. Anthony Basin	Y		
Gloria's B&B	Accommodation and services (721)	Yellow Pages	Hawke's Bay	Tri-town			
Torrent River Inn & Cottages	Accommodation and services (721)	Govt of NL Travel Directory	Hawke's Bay	Tri-town			
Plum Point Motel	Accommodation and services (721)	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
Jeannie's Sunrise B&B	Accommodation and services (721)	Govt of NL Travel Directory	Port au Choix	Tri-town			
Sea Echo Motel & Cabins	Accommodation and services (721)	Govt of NL Travel Directory	Port au Choix	Tri-town			
French Shore Inn	Accommodation and services (721)	Western NL Business Directory	Port au Choix	Tri-town			Not operational right now - under renovation, owners' intentions unclear

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Oceanspray B&B	Accommodation and services (721)	Govt of NL Travel Directory	Port Saunders	Tri-town			Gone
Seapool Cabins	Accommodation and services (721)	Govt of NL Travel Directory	Portland Creek River				
Quirpon Island Lighthouse Inn	Accommodation and services (721)	Western NL Business Directory	Quirpon	St. Anthony Basin			
Tucker's Cottages	Accommodation and services (721)	Western NL Business Directory	Reef's Harbour	St. Barbe-Straits			
Riverside Chalets	Accommodation and services (721)	Govt of NL Travel Directory	River of Ponds	Tri-town			
Dockside Motel	Accommodation and services (721)	Red Ochre Community Profiles & Business Directory	St. Barbe	St. Barbe-Straits			
A Wave From It All	Accommodation and services (721)	2019 study	Port Saunders	Tri-town	Y		
Long Range Mountain (Biggin Lake Lodge)	Accommodation services (721)	http://www.newfoundlandlabrador.com/	Biggin Lake				
Tickle Inn At Cape Onion	Accommodation services (721)	www.newfoundlandlabrador.com	Cape Onion	St. Anthony Basin			Gone
Stage Cove B&B	Accommodation services (721)	Western NL Business Directory	Conche	Northern Pen East			
RV Park	Accommodation services (721)	northernpeninsula.ca	Deadman's Cove	St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
French Island B&B	Accommodation services (721)	www.newfoundlandlabrador.com	Flower's Cove	St. Barbe-Straits			
Belle's B&B	Accommodation services (721)	Western NL Business Directory	Goose Cove	St. Anthony Basin			Gone
Coziest Bed and Breakfast	Accommodation services (721)	www.newfoundlandlabrador.com	Green Island Cove	St. Barbe-Straits			
Annie's Retreat	Accommodation services (721)	www.newfoundlandlabrador.com	Gunners Cove	St. Anthony Basin			
Hillsview Bed & Breakfast	Accommodation services (721)	www.newfoundlandlabrador.com	Gunners Cove	St. Anthony Basin			
Viking Nest Bed and Breakfast	Accommodation services (721)	www.newfoundlandlabrador.com	Hay Cove	St. Anthony Basin			
Viking Village B&B	Accommodation services (721)	White Bay North Business Inventory	Hay Cove	St. Anthony Basin			
Mayflower Outfitters Lodge	Accommodation services (721)	http://www.newfoundlandlabrador.com/	Lanes Pond				
Tuckamore Lodge & Outfitters	Accommodation services (721)	www.newfoundlandlabrador.com	Main Brook	Northern Pen East			
Quirpon Lighthouse Inn	Accommodation services (721)	www.newfoundlandlabrador.com	Quirpon				

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Burnt Cape Cabins	Accommodation services (721)	www.newfoundlandlabrador.com	Raleigh	St. Anthony Basin			
Mayflower Inn & Adventures	Accommodation services (721)	www.newfoundlandlabrador.com	Roddickton-Bide Arm	Northern Pen East			
Roddickton House	Accommodation services (721)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Armistice B&B	Accommodation services (721)	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			
Betty's Bed & Breakfast	Accommodation services (721)	www.newfoundlandlabrador.com	Roddickton-Bide Arm	Northern Pen East			Gone
Mayflower Cottages	Accommodation services (721)	www.newfoundlandlabrador.com	Roddickton-Bide Arm	Northern Pen East			
Pinnacle Lodge	Accommodation services (721)	http://www.newfoundlandlabrador.com/	Salt Water Pond				
Moose Country Adventures (Shoal Brook Pond Lodge)	Accommodation services (721)	http://www.newfoundlandlabrador.com/	Shoal Brook Pond				
Cloud River Outfitters Ltd. (Cloud River Lodge)	Accommodation services (721)	http://www.newfoundlandlabrador.com/	Snowy Lake				
Lynn's Bed & Breakfast	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Grenfell Heritage Hotel and Suites	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Hotel North	Accommodation services (721)	maps.google.ca	St. Anthony	St. Anthony Basin			
Crows Nest Inn B & B	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Snuggle Inn Bed & Breakfast/Cottages	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Trails End Boarding & Hosp Home	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Fishing Point Bed & Breakfast	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Haven Inn	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Lighthouse Cottages and Concience	Accommodation services (721)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Patey's Home B&B	Accommodation services (721)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
St. Anthony Haven Inn	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Valhalla Lodge Bed and Breakfast	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Wildberry Country Inn	Accommodation services (721)	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Dockside Motel	Accommodation services (721)	Western NL Business Directory	St. Barbe	St. Barbe-Straits			
Southwest Pond Cabins	Accommodation services (721)	www.newfoundlandlabrador.com	St. Lunaire-Griquet	St. Anthony Basin			
St. Brendan's Motel	Accommodation services (721)	www.newfoundlandlabrador.com	St. Lunaire-Griquet	St. Anthony Basin			
Snorri Cabins	Accommodation services (721)	www.newfoundlandlabrador.com	Straitsview	St. Anthony Basin			
Bough Wiffen Lodge	Accommodation services (721)	http://www.newfoundlandlabrador.com/	Twin Lakes/Cloud River				

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Triple Rose B&B	Accommodation services (721)		St. Anthony	St. Anthony Basin			Gone
Roadside Recreation	Amusement, gambling, and recreation industries (713)	Forest Sector labour report	Sandy Cove	St. Barbe-Straits			
Northland Discovery Boat Tours	Amusement, gambling, and recreation industries (713)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Linkum Tours	Amusement, Gambling, and Recreation Services	Western NL Business Directory	Quirpon	St. Anthony Basin			
Keppel Harbour Aquaculture Licence (Atlantic Cod)	Aquaculture	Community Accounts	Port Saunders	Tri-town			Gone
Nu Sea Products Inc.	Aquaculture	nl.communityaccounts.ca	Anchor Point	St. Barbe-Straits			
Northwest Bay, St. Lunaire Bay (Blue Mussel aquaculture)	Aquaculture	nl.communityaccounts.ca	St. Lunaire-Griquet	St. Anthony Basin			Gone
Northwest Arm, Griquet Harbour (Blue Mussel aquaculture)	Aquaculture	nl.communityaccounts.ca	St. Lunaire-Griquet	St. Anthony Basin			Gone
Dredge's Enterprises	Construction	Red Ochre Community Profiles & Business Directory	Black Duck Cove	St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Abe Gibbons & Sons	Construction	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			Gone
Gibbons Construction Ltd.	Construction	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
Gould's Construction	Construction	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Michael & Mark Construction	Construction	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Dobbin Building Ltd.	Construction	Western NL Business Directory	Port Saunders	Tri-town			
E. J. Logging Ltd.	Construction	Red Ochre Community Profiles & Business Directory	River of Ponds	Tri-town			
T&M Construction	Construction	Straits Business Inventory	Flower's Cove	St. Barbe-Straits			
G-MAK Construction	Construction	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			Gone
Mclean's Carpentry	Construction	Western NL Business Directory	Nameless Cove	St. Barbe-Straits			
Taylor's Construction	Construction	Forest Sector labour report	Raleigh	St. Anthony Basin			
Canada Bay Construction	Construction	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Marine and Land Builders	Construction	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			
Northern Construction and Resources	Construction	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Budgell's Construction	Construction	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Elite Builder's	Construction	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Humby's Contracting	Construction	East Business Inventory	Zone 6				
Gibbon's Construction/D&L Logging	Construction/Forestry and Logging	East Business Inventory	Plum Point	St. Barbe-Straits			
Scotiabank, Flower's Cove	Finance and insurance (52)	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
Scotiabank, St. Anthony	Finance and insurance (52)	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Eagle River Credit Union: White Hills	Finance and insurance (52)	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Anthony Insurance Inc.	Finance and insurance (52)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Fairstone Financial	Finance and insurance (52)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
H&R Block	Finance and insurance (52)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Steer's Insurance	Finance and insurance (52)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
CITI Financial Services	Finance and Insurance (52)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			Gone
Bank of Montreal	Finance and Insurance (52)	Western NL Business Directory	Port au Choix	Tri-town			
Eagle River Credit Union: Tri Town	Finance and Insurance (52)	Community Accounts	Port Saunders	Tri-town			
Gulf Shrimp Limited (Processing)	Fishing, Hunting, Trapping (114)	Community Accounts	Black Duck Cove	St. Barbe-Straits			Gone (burnt down in 2019)
Doyle's Seafoods	Fishing, Hunting, Trapping (114)	Red Ochre Community Profiles & Business Directory	New Ferolle	St. Barbe-Straits			
Ocean Choice International (Processing)	Fishing, Hunting, Trapping (114)	Community Accounts	Port au Choix	Tri-town			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Port Saunders Seafoods	Fishing, Hunting, Trapping (114)	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Gould's Fisheries	Fishing, Hunting, Trapping (114)	Western NL Business Directory	River of Ponds	Tri-town			
T.M.B. Seafoods	Fishing, Hunting, Trapping (114)	nl.communityaccounts.ca	Anchor Point	St. Barbe-Straits			
Viking Sea Products	Fishing, Hunting, Trapping (114)	Fisheries task force	Anchor Point	St. Barbe-Straits			
Avalon Venture	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
B&R Company Ltd.	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Back Track	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Barry Group Inc.	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Blair Venture	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Breaker Point	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Kailey Venture	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
KMKA	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Newfoundland Leader	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Rainbow Venture Ltd.	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
RJ Gardner&Sons	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Saltwater Foam	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Sea Voyager	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Straits Stream	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
TMB Seafoods	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
West Coast Marnier	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Straits Venture	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Bear Cove				
Conche Seafoods Inc.	Fishing, Hunting, Trapping (114)	nl.communityaccounts.ca	Conche	Northern Pen East			
Northern Seafoods	Fishing, Hunting, Trapping (114)	East Business Inventory	Conche	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Carroll's Fisheries Ltd.	Fishing, Hunting, Trapping (114)	Fisheries task force	Cook's Harbour	St. Anthony Basin			
Stan W. Elliot Ltd.	Fishing, Hunting, Trapping (114)	Fisheries task force	Cook's Harbour	St. Anthony Basin			
Sealand Enterprises Ltd.	Fishing, Hunting, Trapping (114)	nl.communityaccounts.ca	Englee	Northern Pen East			
Englee Seafoods Ltd.	Fishing, Hunting, Trapping (114)	Fisheries task force	Englee	Northern Pen East			
Sea Land Enterprises	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Englee	Northern Pen East			
Cold North Seafoods	Fishing, Hunting, Trapping (114)	White Bay North Business Inventory	Goose Cove				
Selby Noseworthy&Sons	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Green Island Cove	St. Barbe-Straits			
Northern Lights Seafoods	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Main Brook	Northern Pen East			
Woodward's Fisheries Ltd.	Fishing, Hunting, Trapping (114)	nl.communityaccounts.ca	North Boat Harbour				
Sunrise Fisheries	Fishing, Hunting, Trapping (114)	East Business Inventory	Roddickton-Bide Arm	Northern Pen East			
Moonlight Fisheries	Fishing, Hunting, Trapping (114)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Stardom Enterprises	Fishing, Hunting, Trapping (114)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
Miss Way II	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Savage Cove	St. Barbe-Straits			
STRABCOL Enterprises	Fishing, Hunting, Trapping (114)	Western NL Business Directory	Savage Cove	St. Barbe-Straits			
St. Anthony Seafoods Limited Partnership	Fishing, Hunting, Trapping (114)	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Ocean Choice International	Fishing, Hunting, Trapping (114)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Croque fish plant	Fishing, Hunting, Trapping (114)	2019 study	Croque	Northern Pen East	Y	Y	
Grandois fish plant	Fishing, Hunting, Trapping (114)	2019 study	Grandois	Northern Pen East	Y	Y	
St. Anthony Basin Resources Inc.	Fishing, Hunting, Trapping (114)		St. Anthony	St. Anthony Basin			
Eagle Lounge	Food services and drink places (722)	Western NL Business Directory	Sandy Cove	St. Barbe-Straits			Gone
Bits n Pieces Café	Food services and drink places (722)	East Business Inventory	Conche	Northern Pen East			Gone

