Introduction

Chapter 1

1. Introduction

1.1 About the Researcher

This research is presented as the final requirement for the fulfillment of a Master's Degree in Natural Resource Management with a specialty in Coastal and Marine Management from the University of Akureyri in conjunction with the University of the Westfjords. The project depicts 30 ECTS of academic work performed in the Westfjords of Iceland and is representative of the knowledge gained through a year of class-based learning and local contextual experience.

Before coming to Iceland to study Coastal and Marine Management, I graduated with an undergraduate degree in Community Design with honours in Environmental Planning from Dalhousie University in Halifax, Nova Scotia, Canada. My educational background shapes my perceptions of each community I enter, and Isafjordur is no exception. Before embarking on the research presented in this document, I spent one year as a member of this community, becoming comfortable with the people, the surroundings, and the culture all while looking through 'planner's glasses'. I wanted to incorporate my academic background with the educational experienced obtained at the University of the Westfjords. The following document does just that and is reflective of my education in totality.

1.2 About the Research

Sustainable development is something we all talk about yet struggle to define with any precision. Politicians, business owners, non-governmental organizations, schools, and community groups all over the globe have integrated the concept of sustainable development into their agendas and mission statements as a way to display responsible and forward thinking. The acceptance of the concept by such a broad spectrum of the global public should translate to a shift in mainstream thinking; transforming business-as-usual decision making from a negative, backward thinking stereotype to a description of progressive, long-term-thinking and positive forward movement. What has happened instead is the creation of a vague and easily mouldable concept that transforms in definition according to the situation in which it is being applied. The ambiguity of the term sustainable development is allowing us to lose sight of its practical application to the 'big picture'. Sustainable development can, in theory, sustain human livelihoods on this planet indefinitely. So, why have we all not jumped on the proverbial bandwagon? The answer to that question is undoubtedly as complicated as the definition of sustainable development itself.

The research presented in this thesis began with a simple thought: sustainable development is good in theory, why, then, is it not more successful in practice? I asked this question as I looked around and saw the communities of the Westfjords of Iceland. Sustainable development is written in their municipal plans yet the region is plagued by depopulation, economic instability, and environmental

fragility. I wanted to know what was contributing to these challenges; why is the Westfjords the way it is. The two main characteristics found to be shaping the communities in Westfjords, were their populations and their geographical location next to the ocean. Simply put, every community in the region is a rural coastal community. I wanted to know how these characteristics shaped a community's use of sustainable development, if at all. Furthermore, I wanted to know how these communities could use sustainable development to identify and solve their biggest concerns. Would the application of sustainable development be able to save the rural coastal community or are these communities doomed to failure because of external threats outside of their control? It is a question with the potential for many answers. Recognizing this, my intention became to create something tangible that shows a community their current reality in terms of sustainable development in the context of their rural coastal surroundings. The intent was to empower communities, through their own skills and knowledge, to decide for themselves what their next step towards sustainable development might be.

The research was completed through the use of qualitative methods, including a literature review and an exploratory/explanatory case study which included 5 semi-structured interviews and a participant observer methodology modified to fit research constraints. The result was a Sustainable Development Assessment Tool for Rural Coastal Communities. This assessment was performed on the community of Isafjordur and the results of the assessment were analysed using a S.W.O.T. analysis. The study concludes with discussion and recommendations for sustainable development practitioners and the communities in the Westfjords.

1.3 Research Question, Goals and Objectives

Research Question

Can the theories of sustainable development be used to assess the degree of sustainable development occurring in a rural coastal community?

Research Goals and Objectives

The research question will be answered using the following research goals. Each goal is accomplished through the associated objectives.

Goal: Develop a sustainable development assessment checklist for rural coastal communities.

Objectives*:*

1. Compile an inventory of sustainable development theory and practice through literature review.

2. Define rural community characteristics through literature review.

3. Define coastal characteristics through literature review.

4. Compile a checklist which represents the principles and ideals of sustainable development in the context of a rural coastal community.

Goal: Apply the sustainable development assessment checklist to the rural coastal community of Isafjordur in the Westfjords of Iceland through case study methodology.

Objectives:

1. Gather an inventory of contextual information specific to Isafjordur, the Westfjords and Iceland.

2. Complete the sustainable development assessment for rural coastal communities.

Goal: Determine the success of the assessment tool in providing the community with an overview of their sustainable development practices in the context of a rural coastal community.