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Fitzpatrick's Lounge	Food services and drink places (722)	Western NL Business Directory	Conche	Northern Pen East			
Harbourview Lounge & Takeout	Food services and drink places (722)	White Bay North Business Inventory	Cook's Harbour	St. Anthony Basin			
Barren Restaurant	Food services and drink places (722)	Tourism spreadsheet	Cook's Harbour	St. Anthony Basin			Gone
Cross Rocks Cafe	Food services and drink places (722)	www.newfoundlandlabrador.com	Englee	Northern Pen East			
L&E Restaurant	Food services and drink places (722)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Lunch Box	Food services and drink places (722)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			Gone
Northern Delight	Food services and drink places (722)	White Bay North Business Inventory	Gunners Cove	St. Anthony Basin			
Norseman Restaurant In L'Anse aux Meadows	Food services and drink places (722)	http://www.newfoundlandlabrador.com/	L'Anse aux Meadows	St. Anthony Basin			
Norsman Gallery and restaurant	Food services and drink places (722)	Western NL Business Directory	L'Anse aux Meadows	St. Anthony Basin			
Mayflower Restaurant	Food services and drink places (722)	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
AJ's Takeout	Food services and drink places (722)	East Business Inventory	Roddickton-Bide Arm	Northern Pen East			
Angel's Café	Food services and drink places (722)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Lumberjacks Landing	Food services and drink places (722)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Beneath the Wings Café	Food services and drink places (722)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Far East Restaurant	Food services and drink places (722)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Flavor Crisp Chicken	Food services and drink places (722)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Great Viking Feast Dinner Theatre	Food services and drink places (722)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Jungle Jim's	Food services and drink places (722)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Lightkeeper's Café Seafood Restaurant	Food services and drink places (722)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Mary Brown's	Food services and drink places (722)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Pizza Delight	Food services and drink places (722)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Subway	Food services and drink places (722)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Tim Horton's	Food services and drink places (722)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Airport Café	Food services and drink places (722)	Tourism spreadsheet	St. Anthony	St. Anthony Basin			
Thirsty's	Food services and drink places (722)	Western NL Business Directory	St. Barbe	St. Barbe-Straits			
Daily Catch	Food services and drink places (722)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Fisherman's Gallery	Food services and drink places (722)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			Gone
Snow's Take-Out	Food services and drink places (722)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Skipper Hot's Lounge	Food services and drink places (722)	White Bay North Business Inventory	Straitsview	St. Anthony Basin			
Robin's Donuts	Food services and drink places (722)		Hawke's Bay	Tri-town			
Robin's Donuts	Food services and drink places (722)	2019 study	Roddickton-Bide Arm	Northern Pen East	Y		
Ragnarock	Food services and drink places (722)	2019 study	St. Anthony	St. Anthony Basin	Y		New business
Abby's Sweet Treats	Food services and drink places (722)	2019 study	St. Anthony	St. Anthony Basin	Y		
Clyde Maynard Let	food services and drinking places (722)	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			
JJ's Coffee Shop Plus	food services and drinking places (722)	Govt of NL Travel Directory	Hawke's Bay	Tri-town			Gone
Pizza Delight	food services and drinking places (722)	Govt of NL Travel Directory	Hawke's Bay	Tri-town			
Al's Place	food services and drinking places (722)	Western NL Business Directory	Hawke's Bay	Tri-town			Gone
Dot's Pantry & Coffee Shop	food services and drinking places (722)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Harbour View Bakery & Café	food services and drinking places (722)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town		Y	Gone
The Anchor Café	food services and drinking places (722)	Govt. of NL Travel Directory	Port au Choix	Tri-town			
Wu's Restaurant and Take Out	food services and drinking places (722)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Fisherman's Dock	food services and drinking places (722)	Govt of NL Travel Directory	Port Saunders	Tri-town			
Burnt Cape Café	food services and drinking places (722)	Western NL Business Directory	Raleigh	St. Anthony Basin			
Ray's Lounge	food services and drinking places (722)	Red Ochre Community Profiles & Business Directory	Reef's Harbour	St. Barbe-Straits			
Viking 430	food services and drinking places (722)	Red Ochre Community Profiles & Business Directory	Reef's Harbour	St. Barbe-Straits			
Thirsty's	food services and drinking places (722)	Red Ochre Community Profiles & Business Directory	St Barbe	St. Barbe-Straits			
GNR Enterprises	Forestry and Logging	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			Gone
Doyle's Logging	Forestry and Logging	Western NL Business Directory	St. Barbe	St. Barbe-Straits			Gone
Norstead Viking Village	Information and Cultural Industries (51)	White Bay North Business Inventory	L'anse aux Meadows	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Bell Aliant	Information and Cultural Industries (51)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Cartier's Gallery	Information and Cultural Industries (51)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Eastlink Communications	Information and Cultural Industries (51)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Eztek and Multimedia	Information and Cultural Industries (51)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
George's Studio	Information and Cultural Industries (51)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Persona Communications	Information and Cultural Industries (51)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
Wanda's Favorites	Information and Cultural Industries (51)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
East Link Communications	Information and Cultural Industries (51)	Western NL Business Directory	St. Anthony	St. Anthony Basin			
Weir's Contracting	Manufacturing	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
White Bay Construction	Manufacturing	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Brookfield Dairy Group	Manufacturing	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Coates Lumber	Manufacturing	Forest Sector labour report	Main Brook	Northern Pen East			
Holson Forest Products	Manufacturing	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East		Y	Gone
Marine & Land Builders Ltd.	Manufacturing	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Quality North	Manufacturing	Forest Sector labour report	St. Anthony	St. Anthony Basin			
Cal Nicolas	Manufacturing	Western NL Business Directory	St. Anthony	St. Anthony Basin			
Burden's Ice Plant	Manufacturing	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Dark Tickle Company	Manufacturing	Tucker et al paper	St. Lunaire-Griquet	St. Anthony Basin			
St. Julien's fish plant	Manufacturing	2019 study	St. Julien's	Northern Pen East	Y	Y	

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Roddickton crab plant	Manufacturing	2019 study	Roddickton-Bide Arm	Northern Pen East	Y		
Shell Canada	mining, quarrying, and oil and gas (21)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Simm's Diamon Drilling	mining, quarrying, and oil and gas (21)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Cutting Loose	Other services except public administration	Red Ochre Community Profiles & Business Directory	Bird Cove	St. Barbe-Straits			
R & S Auto Body Repair	Other services except public administration	Red Ochre Community Profiles & Business Directory	Bird Cove	St. Barbe-Straits			
Beauty by Design	Other services except public administration	Red Ochre Community Profiles & Business Directory	Black Duck Cove	St. Barbe-Straits			
Styles by Stephanie	Other services except public administration	Red Ochre Community Profiles & Business Directory	Brig Bay	St. Barbe-Straits			Gone
Cindy's Beauty Salon	Other services except public administration	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			Gone
J & L Repairs	Other services except public administration	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			Gone
Jan's Fitness and Toning	Other services except public administration	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			Gone
A & L Enterprises	Other services except public administration	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			Gone

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Christine's Beauty & Beyond	Other services except public administration	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			
D & D Repairs	Other services except public administration	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			
Woodward Motors	Other services except public administration	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			
Shelia's Upholstery	Other services except public administration	Western NL Business Directory	Pigeon Cove	St. Barbe-Straits			
GNR Enterprises	Other services except public administration	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
Fillatre's Funeral Home	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Jeannie's Beauty Salon	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Lisa's Beauty Salon	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Marie's Beauty Salon	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
MVP Recycling Inc	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Northern Diesel & Hydraulics	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Port au Choix Heating & Electrical	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Tracey's Cuts & Curls	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Port au Choix Electrical and Heating	Other services except public administration	Western NL Business Directory	Port au Choix	Tri-town			
Laud's Marine & Diesel	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			Gone
Alma's Beauty Salon	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Bussey's Enterprises	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
House's Transport	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Northern Boat Repair	Other services except public administration	Community Accounts	Port Saunders	Tri-town			
The Glamor Zone	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Velda's Hair Affair	Other services except public administration	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Tucker's Service Station	Other services except public administration	Red Ochre Community Profiles & Business Directory	Reef's Harbour	St. Barbe-Straits			
Clearview Cable	Other services except public administration	Red Ochre Community Profiles & Business Directory	Reef's Cove				
E.J. Aviation	Other services except public administration	Red Ochre Community Profiles & Business Directory	River of Ponds	Tri-town			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Ethel Coombs	Other services except public administration	Red Ochre Community Profiles & Business Directory	Shoal Cove West	St. Barbe-Straits			Gone
MV Apollo (Labrador Ferry)	Other services except public administration	Red Ochre Community Profiles & Business Directory	St. Barbe	St. Barbe-Straits			
Vonita's Aesthetics	Other services except public administration		Hawke's Bay	Tri-town	Y		New business
Jadean's Hair Salon	Other services except public administration (81)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Trixie's Hair Salon	Other services except public administration (81)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			
Fillatre's Funeral Home	Other services except public administration (81)	Western NL Business Directory	Bear Cove				
G&R Meat Cutting	Other services except public administration (81)	Western NL Business Directory	Bear Cove				
Conche Trucking	Other services except public administration (81)	East Business Inventory	Conche	Northern Pen East			Gone
Englee Auto	Other services except public administration (81)	Western NL Business Directory	Englee	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Melinda's Unisex	Other services except public administration (81)	Western NL Business Directory	Englee	Northern Pen East			Gone
Gould's Rentals	Other services except public administration (81)	Straits Business Inventory	Flower's Cove	St. Barbe-Straits			
Whalen's Trucking	Other services except public administration (81)	Straits Business Inventory	Flower's Cove	St. Barbe-Straits			
C. Noseworthy's Repairs	Other services except public administration (81)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Golden Scissors	Other services except public administration (81)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Sherry Lynn's Hair Salon	Other services except public administration (81)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Selma's Hair Salon	Other services except public administration (81)	Western NL Business Directory	Nameless Cove	St. Barbe-Straits			
Hedderson's Bussing	Other services except public administration (81)	White Bay North Business Inventory	Noddy Bay	St. Anthony Basin			Gone

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Early Morning Enterprises	Other services except public administration (81)	East Business Inventory	Roddickton-Bide Arm	Northern Pen East			
JCR Auto Clinic	Other services except public administration (81)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Joelle's Hair Salon	Other services except public administration (81)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Michelle's Scissorworks	Other services except public administration (81)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
Pilgrim's Trucking	Other services except public administration (81)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
Rex's Repairs	Other services except public administration (81)	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			Gone
A&J Meat Cutting	Other services except public administration (81)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
D's Beauty World	Other services except public administration (81)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Randell's Trucking	Other services except public administration (81)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
L&C Trucking Ltd.	Other services except public administration (81)	Straits Business Inventory	Sandy Cove	St. Barbe-Straits			Gone
Kim's Kuts and Kurls	Other services except public administration (81)	Western NL Business Directory	Savage Cove	St. Barbe-Straits			
GNP Bussing and Charters	Other services except public administration (81)	Straits Business Inventory	Shoal Cove East	St. Barbe-Straits			Gone
Northern Tip Ltd.	Other services except public administration (81)	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Berni's Beautique	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
Danny's Air Bus	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Day and Ross Ltd	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Don's Barbershop	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Earle's Courier Service	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Eclectica	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Genge's Electrical	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
GNP Fuels	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Grahm's Auto Repairs	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Green North Recycling	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Harvey's Travel	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Joy's Beauty Salon	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
KM Fillatre Funeral Homes	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Leona's Cuts and Curls	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Marine Atlantic Ferry Service	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Maurice's Service Center	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
National Car and Truck Rental	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Northern Recycling and Offloading	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
One Stop Beauty Shop	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Penney's Aircraft Services	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Power Outages and Emergencies	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Provincial Airlines	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Provincial Ferry Services	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Purolator Courier Ltd.	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
R&R Auto Repairs	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Sameday Right-O-Way	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Scissors Hair Salon	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Scott's Autobody	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Shirley's Haven Inc.	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
St. Anthony Cold Storage	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Strangemoor's Electrical LTD.	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Town Taxi	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Wavey's Hairstyling	Other services except public administration (81)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Way's Transport Ltd.	Other services except public administration (81)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Transport Canada	Other services except public administration (81)	Western NL Business Directory	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Flight Service Station	Other services except public administration (81)	Western NL Business Directory	St. Anthony	St. Anthony Basin			
Hillier's Automotive Inc.	Other services except public administration (81)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Hillier's Bus Service	Other services except public administration (81)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Ruth's Beauty Salon/Dino's Toning	Other services except public administration (81)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Isabella's Meat Cutting	Other services except public administration (81)	Forest Sector labour report	Zone 6				
Patey & Sons Outfitting	Other services except public administration (81)	Red Ochre Community Profiles & Business Directory	River of Ponds	Tri-town			
Myers Golf and Trophy	Other services except public administration (81)	Govt. of NL Travel Directory	Bird Cove	St. Barbe-Straits			Gone
Skinny Pig	Other services except public administration (81)	2019 study	Main Brook	Northern Pen East			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
3F	Other services except public administration (81)	2019 study	Main Brook	Northern Pen East			
R & R Used Parts	Other services except public administration (81)	2019 study	Main Brook	Northern Pen East			
Donald Rankin L LLB	Professional, scientific, and technical services	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			Gone
Goodland Survey Ltd.	Professional, scientific, and technical services	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Cross Country Services	Professional, Scientific, and Technical services (54)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Aurora Computer Sales and Service	Professional, Scientific, and Technical services (54)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
Computer Help	Professional, Scientific, and Technical services (54)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Glacier Cove Business Systems	Professional, Scientific, and Technical services (54)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Hyne's Photography	Professional, Scientific, and Technical services (54)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Nav Canada	Professional, Scientific, and Technical services (54)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
NOR-LAB Services	Professional, Scientific, and Technical services (54)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
TNT Marketing Concepts	Professional, Scientific, and Technical services (54)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Sutton Group Humber realty	Real estate, renting and leasing companies (53)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
Scanlon's Variety	Retail (44)	Red Ochre Community Profiles & Business Directory	Bartlett's Harbour	St. Barbe-Straits			
Dredge's Enterprises	Retail (44)	Red Ochre Community Profiles & Business Directory	Black Duck Cove	St. Barbe-Straits			
M&L Grocery	Retail (44)	Red Ochre Community Profiles & Business Directory	Black Duck Cove	St. Barbe-Straits			Gone
Ultramar Canada Ltd	Retail (44)	Red Ochre Community Profiles & Business Directory	Black Duck Cove	St. Barbe-Straits			Gone
Viking Trail Heating Fuel	Retail (44)	Red Ochre Community Profiles & Business Directory	Black Duck Cove	St. Barbe-Straits			Gone
Central Dairies	Retail (44)	Western NL Business Directory	Black Duck Cove	St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Cut & Wrap Ltd	Retail (44)	Red Ochre Community Profiles & Business Directory	Brig Bay	St. Barbe-Straits			
Castor River Convenience	Retail (44)	Red Ochre Community Profiles & Business Directory	Castor River South	St. Barbe-Straits			Gone
Mrs. Isaac Caines Grocery Store	Retail (44)	Red Ochre Community Profiles & Business Directory	Forrester's Point	St. Barbe-Straits			Gone
Battlefield Rentals	Retail (44)	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			Gone
Great Canadian Dollar Store	Retail (44)	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			
Judy's Country Décor & Convenience	Retail (44)	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			Gone
Northern Meat Shop	Retail (44)	Yellow Pages	Hawke's Bay	Tri-town			
Northern Trails Gas & Convenience	Retail (44)	Yellow Pages	Hawke's Bay	Tri-town			Gone
Paint Shop Home Decorating Centre	Retail (44)	Yellow Pages	Hawke's Bay	Tri-town			
Top Ten Motors	Retail (44)	Red Ochre Community Profiles & Business Directory	Hawke's Bay	Tri-town			
Dredge's Equipment	Retail (44)	Western NL Business Directory	Pigeon Cove	St. Barbe-Straits			
Newfoundland and Labrador Liquor Corporation	Retail (44)	Yellow Pages	Plum Point	St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Northern Office Pro	Retail (44)	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
Plum Point Irving	Retail (44)	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
Young's Home Hardware	Retail (44)	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
NAPA Auto Parts	Retail (44)	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
Northern Recreational Sales	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			Gone
C&V Variety	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			Bought by Western Petroleum
Gord's Meat Cutting	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			Gone
K & T Enterprises	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Port au Choix Foodland	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Riff's Ltd	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Sharon's Village Mart	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Cohen's Home Furnishings	Retail (44)	Western NL Business Directory	Port au Choix	Tri-town			
North Atlantic Marine Services	Retail (44)	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			Bought by Hampidjan
Harbour Side Convenience	Retail (44)	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
House Howard & Son	Retail (44)	Yellow Pages	Port Saunders	Tri-town			
Newfoundland and Labrador Liquor Corporation	Retail (44)	Yellow Pages	Port Saunders	Tri-town			
Shoreline Convenience	Retail (44)	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			Gone
House's Service Ltd	Retail (44)	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Ocean Breeze Gift & Flower	Retail (44)	Yellow Pages	Port Saunders	Tri-town			Gone
Stan Dawe Ltd.	Retail (44)	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Taylor's Souvenirs and Grocery	Retail (44)	Western NL Business Directory	Raleigh	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Raleigh Sports Ltd.	Retail (44)	Western NL Business Directory	Raleigh	St. Anthony Basin			
Marina's Mini-Mart and Gas Bar	Retail (44)	Western NL Business Directory	Raleigh	St. Anthony Basin			
Tucker's Service Station	Retail (44)	Red Ochre Community Profiles & Business Directory	Reef's Harbour	St. Barbe-Straits			
Patey's Groceteria	Retail (44)	Red Ochre Community Profiles & Business Directory	River of Ponds	Tri-town			
Steady Gas Bar	Retail (44)	Red Ochre Community Profiles & Business Directory	River of Ponds	Tri-town			
Coombs Store Ltd	Retail (44)	Red Ochre Community Profiles & Business Directory	Shoal Cove West	St. Barbe-Straits			Gone
BA's Carpentry & Building Supplies	Retail (44)	Red Ochre Community Profiles & Business Directory	St Barbe	St. Barbe-Straits			
Strait Connection	Retail (44)	Red Ochre Community Profiles & Business Directory	St. Barbe	St. Barbe-Straits			
Triple Home Heating Fuel	Retail (44)	Red Ochre Community Profiles & Business Directory	St. Barbe	St. Barbe-Straits			
Drive By Convenience	Retail (44)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			Gone
P&R Store	Retail (44)	Western NL Business Directory	Anchor Point	St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Northern Recreation Ltd	Retail (44)	Western NL Business Directory	Bear Cove				
K&L Variety	Retail (44)	Western NL Business Directory	Conche	Northern Pen East			Gone
Kearney's Konvenience	Retail (44)	Western NL Business Directory	Conche	Northern Pen East			Gone
Ocean Mart	Retail (44)	Western NL Business Directory	Conche	Northern Pen East			
Decker's Store	Retail (44)	White Bay North Business Inventory	Cook's Harbour	St. Anthony Basin			
Michelle's Convenience	Retail (44)	Western NL Business Directory	Englee	Northern Pen East			
Beachside Enterprises Ltd.	Retail (44)	Western NL Business Directory	Englee	Northern Pen East			
Breen's Grocery Store Inc.	Retail (44)	Western NL Business Directory	Englee	Northern Pen East			
Esso	Retail (44)	maps.google.ca	Flower's Cove	St. Barbe-Straits			
Coles Variety	Retail (44)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			Gone
Northern Motors (Esso)	Retail (44)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
St. Barbe Consumer Co-op	Retail (44)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
The Great Canadian Dollar Store	Retail (44)	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			Gone
Hilltop Minimart	Retail (44)	Western NL Business Directory	Green Island Cove	St. Barbe-Straits			
Hare Bay Stores Ltd	Retail (44)	maps.google.ca	Main Brook	Northern Pen East			
Newfoundland Labrador Liquor Corporation	Retail (44)	northernpeninsula.ca	Main Brook	Northern Pen East			
Main Brook Convenience	Retail (44)	Western NL Business Directory	Main Brook	Northern Pen East			
Nordhave Landing Inc.	Retail (44)	Western NL Business Directory	Main Brook	Northern Pen East			
P&A Sports	Retail (44)	Western NL Business Directory	Nameless Cove	St. Barbe-Straits			
Raleigh Historical Craft Centre	Retail (44)	White Bay North Business Inventory	Raleigh	St. Anthony Basin			
Taylor's Souvenirs & Grocery	Retail (44)	White Bay North Business Inventory	Raleigh	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
AA Decker Ltd.	Retail (44)	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			
Roddickton Foodland	Retail (44)	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			
Dudsarama	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
Gwen's Unisex	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Home Hardware	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Lidstone's Irving	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Riff's Ltd.	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Roddickton Pharmacy	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
Sears Canada	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
Stop 2 Shop	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
The Outdoor Shop	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
Ultramar Home Heating	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Western Petroleum	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			
DP Sales Ltd	Retail (44)	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			
James Randell's and Sons	Retail (44)	roddickton.bidearm.ca	Roddickton-Bide Arm	Northern Pen East			Gone
Small Town Variety	Retail (44)	maps.google.ca	Roddickton-Bide Arm	Northern Pen East			
Esso	Retail (44)	http://www.town.stanthony.nf.ca/	Sandy Cove	St. Barbe-Straits			
Shoreline Flowers and Crafts	Retail (44)	Forest Sector labour report	Sandy Cove	St. Barbe-Straits			Gone
Highway Shopper	Retail (44)	Western NL Business Directory	Savage Cove	St. Barbe-Straits			
D&G Sports	Retail (44)	Western NL Business Directory	Savage Cove	St. Barbe-Straits			Gone
Straits Electronics	Retail (44)	Western NL Business Directory	Savage Cove	St. Barbe-Straits			
GNP Craft Producers	Retail (44)	Western NL Business Directory	Shoal Cove East	St. Barbe-Straits			
Coombs Store	Retail (44)	Western NL Business Directory	Shoal Cove West				