Objective:

1. Perform a strengths, weaknesses, opportunities, and threats (S.W.O.T.) analysis of the sustainable development assessment tool for rural coastal communities.

2. Develop a set of recommendations for the community of Isafjordur that result from the assessment tool.

Method
Chapter 2

2. Method

The research was completed using qualitative methods chosen for their ability to reveal information and allow for exploration of the topics being considered. Qualitative methods allow the researcher to be led by the research in an effort to understand the nature, strengths and interactions of variables that may not be appropriately measured or explained using quantitative methods (Journal of Epidemiology and Community Health, 1994). These methods permit a more holistic exploration of the research topic and are therefore appropriate for multi-disciplinary research such as sustainable development and community planning.

This research was conducted in five steps using several qualitative methods. The first step, the theoretical overview, was completed using a literature review. This consisted of a thorough review of the literature in the context of sustainable development and rural coastal communities which is found in Chapter 3. This culminated in the creation of an assessment checklist, which constitutes the second major component of the research and is found in Chapter 4. The third step, contained in Chapter 5, consisted of a case study methodology which included semi-structured interviews, a modified participant observation methodology, and the application of the assessment tool created in the second step. The fourth component of the research was an analysis of the assessment tool which was facilitated by an S.W.O.T. analysis and is found in Chapter 6. The final component, contained in Chapter 7 of the research included formulating two sets of recommendations; one set of general recommendations and another set which suggests opportunities for future research. A summary of the project method can be found in Figure 1: Method Diagram (p. 29), the steps or which are explained below.

2.1 Theoretical Overview – Literature Review Method

The theoretical overview was performed in two phases. As the primary step of the project, a thorough literature review of key concepts was performed; the second phase was conducted in accordance with the interview and case study phase and was more contextually specific.

The first phase of the literature review was shaped by the research goals and objectives with the data organized under two main headings: Sustainable Development and Rural Coastal Communities. Due to the nature of the subjects being researched, the literature review was not aimed at being exhaustive; rather the goal was to provide a careful and concise overview of the academic material available. Each of the two main subjects was broken down into smaller, more manageable subsections, the details of which can be found below.

- Sustainable Development

This section of the literature review was divided into four themes: definitions, key concepts, application methodology including planning and management theory, and best practice examples.

- Rural Coastal Communities

This section of the literature review was divided into four themes: rural definitions, rural planning and management theory, coastal definitions, and coastal planning and management theory.

2.2 Results –Sustainable Development Assessment Tool for Rural Coastal Communities

The assessment tool is a result of the literature review. It consists of two parts; a community worksheet and an assessment checklist. Although the community worksheet is intended to be used prior to the assessment checklist, the two components were created in tandem. The checklist was built in 4 steps. At the beginning of Step 2, a section of the community worksheet was created to correspond with each section of the checklist. Each worksheet section links to the themes of the literature review: sustainable development, rural and coastal. (The questions associated with each step are found in Chapter 4, Results, beginning on page 51). Each step is described below:

Step 1: A list of key elements of sustainable development theory was compiled from the literature review. They were considered suitable as a theme if they could be used to describe several main theories or practices related to sustainable development. The themes and their contextual justification are listed here:

A) Governance – The action of governing and, in this context, describes the method of implementation of sustainable development theory and practice. Governance is facilitated through various levels of government and their associated planning and management frameworks.

B) Capital – There are several types of capital considered in the literature to be relevant to sustainable development; these include manufactured, natural, social, and human capital. In theory, the strength in each determines the achievement of sustainable development.

C) Capacity – The ability to contain, accommodate or withstand some action, behaviour and/or the consequence of both can be measured and analysed in a variety of ways that impact sustainable development. Sustainable development theory is influenced by environmental, social, institutional, adaptive and community capacity.

D) Community Structure – Can be defined by profiling the community's economy, environment, and their social characteristics, described in sustainable development theory as the three pillars or legs of the concept.