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Bargain Shop	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Buck or Two	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
C&B Used Car Sales	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Carson's Gift Shop	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Cohen's Home Furnishings	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Consumer Pharmachoice	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Bern's Family Store	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Easy Home Furnishings	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Eclipse	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
First Choice Vision Centre	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Foodland	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Footware Plus Inc.	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Frank's Nets & Rigging	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			Gone
Grenfell Memorial Co-Op Society Ltd	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Harbour End Variety	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Irving	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
K&S Arctic Cat Dealership	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Main Street Ultramar	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
MB Auto Parts (NAPA)	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
NAPA Autoparts Inc.	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Newfoundland Optical	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Olivia's Boutique	Retail (44)	Forest Sector labour report	St. Anthony	St. Anthony Basin			
Outdoor Shoppe	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Raleigh Sports Limited (Yamaha)	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Riff's Ltd.	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Rumbolt's Home Hardware	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Salvation Army Citadel	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Salvation Army Clothing Store	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Sears Canada	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Shear's Building Supplies	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Shopper's Choice Pharmacy	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Simm's Petroleum	Retail (44)	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Viking Mall	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Walker's Flowers	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			Gone
Woodward Motors	Retail (44)	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Simms Petroleum	Retail (44)	Western NL Business Directory	St. Anthony	St. Anthony Basin			
GNP Heating Fuels	Retail (44)	Western NL Business Directory	St. Anthony	St. Anthony Basin			
Ultramar Ltd.	Retail (44)	Western NL Business Directory	St. Barbe	St. Barbe-Straits			Gone
Strait Connection	Retail (44)	Western NL Business Directory	St. Barbe	St. Barbe-Straits			
Burden's General Store	Retail (44)	http://www.town.stanthony.nf.ca/	St. Lunaire-Griquet	St. Anthony Basin			
Hedderson's Store	Retail (44)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Hillier's Esso/Services Ltd.	Retail (44)	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Stage Head Carvings	Retail (44)	Forest Sector labour report	St. Lunaire-Griquet	St. Anthony Basin			
J & K Roadside Convenience	Retail (44)	http://www.town.stanthony.nf.ca/	Straitsview				
Taxidermy Unlimited	Retail (44)	Forest Sector labour report	Zone 6				
Newfoundland Craft	Retail (44)	2019 study		St. Anthony Basin			
Woodward's Car Rental	Retail (44)	2019 study	St. Anthony	St. Anthony Basin	Y		
Nordhaven Landing Inc.	Sightseeing Facilities	East Business Inventory	Main Brook	Northern Pen East			
Jack Farnell's Store	Vacant commercial property	2019 study	Port au Choix	Tri-town	Y	Y	
Budgell's Distributing Ltd.	Wholesale trade	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Harvey Rose Wholesale	Wholesale trade	Western NL Business Directory		St. Barbe-Straits			

Asset Name	Business Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized ?	Change since 2014
Pisces Enterprises Inc.	Wholesale trade	East Business Inventory	Zone 6				
TDR	Wholesale trade	2019 study					

Human capital assets

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Viking Trail Academy	Education Services	Elementary and Secondary Schools	Community Accounts	Plum Point	St. Barbe-Straits			
French Shore Academy	Education Services	Elementary and Secondary Schools	Community Accounts	Port Saunders	Tri-town			
Sacred Heart All Grade	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	Conche	Northern Pen East		Y	
James Cook Memorial School	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	Cook's Harbour	St. Anthony Basin			
HG Fillier Academy	Education Services	Elementary and Secondary School	East Business Inventory	Englee	Northern Pen East			
Canon Richards Memorial High School	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
Straits Daycare Corp.	Education Services	Early Childhood education	Straits Business Inventory	Flower's Cove	St. Barbe-Straits			Gone
Mary Simms All-Grade	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	Main Brook	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Cloud River Academy	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	Roddickton-Bide Arm	Northern Pen East			
Harriot Curtis Collegiate	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			Gone
College of the North Atlantic	Education Services	Community College and CEGEP's	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Riddles and Rhymes (childcare)	Education Services	Early Childhood education	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
St. Anthony Elementary	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			Gone
Bayview Regional Collegiate	Education Services	Elementary and Secondary School	nl.communityaccounts.ca	St. Lunaire-Griquet	St. Anthony Basin			
Truman Eddison Memorial School	Education Services	Elementary and Secondary School	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
St. Theresa's Elementary School	Education Services	Elementary and Secondary School	2019 study	Port au Choix	Tri-town	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Croque school	Education Services	Elementary and Secondary School	2019 study	Croque	Northern Peninsula East	Y	Y	
Pines Cove School	Education Services	Elementary and Secondary School	2019 study	Pines Cove	St. Barbe Straits	Y	Y	
White Hills Elementary	Education Services	Elementary and Secondary School	2019 study	St. Anthony	St. Anthony Basin	Y		
Rufus Guinchard Health Centre - Western Health	Health Service	Hospital	Yellow Pages	Port Saunders	Tri-town			
Port au Choix Medical Clinic	Health Services	Outpatient Facility	Community Accounts	Port au Choix	Tri-town			
Port au Choix Pharmacy	Health Services	Other	Community Accounts	Port au Choix	Tri-town			
Northern Retirement Home	Health Services	Nursing and Residential care facilities	Community Accounts	Port Saunders	Tri-town			
Rufus Guinchard Health Centre	Health Services	Outpatient Facility	Community Accounts	Port Saunders	Tri-town			
Dr J Idzior	Health Services	Physician Offices	Yellow Pages	Port Saunders	Tri-town			
Port Saunders Ambulance	Health Services	Other ambulatory health care services	Western NL Business Directory	Port Saunders	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Port Saunders Child Health Clinic	Health Services	Outpatient Facility	Community Accounts	Port Saunders	Tri-town			
St. Barb Central Manor For Seniors	Health Services	Nursing and Residential care facilities	Yellow Pages	Port Saunders	Tri-town			
Smallwood's Pharmacy	Health Services	Other	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Healthy Lifestyle Clinic	Health Services	Outpatient facilities	northernpeninsula.ca	Cook's Harbour	St. Anthony Basin			
Family Dental Services	Health Services	Dental Office	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
Ivey Durley Place	Health Services	Nursing and Residential care facilities	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
Flower's Cove Clinic (Pharmacy)	Health Services	Other	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
Flower's Cove Child Health Clinic	Health Services	Outpatient facilities	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Consumers PharmaChoice (Flower's Cove)	Health Services	Other	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
Richfell Place	Health Services	Nursing and Residential care facilities	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Strait of Belle Isle Health Center	Health Services	Outpatient facilities	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Roddickton Pharmacy	Health Services	Other	nl.communityaccounts.ca	Roddickton-Bide Arm	Northern Pen East			
Roddickton Child Health Clinic	Health Services	Outpatient facilities	nl.communityaccounts.ca	Roddickton-Bide Arm	Northern Pen East			
Dental Clinic - White Bay Central Health Centre	Health Services	Dental Office	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
White Bay Central Health Centre	Health Services	Outpatient facilities	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Shoppers Choice Pharmacy	Health Services	Other	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Anthony Family Dental	Health Services	Dental Office	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
The Charles S. Curtis Memorial Hospital	Health Services	Hospital	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Shirley's Haven #2	Health Services	Nursing and Residential care facilities	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
St. Anthony Child Health Clinic	Health Services	Outpatient facilities	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Consumers PharmaChoice (St. Anthony)	Health Services	Other	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Northern Home Care Services	Health Services	Home health care services	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
FONEMEN (Curtis Hospital)	Health Services	Hospital	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
St. Anthony Ambulance	Health Services	Other ambulatory health care services	http://www.townofstanthony.nf.ca/	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Proposed community clinic	Health Services	Other	2019 study	Port au Choix	Tri-town	Y	Y	
Cataract surgery equipment at St. Anthony hospital	Health Services	Surgical equipment	2019 study	St. Anthony	St. Anthony Basin	Y	Y	
Roddickton Health Centre	Health Services	Hospital	2019 study	Roddickton-Bide Arm	Northern Peninsula East	Y		
Roddickton Dental Office	Health Services	Dental Office	2019 study	Roddickton-Bide Arm	Northern Peninsula East	Y		
Kids First Family Resource Centre	Other human services	Social assistance facilities	Community Accounts	Port Saunders	Tri-town			
Port Saunders Victims Services	Other human services	Social assistance facilities	Community Accounts	Port Saunders	Tri-town			
Northern Committee Against Violence	Other Human Services	Social assistance facilities	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Northern Peninsula Family Resource Centre	Other Human Services	Social assistance facilities	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Department of Social Services	Other Human Services	Social assistance facilities	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Fresh Start Alternative Measures	Other Human Services	Social assistance facilities	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Poison Information Center	Other Human Services	Social assistance facilities	http://www.town.stanthony.ca/	St. Anthony	St. Anthony Basin			