Step 2: The main themes were broken down into more specific components which were derived from the literature. The themes and their associated sub-themes are listed here:

A) Governance → State-Level Government
→Regional – Level Government
→ Local – Level Government
→ State – Level Planning Framework
→ Regional – Level Planning Framework
→ Local – Level Planning Framework

B) Capital → Access to →Manufactured Capital
→ Natural Capital
→ Social Capital
→ Human Capital

C) Capacity → Environmental Capacity
→ Social Capacity
→ Institutional Capacity
→ Adaptive Capacity
→ Community Capacity →Sense of Community
→ Degree of Commitment
→ Problem Solving Aptitude
→Access to Resources

D) Community Structure → Economy
→ Environment
→ Society → Access to Essential Services
→ Urban-Rural Connection
→ Population

Step 3: Once the themes and subthemes had been explored on the community worksheet, each sub-theme was then accompanied by a series of questions that represented a yes or no action. For example, when asked the question "is this being done or present?" the answer, with few exceptions, could be 'yes' or

'no'. The option of 'not applicable' was given and an explanation and proof for each response was expected as part of the assessment.

Step 4: The previous steps aimed at providing information to determine whether current practices are satisfying the 6 principles of sustainable development presented by Berke and Manta (1999). The last section of the assessment tool therefore interprets the community's agreement with these principles through a series of questions requiring primarily 'yes' or 'no' answers.

2.3 Case Study Method

A single case exploratory-explanatory approach as described by Umit (2005) was used to complete the case study found in Chapter 5, beginning on page 71. The community of Isafjordur in the Westfjords of Iceland was used as an example for the Sustainable Development Assessment Tool for Rural Coastal Communities. In the exploratory component, 5 semi-structured interviews were conducted to aide in establishing the parameters of the case study and to provide information for the assessment worksheet. The explanatory component of the case study involves the application of the assessment tool to the community and the information that results from doing so (Umit, 2005). The case study was designed to showcase the assessment tool using a real-world example while taking into account that the results of the assessment should be meaningful and useful to the community. The case study was conducted in four steps: a contextually specific literature review, semi-structured interviews, participant observations, and application of the Sustainable Development Assessment Tool for Rural Coastal Communities. Each step is explained below and summarized as part of the method diagram (Figure 1: Method Diagram , page 29).

2.3.1 Contextual Literature Review

To introduce and support the case study, literature contextually specific to Iceland and the Westfjords was gathered. An inventory of Iceland's political and administrative structure was gathered. This included an inventory of government ministries and institutions at the State and Municipal level and an outline of their general responsibilities including those specific to the coast. The inventory is included as an appendix to this document (Appendix 2,). In addition, literature explaining the history of Isafjordur and the Westfjords was consulted to provide an economic and environmental context of the area.

2.3.2 Semi – Structured Interviews

To facilitate an introduction to sustainable development in the communities of the Westfjords, 5 semi-structured interviews were conducted with local experts. Questions were focused on sustainable development and were narrowed to be contextually specific to Iceland and the Westfjords. A copy of the

interview questions used and the informational disclaimer given to each interview subject can be found in Appendix 3, 4 and 5.

Interview subjects were chosen based on special knowledge and their association with one or all of the three pillars of sustainability. They were also expected to have contextual knowledge of Iceland, the Westfjords, and if possible, sustainable development projects taking place in the area. To maintain the connection to Isafjordur and the Westfjords, interviewees with connections to local institutions were sought from the following sectors:

- *Economic* – Those with knowledge of local business development projects and their relationship to sustainability in the context of the Westfjords and the whole of Iceland.
- *Environment* – Those with knowledge of planning topics and issues specific to the Westfjords and their relationship to sustainable development. Those with knowledge of other environmental issues unique to the area and not necessarily associated with planning were also considered.
- *Social* – Those with knowledge of the social structure of the Westfjords and how it relates to the rest of Iceland were sought out, specifically those with an academic perspective of social topics and issues both historical and current.
- *Marine* - Those with knowledge of local marine activities and the permit and license process, specifically associated with aquaculture.
- *Political* – Those associated with local politics and knowledge of both local and State-level political initiatives related to sustainable development.

Interviews were successfully conducted from each sector with the exception of the Marine sector. Unable to coordinate schedules because of field work, the selected interviewee was unable to be interviewed in sufficient time for inclusion in this research. The absence of a marine perspective meant that the institutional inventory (Appendix 2) had to be relied upon for information, making the marine information more official and creating a lack of sector specific local context. It should be noted that this absence had some bearing on the outcome of the case study as the marine sector represents a large economic force in Isafjordur and the Westfjords in general. This affected the detail with which the economic sections of the assessment could be completed. However, the marine sector was well represented in the discussions with the interviewees and should not be considered absent from the research. A description of interviewees can be found in Table 1 below.