Natural capital assets

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Boiling Hole	Freshwater Resource	Protected water drinking supply	northernpeninsula.ca	North Boat Harbour - Wild Bight	St. Anthony Basin			
Grandy's River Outfitting	Marine Resources	Aquatic Resource	Govt. of NL Travel Directory	Bill's Pond				
J & B Outfitters Limited (Thousand Island Pond Camp)	Marine Resources	Aquatic Resource	http://www.newfoundlandlabrador.com/	Thousand Island Pond				
Patey & Sons Ltd. (Belvy Pond Camp)	Marine Resources	Aquatic Resource	http://www.newfoundlandlabrador.com/	Belvy Pond				
Patey & Sons Ltd. (Martin Lake Camp)	Marine Resources	Aquatic Resource	http://www.newfoundlandlabrador.com/	Martin Lake				
Torrent River Salmon Interpretation Centre and Fishway	Marine Resources	Aquatic Resource	Govt. of NL Travel Directory	Hawkes Bay	Tri-town			
Kelp harvesting for agricultural use	Marine Resources	Aquatic Resource	2019 study			Y	Y	
Fish waste (crab, shrimp, finfish, etc.)	Marine Resources	Aquatic Resource	2019 study	Throughout	All	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Seal overabundance	Marine Resources	Aquatic Resource	2019 study	Throughout	Multiple	Y	Y	
Camp 1 Adventures	Other	Open Space	Tourism Spreadsheet	Black Duck Cove	St. Barbe-Straits			
Limestone Barrens (B. longii found nowhere else on earth)	Other	Aesthetic resource	northernpeninsula.ca	Sandy Cove	All			
Locker's Point to Shoe Pond Hill (?? Trail??)	Other	Aesthetic resource	http://www.newfoundlandlabrador.com/	Englee	Northern Pen East			
Mayflower Adventures	Other	Aesthetic resource	http://www.newfoundlandlabrador.com/	Roddickton-Bide Arm	Northern Pen East			
Mounted Polar Bear	Other	Aesthetic resource	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Northland Discovery Boat Tours	Other	Aesthetic resource	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Ocean Side RV Park	Other	Open Space	Govt. of NL Travel Directory	Port au Choix	Tri-town			
River of Ponds Park	Other	Open Space	Govt. of NL Travel Directory	River of Ponds	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Scenic Pursuit Boat Tours	Other	Aesthetic resource	http://www.newfoundlandlabrador.com/	Roddickton-Bide Arm	Northern Peninsula East			Gone
Sea Shore RV Park	Other	Open Space	Govt. of NL Travel Directory	Port au Choix	Tri-town			
St. Anthony Bight Picnic Area	Other	Open Space	Tourism Spreadsheet	St. Anthony	St. Anthony Basin			
St. Barbe RV Park	Other	Open Space	Govt. of NL Travel Directory	St. Barbe	St. Barbe-Straits			
Thrombolites	Other	Aesthetic Resource		Flower's Cove	St. Barbe-Straits			
Torrent River Nature Park and Campground	Other	Open Space	Govt. of NL Travel Directory	Hawks Bay	Tri-town			
Triple Falls Trailer Park	Other	Open Space	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Tuckamore Wilderness Tours	Other	Aesthetic resource	http://www.newfoundlandlabrador.com/	Main Brook	Northern Peninsula East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Viking RV Park	Other	Open Space	Western NL Business Directory	Quirpon	St. Anthony Basin			
Windancer Boat Tours	Other	Aesthetic resources	Red Ochre Community Profiles & Business Directory	Port au Choix	Tri-town			
Zodiac Adventure Tours	Other	Aesthetic resource	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Hare Bay Tours	Other	Aesthetic resource	2019 study	Main Brook	Northern Pen East	Y		
Armistice Park	Protected Area	Community Park	http://www.newfoundlandlabrador.com/	Roddickton-Bide Arm	Northern Pen East			
Burnt Island Provisional Ecological Reserve	Protected Area	Provincial Park	maps.google.ca	St. Anthony	St. Anthony Basin			
Fishing Point Municipal Park	Protected Area	Community Park	maps.google.ca	St. Anthony	St. Anthony Basin			
George's Pond Park	Protected Area	Community Park	Western NL Business Directory	Main Brook	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Hare Bay Islands Park Reserve	Protected Area	Community Park	maps.google.ca	Hare Bay	Northern Peninsula East			
Île Aux Canes Migratory Bird Sanctuary	Protected Area	Provincial Park	maps.google.ca	Sheppard Island	Northern Peninsula East			
Pistolet Bay Provincial Park	Protected Area	Provincial Park	maps.google.ca	Raleigh	St. Anthony Basin			
Raleigh Traditional Fishing Village	Protected Area	Community Park	http://www.newfoundlandlabrador.com/	Raleigh	St. Anthony Basin			
Shepherd Island Migratory Bird Sanctuary	Protected Area	Provincial Park	maps.google.ca	Sheppard Island	Northern Peninsula East			
UNESCO Site (Shipwrecks)	Protected Area	National Park	northernpeninsula.ca	Conche	Northern Peninsula East			
Watt's Point Park Reserve	Protected Area	Provincial Park	maps.google.ca	Eddie's Cove East	St. Barbe Straits			
Burnt Cape Ecological Reserve	Protected Areas	Provincial Park	Western NL Business Directory	Raleigh	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
American Black Bear	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
American Golden-Plover	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Arctic Fox	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Arctic Hare	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Black-bellied Plover	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Caines' Adventure Outfitters	Terrestrial Resource	Wildlife Resources	http://www.newfoundlandlabrador.com/	West Brook Pond	Northern Pen East			
Canada Lynx	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Cinereus Shrew	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Greater Yellowlegs	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Locally Grown Vegetables	Terrestrial Resource	Farm Land	northernpeninsula.ca	Eddie's Cove East	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Logging	Terrestrial Resource	Timber Resource	northernpeninsula.ca	Eddie's Cove East	St. Barbe-Straits			
Meadow Vole	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Mineral Development Potential	Terrestrial Resource	Mineral and Energy Resources	Nature Atlas	Zone 7	All			
Moose	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Muskrat	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
North American Otter	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Red Fox	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Red Phalarope Sanderling	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Red-necked Phalarope	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Semipalmated Sandpiper	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Snowshoe Hare	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Timber Resources	Terrestrial Resource	Timber Resource	northernpeninsula.ca	Main Brook	Northern Pen East			
Whimbrel	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
White Hills Outfitters Ltd. (Trophy Camp)	Terrestrial Resource	Wildlife Resources	http://www.newfoundlandlabrador.com/	Denn's Pond				
White-rumped Sandpiper	Terrestrial Resource	Wildlife Resources	Nature Atlas	Zone 7	All			
Christmas tree wreath production	Terrestrial Resource	Timber Resource	2019 study	Throughout	All	Y	Y	
Mushroom harvesting	Terrestrial Resource	Wildlife Resources	2019 study	Throughout	All	Y	Y	
Birch sap production	Terrestrial Resource	Wildlife Resources	2019 study	Throughout	All	Y	Y	
Fiddlehead harvesting	Terrestrial Resource	Wildlife Resources	2019 study	Throughout	All	Y	Y	
Canada Yew harvesting	Terrestrial Resource	Wildlife Resources	2019 study	Throughout	All	Y	Y	
Small-diameter (pulpwood) timber	Terrestrial Resource	Timber Resource	2019 study	Throughout	All	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Sawmill by-products (chips, sawdust, hogfuel)	Terrestrial Resource	Timber Resource	2019 study	Main Brook	Northern Pen East	Y	Y	
From Nature's Seeds Greenhouse	Terrestrial Resource	Farm Land	2019 study	Roddickton-Bide Arm	Northern Pen East	Y	Y	
Moose Gardens	Terrestrial Resource	Farm Land	2019 study	Near St. Anthony	St. Anthony Basin	Y	Y	
Sou Flats timberlands	Terrestrial Resource	Timber Resource	2019 study	Near Harbour Deep	Northern Pen East	Y	Y	
Moose by-products (bones, hides, etc.)	Terrestrial Resource	Wildlife Resources	2019 study	Throughout	All	Y	Y	
Glacial straya	Terrestrial Resource	Geological feature	2019 study	Hawkes Bay	Tri-town	Y	Y	
Otter ponds	Terrestrial Resource	Open Space	2019 study	Throughout	Tri-town	Y	Y	
Marble deposits	Terrestrial Resource	Mineral and Energy Resources	2019 study	Near Croque	Northern Pen East	Y	Y	

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Long's Braya	Terrestrial Resource	Ecological Feature	2019 study	Sandy Cove	St. Barbe-Straits	Y		
Rare flowers at Cape Norman	Terrestrial Resource	Ecological Feature	2019 study	Cape Norman	St. Anthony Basin	Y	Y	
Iceberg Trail	Terrestrial Resource	Trails	2019 study	Throughout	St. Anthony Basin	Y		
Fossils	Terrestrial Resource	Ecological Feature	2019 study	Cooks Harbour and Boat Harbour	St. Anthony Basin	Y	Y	
Lava rocks	Terrestrial Resource	Geological feature	2019 study	Hawke's Bay	Tri-town	Y	Y	
Glass Hole	Terrestrial Resource	Geological feature	2019 study	Conche	Northern Pen East	Y		
Elephant's trunk rock formation	Terrestrial Resource	Geological feature	2019 study	Conche	Northern Pen East	Y		
Roadside gardens	Terrestrial Resources	Farm Land		Throughout	All			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Hawke River Outfitters Ltd.	Terrestrial Resources	Wildlife Resources-Business	Tourism Spreadsheet	Hawke's Bay	Tri-town			
Patey and Sons Ltd	Terrestrial Resources	Wildlife Resources	Govt. of NL Travel Directory	River of Ponds	Tri-town			
Flat Point Lookout	Tourism and Recreation	Sightseeing Facilities	northernpeninsula.ca	Great Breat	St. Anthony Basin			
Aunt Bride's lookout	Tourism and Recreation	Sightseeing Facilities	Biophysical inventory	Gunner's Cove	St. Anthony Basin			
Squid Jigging Point	Tourism and Recreation	Sightseeing Facilities	Biophysical inventory	Noddy Bay	St. Anthony Basin			
Crow Head Walking Trail	Tourism and Recreation	Trails	Govt. of NL Travel Directory	Port Saunders	Tri-town			
River of Ponds Walking Trail	Tourism and Recreation	Trails	Govt. of NL Travel Directory	River of Ponds	Tri-town			
Deep Cove Board Walk	Tourism and Recreation	Trails	Western NL Business Directory	Anchor Point	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Walking Trails	Tourism and Recreation	Trails	northernpeninsula.ca	Cape Onion - Ship Cove	St. Anthony Basin			
French Shore Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Conche	Northern Pen East			
Epine Cadoret Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Croque	Northern Pen East			
French site trail	Tourism and Recreation	Trails	Biophysical inventory	Croque	Northern Pen East			
Walking/Beach Trail	Tourism and Recreation	Trails	northernpeninsula.ca	Deadman's Cove	St. Barbe-Straits			
John Hogan Trail	Tourism and Recreation	Trails	Biophysical inventory	Eddies Cove	St. Barbe-Straits			
Barr'd Island Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Englee	Northern Pen East			
Locker's Point Trail	Tourism and Recreation	Trails	northernpeninsula.ca	Englee	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
White Point Trail	Tourism and Recreation	Trails	northernpeninsula.ca	Englee	Northern Pen East			
The Marjorie Bridge & Thrombolites Walking Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Flowers Cove	St. Barbe-Straits			
White Rock Walking Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Flowers Cove	St. Barbe-Straits			
Plumey Cove Walking Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Goose Cove	St. Anthony Basin			
Pumley Cove Walking Trail	Tourism and Recreation	Trails	Tourism Spreadsheet	Goose Cove	St. Anthony Basin			
North Boat Harbour trail	Tourism and Recreation	Trails	Biophysical inventory	North Boat Harbour	St. Anthony Basin			
Looped trail	Tourism and Recreation	Trails	Biophysical inventory	Roddickton-Bide Arm	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Armistice Trail	Tourism and Recreation	Trails	Tourism Spreadsheet	Roddickton-Bide Arm	Northern Peninsula East			
Farm Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Roddickton-Bide Arm	Northern Peninsula East			
Muddy Hole Pond Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Roddickton-Bide Arm	Northern Peninsula East			
Underground Salmon Pool & Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	Roddickton-Bide Arm	Northern Peninsula East			
Bottom Brook Trails	Tourism and Recreation	Trails	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			
Cartier's View Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Dare Devil Trail	Tourism and Recreation	Trails	www.newfoundlandlabrador.com	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Iceberg Alley Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Lamage Point Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Santana's Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
St. Anthony Bight Picnic Area & Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Whale Watchers Trail	Tourism and Recreation	Trails	http://www.newfoundlandlabrador.com/	St. Anthony	St. Anthony Basin			
Tea House Hill Walking Trail	Tourism and Recreation	Trails	Tourism Spreadsheet	St. Anthony	St. Anthony Basin		Y	
St. Anthony Bight Loop Trail	Tourism and Recreation	Trails	northernpeninsula.ca	St. Anthony Bight	St. Anthony Basin			
St. Carols Hiking Trail	Tourism and Recreation	Trails	northernpeninsula.ca	St. Carols	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Doctor's Hill/Barr'd Harbour Hill Trail	Tourism and Recreation	Trails	2019 study	Near Eddies Cove West	St. Barbe-Straits	Y	Y	
Philip's Garden Trail	Tourism and Recreation	Trails		Port au Choix	Tri-town	Y		
Muskrat Falls Transmission Line	Tourism and Recreation	Snowmobile Trails	2019 study	Multiple	Multiple	Y	Y	
Snowmobile trails of the Straits	Tourism and Recreation	Trails	2019 study	Throughout the Straits	St. Barbe-Straits	Y	Y	
ATV trails of the Straits	Tourism and Recreation	Trails	2019 study	Throughout the Straits	St. Barbe-Straits	Y	Y	
Hiking trail around Otter Pond	Tourism and Recreation	Trails	2019 study	Hawke's Bay	Tri-town	Y	Y	
St. Margaret's Bay Trail	Tourism and Recreation	Trails	2019 study	Near Castor River	St. Barbe-Straits	Y		
Mount St. Margaret's Heritage Trail	Tourism and Recreation	Trails	2019 study	Near Castor River	St. Barbe-Straits	Y		

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Dog Peninsula Trail	Tourism and Recreation	Trails	2019 study	Bird Cove	St. Barbe-Straits	Y		
Frenchman's Cove Trail	Tourism and Recreation	Trails	2019 study	Bird Cove	St. Barbe-Straits	Y		
Trail from Bird Cove to Mount St. Margaret	Tourism and Recreation	Trails	2019 study	Near Bird Cove	St. Barbe-Straits	Y		
St. Genevieve Trail	Tourism and Recreation	Trails	2019 study	St. Genevieve	St. Barbe-Straits	Y		
Linkum Zodiac Tours	Tourism Resource	Aesthetic resource-Business	Tourism Spreadsheet	Quirpon	St. Anthony Basin			
Iceberg Boat Tours	Tourism Resource	Aesthetic resource-Business	2019 study	St. Lunaire - Griquet	2019 study	Y		New business
Around the Bay Boat Tours	Tourism Resource	Aesthetic resource-Business	2019 study	Goose Cove	2019 study	Y		New business