Table 1: Description of interviewees used in case study.

Interviewee Identifier	***Role and Organization***
Interviewee A (IA)	Managing Director; Association of Municipalities in the Westfjords
Interviewee B (IB)	Professor of Sociology; University of Akureyri
Interviewee C (IC)	Project Manager; Westfjords Economic Development Agency
Interviewee D (ID)	Town Councillor; Isafjordurbaer Municipality
Interviewee E (IE)	Employee of Engineering, Environmental, and Planning Consulting Firm

The interviews were recorded and transcribed in order to be analyzed for thematic agreement. Although the interviewees were not identified by name, they were identified by role and organizational affiliation throughout the transcripts. In the case of direct quotations, permission was obtained through email and is available from the researcher by request. The transcripts are also available from the researcher upon request and approval from interviewees.

2.3.3 Case Study Interview Findings

Interview transcripts were scanned for statements of thematic agreement. As the primary purpose of the interviews was to gain context and background on sustainable development and coastal perceptions in Isafjordur, the Westfjords and Iceland, themes were general and broadly defined by the goals of the research. The four major themes were: sustainable development, institutional responsibility and jurisdictional authority, coastal and marine cooperation and/or disagreement, and communities of the Westfjords. A series of sub-themes were discovered through the scanning process. If a topic was mentioned by at least three of the interviewees it was considered a topic of local and contextual importance and was included in the findings. The four sub-themes discovered through the interview process were: tourism, aquaculture, urban-rural separation and isolation, and the three pillars of sustainable development. As a secondary purpose, the interviews provided information to aide in the completion of the Sustainable Development Assessment for Rural Coastal Communities and the associated worksheet.

Interview data was organized according to theme and question asked. A sample of the table used to present the interview findings is found in Table 2. Interview data was entered as unedited quotations identified by the interview labels presented in Table 1.

Table 2: Example of table used to organize interview responses.

THEME	Question	- Question Text-
	Respondent :	Answer:
	Respondent Label	-Answer Text-

2.3. 4 Modified Participant Observation Methodology

Participant observation methodology is frequently used in social research as a way for researchers to immerse themselves in the community they are studying. Typically, a participant observation methodology would consist of meticulous note taking and verbatim recording of specific events (Trochim, 2006). As part of this research, I was fully enmeshed in the community of Isafjordur for approximately one year and six months. As a result of my participation within the community I was able to see firsthand examples of sustainable development in practice, both successful and unsuccessful. These events were not recorded for specific use in this research but many are accounted for in class work completed as part of the requirement for this Master's Degree. My experience in this community combined with my academic background in community design and planning is significant to the results of this study and to the proper execution of the case study and it is because of this that they are included in the case study methodology.

2.3.5 Application of Sustainable Development Assessment Tool for Rural Coastal Communities

Using the information gathered from the contextual literature review, the semi-structured interviews, and participant observations, the Sustainable Development Assessment Tool for Rural Coastal Communities was completed and can be found in Chapter 5.

2.4 Analysis

A strengths, weaknesses, opportunities, and threats (S.W.O.T.) analysis was conducted on the application of the Sustainable Development Assessment Tool for Rural Coastal Communities to Isafjordur, Iceland. S.W.O.T. analysis can be described as structured brainstorming aimed at revealing perceptions about