Institutional capital assets

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Barbe Development Association	Community	Community development agencies	Yellow Pages	Plum Point	St. Barbe-Straits			
Community Employment Readiness Centre	Community	Community development agencies	Yellow Pages	Port Saunders	Tri-town			Gone
Port Saunders Employment Centre (Department of Advanced Education, Skills, and Labour)	Community	Community development agencies	Community Accounts	Port Saunders	Tri-town			
Ingornachoix Public Library	Community	Library	Community Accounts	Port Saunders	Tri-town			
Port Saunders Public Library	Community	Library	Yellow Pages	Port Saunders	Tri-town			
Anchor Point Recreation Committee	Community	Social Agencies	Network spreadsheet	Anchor Point	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Conche recreation committee	Community	Foundations	Forest Resource Labour Report	Conche	Northern Pen East			
Local Development committee	Community	Community Development Agencies	northernpeninsula.ca	Eddies Cove East	St. Barbe-Straits			
Eddies Cove East Development	Community	Economic and Labour Agencies	Network spreadsheet	Eddies Cove East	St. Barbe-Straits			
Englee recreation committee	Community	Foundations	Forest Resource Labour Report	Englee	Northern Pen East			
Community Employment Readiness Centre	Community	Community Development Agencies	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			Gone
Local Development committee	Community	Community Development Agencies	northernpeninsula.ca	Green Island Brook	St. Barbe-Straits			
Savage Cove Community Development Inc.	Community	Economic and Labour Agencies	Western NL Business Directory	Savage Cove	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Anthony Employment Centre	Community	Community Development Agencies	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Sea Arrow Squid Cooperative	Community	Co-operatives	Fisheries Task Force	St. Anthony	St. Anthony Basin			
Goose Cove Recreation Committee	Community	Foundations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
St. Anthony Recreation Committee	Community	Foundations	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
Wild Bight Development Committee	Community	Economic and Labour Agencies	Network spreadsheet	Wild Bight	St. Anthony Basin			
DFO	Federal	Conservation and natural resource agencies	RED Ochre labour market report	Port Saunders	Tri-town			
Service Canada Port Saunders Scheduled Outreach Centre	Federal	Economic and Labour Agencies	Community Accounts	Port Saunders	Tri-town			
RCMP Detachment: Port Saunders	Federal	Social Agencies	Community Accounts	Port Saunders	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Canada Post	Federal	Post Office	Western NL Business Directory	Raleigh	St. Anthony Basin			
Canada Post	Federal	Post Office	Western NL Business Directory	Conche	Northern Pen East			
Canada Post	Federal	Post Office	Western NL Business Directory	Cook's Harbour	St. Anthony Basin			
DFO Harbour Authority	Federal	Conservation and Natural Resource Agencies	northernpeninsula.ca	Eddies Cove East	St. Barbe-Straits			
Canada Post	Federal	Post Office	Western NL Business Directory	Englee	Northern Pen East			
RCMP Flower's Cove	Federal	Social Agencies	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
DFO Harbour Authority	Federal	Conservation and Natural Resource Agencies	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Canada Post	Federal	Post Office	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			
Canada Post	Federal	Post Office	Western NL Business Directory	Green Island Brook	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Canada Post	Federal	Post Office	Western NL Business Directory	Green Island Cove	St. Barbe-Straits			
Parks Canada	Federal	Natural/Conservation agency	Network spreadsheet	L'Anse aux Meadows	St. Anthony Basin			
Canada Post	Federal	Post Office	Western NL Business Directory	Main Brook	Northern Pen East			
RCMP Roddickton-Bride Arm	Federal	Social Agencies	nl.communityaccounts.ca	Roddickton-Bide Arm	Northern Pen East			
Canada Post	Federal	Post Office	Western NL Business Directory	Roddickton-Bide Arm	Northern Pen East			
DFO Harbour Authority	Federal	Conservation and Natural Resource Agencies	northernpeninsula.ca	Sandy Cove	St. Barbe-Straits			
Canada Post	Federal	Post Office	Western NL Business Directory	Savage Cove	St. Barbe-Straits			
RCMP St. Anthony	Federal	Social Agencies	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
St. Anthony Service Canada Centre	Federal	Economic and Labour Agencies	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Canadian Coast Guard	Federal	Social Agencies	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Canada Post	Federal	Post Office	Western NL Business Directory	St. Anthony	St. Anthony Basin			
Canada Food Inspection Agency	Federal	Social Agencies	Network spreadsheet	St. Anthony	St. Anthony Basin			
Canada Post	Federal	Post Office	Western NL Business Directory	St. Lunaire-Griquet	St. Anthony Basin			
Conche Playground	General Facilities	Community Centre	northernpeninsula.ca	Conche	Northern Pen East			
Cook's Harbour Playground	General Facilities	Community Centre	northernpeninsula.ca	Cook's Harbour	St. Anthony Basin			
Englee Playground	General Facilities	Community Centre	northernpeninsula.ca	Englee	Northern Pen East			
Flower's Cove Sports Centre	General Facilities	Community Centre	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			Gone
Roddickton Swimming Pool	General Facilities	Community Centre	Western NL Business Directory	Roddickton -Bide Arm	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Roddickton Arena	General Facilities	Community Centre	northernpeninsula.ca	Roddickton -Bide Arm	Northern Pen East			
St. Anthony Bight Playground	General Facilities	Community Centre	northernpeninsula.ca	St. Anthony Bight	St. Anthony Basin			
Dobbin Building	General facilities	General warehousing and storage facilities	Red Ochre Community Profiles & Business Directory	Port Saunders	Tri-town			
Conche Ball Field	General Facilities	sporting facility	northernpeninsula.ca	Conche	Northern Pen East			
Englee Ball Field	General Facilities	sporting facility	northernpeninsula.ca	Englee	Northern Pen East			
Englee Tennis/Basketball Court	General Facilities	sporting facility	northernpeninsula.ca	Englee	Northern Pen East			
Roddickton Arena	General Facilities	sporting facility	East Business Inventory	Roddickton -Bide Arm	Northern Pen East			
Roddickton Swimming Pool	General Facilities	sporting facility	northernpeninsula.ca	Roddickton -Bide Arm	Northern Pen East			
St. Anthony Olympia Swimming Pool	General Facilities	sporting facility	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Northern Peninsula Band (Mi'qmak)	Indigenous	Indigenous group	2019 study	Port Saunders	Tri-town	Y		
Bartlett's Harbour Fire Department	Municipal	Fire Department	Community Accounts	Bartlett's Harbour	St. Barbe-Straits			Gone
Bird Cove - Pond Cove Fire Department	Municipal	Fire Department	Community Accounts	Bird Cove	St. Barbe-Straits			
Town council of Hawkes Bay	Municipal	Elected Governmental Bodies	RED Ochre labour market report	Hawkes Bay	Tri-town			
Hawkes Bay Fire Department	Municipal	Fire Department	Community Accounts	Hawkes Bay	Tri-town			
Town Council of Port au Choix	Municipal	Elected Governmental Bodies	RED Ochre labour market report	Port au Choix	Tri-town			
Port au Choix Fire Department	Municipal	Fire Department	Community Accounts	Port au Choix	Tri-town			
Town Council of Port Saunders	Municipal	Elected Governmental Bodies	RED Ochre labour market report	Port Saunders	Tri-town			
Port Saunders Fire Department	Municipal	Fire Department	Community Accounts	Port Saunders	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Port au Choix Harbour Authority	Municipal	Other	Yellow Pages	Port Saunders	Tri-town			
Reef's Harbour Fire Department	Municipal	Fire Department	Community Accounts	Reef's Harbour - Shoal Cove	St. Barbe-Straits			Gone
Town council of River of Ponds	Municipal	Elected Governmental Bodies	RED Ochre labour market report	River of Ponds	Tri-town			
River of Ponds Fire Department	Municipal	Fire Department	Community Accounts	River of Ponds	Tri-town			
Town Council of Anchor Point	Municipal	Elected governmental bodies	Straits Business Inventory	Anchor Point	St. Barbe-Straits			
Conche Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	Conche	Northern Pen East			
Town Council of Conche	Municipal	Elected governmental bodies	East Business Inventory	Conche	Northern Pen East			
Cook's Harbour Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	Cook's Harbour	St. Anthony Basin			
Town Council of Cook's Harbour	Municipal	Elected governmental bodies	White Bay North Business Inventory	Cook's Harbour	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Englee Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	Englee	Northern Pen East			
Town Council of Englee	Municipal	Elected governmental bodies	East Business Inventory	Englee	Northern Pen East			
The Straits Regional Fire Department I	Municipal	Fire Department	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
The Straits Regional Fire Department II	Municipal	Fire Department	nl.communityaccounts.ca	Flower's Cove	St. Barbe-Straits			
Town Council of Flower's Cove	Municipal	Elected governmental bodies	Straits Business Inventory	Flower's Cove	St. Barbe-Straits			
Straits Volunteer Fire Department	Municipal	Fire Department	Straits Business Inventory	Flower's Cove	St. Barbe-Straits			
Harbour Authority	Municipal	Other	Straits Business Inventory	Flower's Cove	St. Barbe-Straits			
Town Council of Goose Cove	Municipal	Elected governmental bodies	White Bay North Business Inventory	Goose Cove	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Harbour Authority	Municipal	Other	White Bay North Business Inventory	Goose Cove	St. Anthony Basin			
Harbour Authority	Municipal	Other	Straits Business Inventory	Green Island Brook	St. Barbe-Straits			
Harbour Authority	Municipal	Other	Straits Business Inventory	Green Island Cove	St. Barbe-Straits			
Green Island development committee	Municipal	Economic and Labour Agencies	Network spreadsheet	Green Island Cove	St. Barbe-Straits			
The Noddy Bay-Straitsview-Hay Cove-L'Anse aux Meadows (N.S.H.L) Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	L'Anse aux Meadows	St. Anthony Basin			
Main Brook Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	Main Brook	Northern Pen East			
Town Council of Main Brook	Municipal	Elected governmental bodies	East Business Inventory	Main Brook	Northern Pen East			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Harbour Authority	Municipal	Other	White Bay North Business Inventory	Quirpon	St. Anthony Basin			
Raleigh-Ship Cove Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	Raleigh	St. Anthony Basin			
Town Council of Raleigh	Municipal	Elected governmental bodies	White Bay North Business Inventory	Raleigh	St. Anthony Basin			
Harbour Authority	Municipal	Other	White Bay North Business Inventory	Raleigh	St. Anthony Basin			
Roddickton-Bide Arm Fire Department: Bide Arm Station	Municipal	Fire Department	nl.communityaccounts.ca	Roddickton-Bide Arm	Northern Pen East			
Town Council of Roddickton-Bide Arm	Municipal	Elected governmental bodies	East Business Inventory	Roddickton-Bide Arm	Northern Pen East			
Harbour Authority	Municipal	Other	Straits Business Inventory	Sandy Cove	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Harbour Authority	Municipal	Other	Straits Business Inventory	Savage Cove	St. Barbe-Straits			
St. Anthony Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Town Council of St. Anthony	Municipal	Elected governmental bodies	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
St. Anthony Firettes	Municipal	Fire Department	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
St. Anthony Public Library	Municipal	Library	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
St. Anthony Port Authority	Municipal	Other	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
St. Lunaire-Griquet Public Library	Municipal	Library	nl.communityaccounts.ca	St. Lunaire-Griquet	St. Anthony Basin			Gone
St. Lunaire-Griquet Fire Department	Municipal	Fire Department	nl.communityaccounts.ca	St. Lunaire-Griquet	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Town Council of St. Lunaire-Griquet	Municipal	Elected governmental bodies	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Harbour Authority	Municipal	Other	White Bay North Business Inventory	St. Lunaire-Griquet	St. Anthony Basin			
Rising Sun Development Corporation	Municipal	Economic and Labour Agencies	2019 study	St. Anthony	St. Anthony Basin	Y		
Department of Natural Resources	Provincial	Conservation and natural resource agencies	RED Ochre labour market report	Port Saunders	Tri-town			
TCII Office	Provincial	Economic and Labour Agencies	RED Ochre labour market report	Port Saunders	Tri-town			
NL Hydro	Provincial	Energy/Utilities	RED Ochre labour market report	Port Saunders	Tri-town			
Motor Registration Services	Provincial	Social Agencies	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Office of Child, Youth & Family Services	Provincial	Social Agencies	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
Child, Youth, and Family Services	Provincial	Social Agencies	Western NL Business Directory	Flower's Cove	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Department of Natural Resources	Provincial	Conservation and Natural Resource Agencies	northernpeninsula.ca	Roddickton -Bide Arm	Northern Pen East			
Office of Child, Youth & Family Services	Provincial	Social Agencies	northernpeninsula.ca	Roddickton -Bide Arm	Northern Pen East			
Advanced Education, Skills, & Labour	Provincial	Economic and Labour Agencies	Network spreadsheet	St. Anthony	St. Anthony Basin			
TCII Office	Provincial	Economic and Labour Agencies	Network spreadsheet	St. Anthony	St. Anthony Basin			
Dept. of Highways	Provincial	Energy/Utilities	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
NL Hydro	Provincial	Energy/Utilities	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Department of Justice	Provincial	Social Agencies	Network spreadsheet	St. Anthony	St. Anthony Basin			
Department of Motor Vehicles Drop-in Office	Provincial	Government office		Port Saunders	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
The Northern Pen Newspaper	Regional	Newspaper	RED Ochre labour market report	St. Anthony	St. Anthony Basin			
CBDC Nortip	Regional	Economic and Labour Agencies	Red Ochre Community Profiles & Business Directory	Plum Point	St. Barbe-Straits			
Norpen Waste Management	Regional	Waste management facility	northernpeninsula.ca	St. Anthony	St. Anthony Basin			
Great Northern Peninsula Joint Council	Regional	Social Agencies	northernpeninsula.ca	Flower's Cove	St. Barbe-Straits			
White Bay Central Development Association	Regional	Regional Development Organization	northernpeninsula.ca	Main Brook	Northern Pen East			
North of Thirty Fifty Association	Regional	Conservation and Natural Resource Agencies	Fisheries Task Force	Northern Peninsula	All			
Nortip CBDC	Regional	Economic and Labour Agencies	northernpeninsula.ca	Plum Point	All			
VTTA	Regional	Economic and Labour Agencies	Network spreadsheet	Plum Point	All			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Straits Development Association	Regional	Economic and Labour Agencies	northernpeninsula.ca	Shoal Cove East	St. Barbe-Straits			
St. Anthony Basin Resources Inc.	Regional	Economic and Labour Agencies	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
St. Anthony & Area Chamber of Commerce	Regional	Economic and Labour Agencies	town of St. Anthony	St. Anthony	St. Anthony Basin			
St. Anthony Economic Development	Regional	Economic and Labour Agencies	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
CBC Radio	Regional	TV/Radio	http://www.town.stanthony.nf.ca/	St. Anthony	St. Anthony Basin			
Green Depot	Regional	Waste management facility	White Bay North Business Inventory	St. Anthony	St. Anthony Basin			
SABRI Cell Tower Project	Telecommunications infrastructure	Cellular Infrastructure	SABRI	Throughout	St. Anthony Basin	Y		
Port Saunders Marine Service Centre	Tourism and Recreation	Marinas	Yellow Pages	Port Saunders	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Anthony Airport	Transportation infrastructure	Air Transportation	nl.communityaccounts.ca	St. Anthony	St. Anthony Basin			
Flowers Cove Harbour	Transportation infrastructure	Marine Infrastructure	DFO Map	Flower's Cove	St. Barbe-Straits			
Savage Cove Harbour	Transportation infrastructure	Marine Infrastructure	DFO Map	Savage Cove	St. Barbe-Straits			
Barr'd Harbour Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Barr'd Harbour	St. Barbe-Straits			
Bartlett's Harbour Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Bartlett's Harbour	St. Barbe-Straits			
Bird Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Bird Cove	St. Barbe-Straits			
Black Duck Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Black Duck Cove	St. Barbe-Straits			
Blue Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Blue Cove	St. Barbe-Straits			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Brig Bay Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Brig Bay	St. Barbe-Straits			
Castor's River North Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Castor's River North	St. Barbe-Straits			
Eddies Cove West Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Eddies Cove West	St. Barbe-Straits			
Forrester's Point Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Forrester's Point	St. Barbe-Straits			
Plum Point Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Plum Point	St. Barbe-Straits			
Pond Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Pond Cove	St. Barbe-Straits			
Port au Choix Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Port au Choix	Tri-town			
Port Saunders Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Port Saunders	Tri-town			
River of Ponds Harbour	Transportation infrastructure	Marine Transportation	DFO Map	River of Ponds	Tri-town			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Shoal Cove West Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Shoal Cove West	St. Barbe-Straits			
Spirity Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Spirity Cove	Tri-town			
Anchor Point Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Anchor Point	St. Barbe-Straits			
Big Brook Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Big Brook	St. Anthony Basin			
Conche Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Conche	Northern Pen East			
Cook's Harbour Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Cook's Harbour	St. Anthony Basin			
Eddies Cove East Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Eddies Cove	St. Barbe-Straits			
Englee Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Englee	Northern Pen East			
Goose Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Goose Cove	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
Green Island Brook Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Green Island Brook	St. Barbe-Straits			
Green Island Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Green Island Cove	St. Barbe-Straits			
Main Brook Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Main Brook	Northern Pen East			
Quirpon Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Quirpon	St. Anthony Basin			
Raleigh Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Raleigh	St. Anthony Basin			
Sandy Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Sandy Cove	St. Barbe-Straits			
Ship Cove Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Ship Cove	St. Anthony Basin			
St. Anthony Harbour	Transportation infrastructure	Marine Transportation	DFO Map	St. Anthony	St. Anthony Basin			