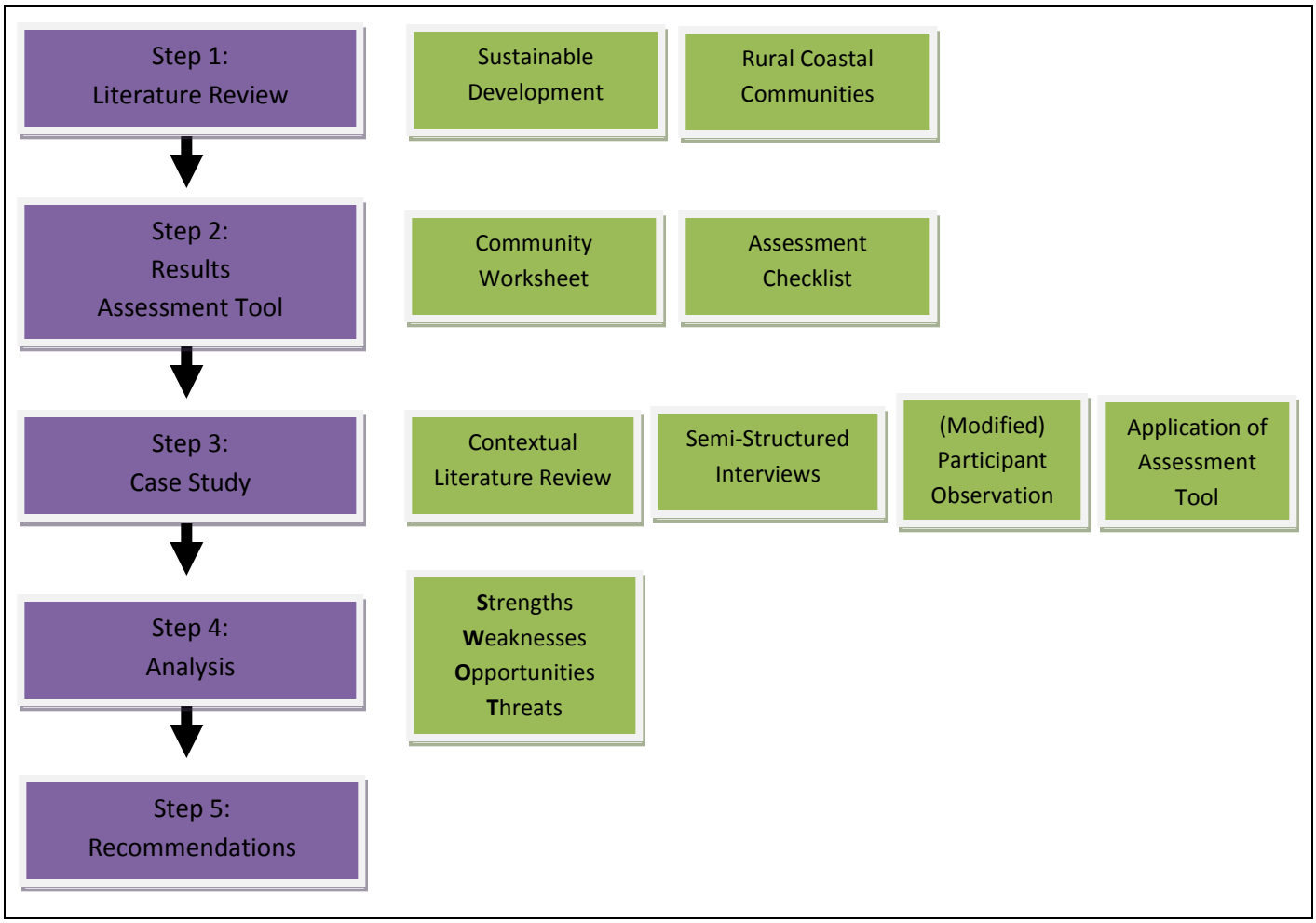
positive and negative factors (strengths and weaknesses), and possible improvements and constraints (opportunities and threats) (Borrini-Feyerabend, 2000). It is used as an analysis tool in planning to evaluate a variety of diverse qualitative information in a way that is consistent (Murtagh, 1999). The application of the assessment tool through the case study was analysed to determine its ability to identify what the community was doing well, what they were doing poorly, where the major gaps and barriers to sustainable development were, and identifying what the community's next steps might be. The criteria for determining what could be categorized as a strength, weaknesses, opportunity, or threat is explained below:

- Strengths – Considered an internal attribute, meaning it is a positive feature directly related to the design and application of the assessment tool.
- Weaknesses – Considered an internal attribute, meaning it is a negative feature directly related to the design and application of the assessment tool.
- Opportunities – Considered an external attribute, meaning it is an action that exists outside of the assessment tool that could positively impact the effectiveness of the tool.
- Threats – Considered an external attribute, meaning it is an action that exists outside of the assessment tool that could negatively affect the implementation or success of the tool.

2.5 Recommendations

As a result of the literature review and case study a set of recommendations was created. These recommendations were specific to Isafjordur and, in certain cases, the communities of the Westfjords. These suggestions were derived from lessons learned from the case study and were further supported by the theoretical overview. Recommendations were created to enhance the strengths with the community, work with existing opportunities, and mitigate the threats to the community's achievement of sustainable development. They were formed with the community structure and resources in mind and careful thought was taken to provide the community with realistic and attainable suggestions.

Figure 1: Method Diagram Source: Author



Theoretical Overview

Chapter 3

3. Theoretical Overview (Literature Review)

The literature review is presented in two major sections; sustainable development and rural coastal communities. The sustainable development section provides an overview of key theories and real world examples from academic journals, reports and online resources. Secondly, a definition of rural coastal communities will be created, providing an overview of the spatial, administrative, and conceptual uniqueness of these areas. Each section of the literature review is divided into subsections to increase theoretical clarity.

3.1 Sustainable Development

3.1.1 Sustainable Development Definition

The baseline definition of sustainable development theory is commonly taken from the Brundtland Report which defines it as development which "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). This definition stemmed from the acknowledgement of the conflict between development and environment and was an attempt at unifying the two elements (Kates, 2005). A conceptualization of this unification is found in Braissoulis' (2001) schematic representation of sustainable development (Figure 2) presented as a "dynamic equilibrium" between society's demand for development and the supply of environmental and economic goods and services available to meet that demand (Braissoulis, 2001). The necessity to achieve an equilibrium was acknowledged on a global scale at the 2002 World Summit on Sustainable Development which introduced the three pillars of sustainable development: economy, environment and society (Kates, 2005). The three pillar model, explained in section (3.1.3) is one of several concepts used to add substance to the creatively ambiguous definition offered in the Brundtland Report (Kates, 2005). Criticisms of the baseline definition are abundant but are primarily concentrated around the vagueness of the Brundtland statement and the lack of consensus on a primary definition from all users of the concept (see for example: Kates, 2005, Lele, 1991, Giddings et al, 2002, and Lehtonen, 2004).

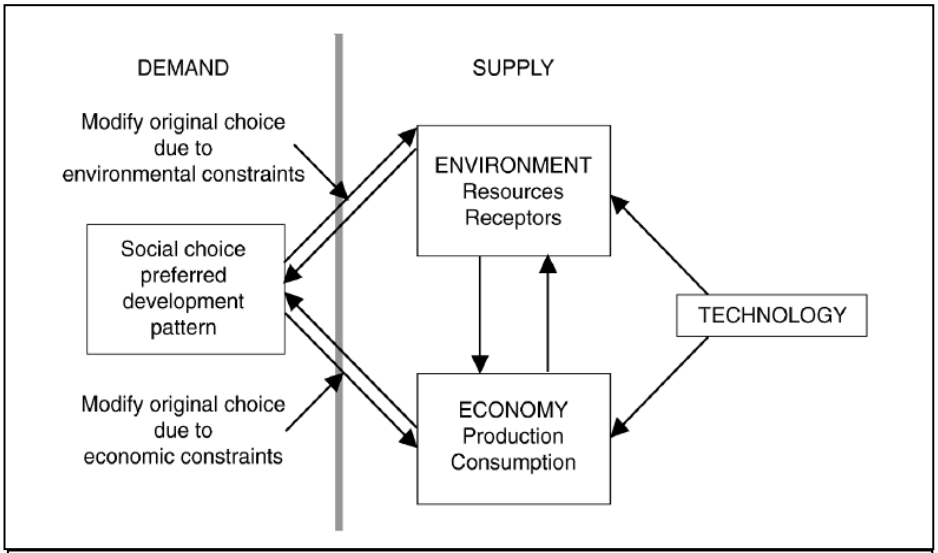


Figure 2: Schematic diagram of Braissoulis' dynamic equilibrium of supply and demand in sustainable development. Source: Braissoulis, 2001.

3.1.2 Research Based Definition of Sustainable Development

For the purposes of this research, many definitions of sustainable development were considered. Berke and Manta's 1999 research into planning for sustainable development was found to have the most suitable definition for the research presented in this project. Berke and Manta (1999) define sustainable development as "a dynamic process in which communities anticipate and accommodate the needs of current and future generations in ways that reproduce and balance local social, economic, and ecological systems, and link local actions to global concerns" (p.3). This definition and its accompanying six principles found listed below, are considered part of the foundation for this research.