Asset Name	Code	Detailed Code	Source/Reference	Location	Sub-region	Identified during 2019 study?	Under-utilized?	Change since 2014
St. Anthony Bight Harbour	Transportation infrastructure	Marine Transportation	DFO Map	St. Anthony	St. Anthony Basin			
St. Carol's Harbour	Transportation infrastructure	Marine Transportation	DFO Map	St. Carols	St. Anthony Basin			
St. Lunaire Harbour	Transportation infrastructure	Marine Transportation	DFO Map	St. Lunaire-Griquet	St. Anthony Basin			
Griquet Harbour	Transportation infrastructure	Marine Transportation	DFO Map	St. Lunaire-Griquet	St. Anthony Basin			
Straitsview Harbour	Transportation infrastructure	Marine Transportation	DFO Map	Straitsview	St. Anthony Basin			
Pigeon Cove - St. Barbe Ferry	Transportation infrastructure	Port and wharf facilities/shipping transportation	Community Accounts	St. Barbe	St. Barbe-Straits			

Appendix 7: Ethics clearances for research involving human participants.



Interdisciplinary Committee on
Ethics in Human Research (ICEHR)

St. John's, NL Canada A1C5S7
Tel: 709 864-2561 icehr@mun.ca
www.mun.ca/research/ethics/humans/icehr

ICEHR Number:	20192680-IO
Approval Period:	February 25, 2019 – February 29, 2020
Funding Source:	Not Funded
Responsible Faculty:	Dr. Kelly Vodden Environmental Policy Institute
Title of Project:	<i>Province-wide scan of sustainability indicator initiatives in rural Newfoundland and Labrador and their contribution to the revitalization and sustainability of rural Newfoundland and Labrador communities</i>

February 25, 2019

Mr. Brennan Lowery
School of Graduate Studies
Memorial University of Newfoundland

Dear Mr. Lowery:

Thank you for your correspondence of February 15, 2019 addressing the issues raised by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) concerning the above-named research project. ICEHR has re-examined the proposal with the justifications and revisions submitted, and is appreciative of the thoroughness and clarity with which you have responded to the concerns raised by the Committee. In accordance with the *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (TCPS2)*, the project has been granted *full ethics clearance* to February 29, 2020. ICEHR approval applies to the ethical acceptability of the research, as per Article 6.3 of the *TCPS2*. Researchers are responsible for adherence to any other relevant University policies and/or funded or non-funded agreements that may be associated with the project.

The *TCPS2* **requires** that you submit an Annual Update to ICEHR before February 29, 2020. If you plan to continue the project, you need to request renewal of your ethics clearance and include a brief summary on the progress of your research. When the project no longer involves contact with human participants, is completed and/or terminated, you are required to provide an annual update with a brief final summary and your file will be closed. If you need to make changes during the project which may raise ethical concerns, you must submit an Amendment Request with a description of these changes for the Committee's consideration prior to implementation. If funding is obtained subsequent to approval, you must submit a Funding and/or Partner Change Request to ICEHR before this clearance can be linked to your award.

All post-approval event forms noted above can be submitted from your Researcher Portal account by clicking the *Applications: Post-Review* link on your Portal homepage. We wish you success with your research.

Yours sincerely,

Kelly Blidook, Ph.D.
Vice-Chair, Interdisciplinary Committee on
Ethics in Human Research

KB/lw

cc: Supervisor – Dr. Kelly Vodden, Environmental Policy Institute, Grenfell Campus



Interdisciplinary Committee on Ethics in Human Research (ICEHR)

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Tel: 709 864-2561 icehr@mun.ca
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Funding Agency:	Not Funded
Responsible Faculty:	Dr. Kelly Vodden Environmental Policy Institute
Title of Project:	<i>Province-wide scan of sustainability indicator initiatives in rural Newfoundland and Labrador and their contribution to the revitalization and sustainability of rural Newfoundland and Labrador communities</i>
Amendment #:	01

October 2, 2019

Mr. Brennan Lowery
School of Graduate Studies
Memorial University of Newfoundland

Dear Mr. Lowery:

The Interdisciplinary Committee on Ethics in Human Research (ICEHR) has reviewed the proposed revisions for the above referenced project, as outlined in your amendment request dated September 16, 2019, and is pleased to give approval to the second round of interviews and participant observation, and the revised consent form and recruitment scripts, as described in your request, provided all other previously approved protocols are followed.

If you need to make any other changes during the conduct of the research that may affect ethical relations with human participants, please submit an amendment request, with a description of these changes, via your Researcher Portal account for the Committee's consideration.

Your ethics clearance for this project expires February 29, 2020, before which time you must submit an annual update to ICEHR. If you plan to continue the project, you need to request renewal of your ethics clearance, and include a brief summary on the progress of your research. When the project no longer requires contact with human participants, is completed and/or terminated, you need to provide an annual update with a brief final summary, and your file will be closed.

Annual updates and amendment requests can be submitted from your Researcher Portal account by clicking the *Applications: Post-Review* link on your Portal homepage.

The Committee would like to thank you for the update on your proposal and we wish you well with your research.

Yours sincerely,

Kelly Blidook, Ph.D.
Vice-Chair, Interdisciplinary Committee on Ethics in Human Research

KB/bc

cc: Supervisor – Dr. Kelly Vodden, Environmental Policy Institute, Grenfell Campus



Interdisciplinary Committee on Ethics in Human Research (ICEHR)

St. John's, NL Canada A1C 5S7
Tel: 709 864-2561 icehr@mun.ca
www.mun.ca/research/ethics/humans/icehr

ICEHR Number:	20192680-IO
Approval Period:	February 25, 2019 – February 29, 2020
Funding Source:	Not Funded
Responsible Faculty:	Dr. Kelly Vodden Environmental Policy Institute
Title of Project:	<i>Province-wide scan of sustainability indicator initiatives in rural Newfoundland and Labrador and their contribution to the revitalization and sustainability of rural Newfoundland and Labrador communities</i>
Amendment #:	02

November 6, 2019

Mr. Brennan Lowery
School of Graduate Studies
Memorial University of Newfoundland

Dear Mr. Lowery:

The Interdisciplinary Committee on Ethics in Human Research (ICEHR) has reviewed the proposed modifications for the above referenced project, as outlined in your amendment request dated October 28, 2019, and is pleased to give approval to the addition of focus groups, as described in your request, provided all other previously approved protocols are followed.

If you need to make any other changes during the conduct of the research that may affect ethical relations with human participants, please submit an amendment request, with a description of these changes, via your Researcher Portal account for the Committee's consideration.

Your ethics clearance for this project expires February 29, 2019, before which time you must submit an annual update to ICEHR. If you plan to continue the project, you need to request renewal of your ethics clearance, and include a brief summary on the progress of your research. When the project no longer requires contact with human participants, is completed and/or terminated, you need to provide an annual update with a brief final summary, and your file will be closed.

Annual updates and amendment requests can be submitted from your Researcher Portal account by clicking the *Applications: Post-Review* link on your Portal homepage.

The Committee would like to thank you for the update on your proposal and we wish you well with your research.

Yours sincerely,

Kelly Blidook, Ph.D.
Vice-Chair, Interdisciplinary Committee on Ethics in Human Research

KB/bc

cc: Supervisor – Dr. Kelly Vodden, Environmental Policy Institute, Grenfell Campus

ICEHR Clearance # 20192680-IO – EXTENDED

1 message

dgulliver@mun.ca <dgulliver@mun.ca>

Thu, Mar 5, 2020 at 2:25 PM

To: "Lowery Brennan(Principal Investigator)" <bclowery@mun.ca>

Cc: "Vodden Kelly(Supervisor)" <kvodden@grenfell.mun.ca>, ors@mun.ca, dgulliver@mun.ca



Interdisciplinary Committee on
Ethics in Human Research (ICEHR)

ICEHR Approval #:	20192680-IO
Researcher Portal File #:	20192680
Project Title:	<i>Province-wide scan of sustainability indicator initiatives in rural Newfoundland and Labrador and their contribution to the revitalization and sustainability of rural Newfoundland and Labrador communities</i>
Associated Funding:	20192908
Supervisor:	Dr. Kelly Vodden
Clearance expiry date:	March 31, 2021

Dear Mr. Brennan Lowery:

Thank you for your response to our request for an annual update advising that your project will continue without any changes that would affect ethical relations with human participants.

On behalf of the Chair of ICEHR, I wish to advise that the ethics clearance for this project has been extended to **March 31, 2021**. The *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans* (TCPS2) requires that you submit another annual update to ICEHR on your project prior to this date.

We wish you well with the continuation of your research.

Sincerely,

DEBBY GULLIVER

Interdisciplinary Committee on Ethics in Human Research (ICEHR)

Memorial University of Newfoundland

St. John's, NL | A1C 5S7

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