1. Work in harmony with nature.

Land use and development activities should support the essential cycles and life support functions of ecosystems. Whenever possible, these activities should mimic ecosystem processes, rather than modify them to fit urban forms. These activities must respect and preserve biodiversity, as well as protect and restore essential ecosystem services that maintain water quality, reduce flooding, (and) enhance sustainable resource development.

2. Livable built environments.

The location, shape, density, mix, proportion, and quality of development should enhance fit by creating physical spaces adapted to desired activities of inhabitants; encourage community cohesion by fostering

accessibility among land uses; and support sense of place to ensure protection of special physical characteristics of urban forms that support community identity and attachment.

3. Place-based economy.

A local economy should strive to operate within natural system limits. It should not cause deterioration of the natural resource base, which serves as a capital asset for future economic development. Essential products and processes of nature should be used no more quickly than nature can renew them. Waste discharges should occur no more quickly than nature can assimilate them.

The local economy should also produce built environments that meet locally defined needs and aspirations. It should create diverse housing, and infrastructure that enhances community livability and the efficiency of local economic activities.

4. Equity

Land use patterns should recognize and improve the conditions of low-income populations, and not deprive them with basic levels of environmental health and human dignity. Equitable access to social and economic resources is essential for eradicating poverty and in accounting for the needs of the least advantaged.

5. Polluter pays

Polluters (or culpable interests) that cause adverse community-wide impacts should be required to pay, taking into account that the polluter must bear the cost of pollution and other harms, with due regard to the public interest.

6. Responsible regionalism.

Communities should not act in their own interests and should account for the consequences of their actions on others. Just as individual developers may be subject to the polluter (or culpable) pays, a local jurisdiction has an obligation to minimize the harm it imposes on other jurisdictions in pursuit of its own objectives.

(Berke and Manta, 1999, p. 4-5)

3.1.3 Key Concepts within Sustainable Development Theory

The Three Pillars of Sustainable Development

The three pillars of sustainable development, also referred to as triple-bottom-line, is a conceptually simplistic way to divide the key elements of economy, society and the environment into individual categories in an effort to make analysis straightforward (Giddings et al., 2002). As shown in Figure 3, the concept implies that the balancing of the three elements, which are attributed an equal level of importance, will lead to the achievement of a level of equity between them and thereby facilitate sustainable development (Giddings et al., 2002). The concept allows for natural resource use over time, the maintenance of living standards and the pursuance of economic growth to be considered in planning and decision making processes (Keiner, 2004).

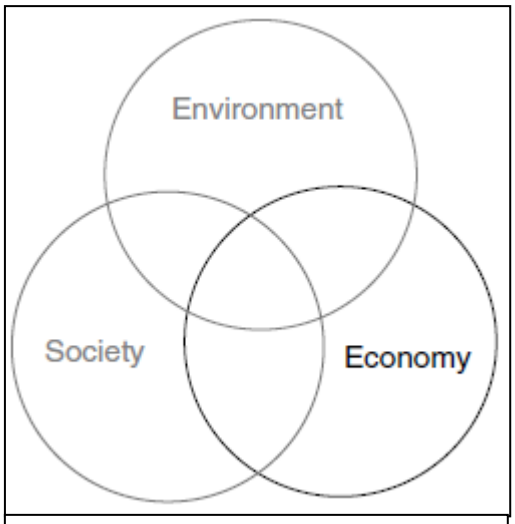


Figure 3: The three pillars of sustainable development. Source: Giddings et al, 2002.

Although internationally embraced and accepted, criticism of this theory is abundant (Giddings et al.,2002; Lehtonen, 2004; Robinson, 2004; Dawe and Ryan, 2002). Giddings et al (2002) explain that it is inherently impossible to not prioritize one of pillars over the other two, which disproves the symmetrical connection seen in Figure 3. A 'nested' model is presented as an alternative (Figure 4). Rather than being independent pillars, society depends on the environment and the economy depends on both elements for existence (Giddings et al, 2002). The nesting model does not solve all criticisms of the three pillar model, for example, it does not consider the multitude of different environments, societies and economies and can be misinterpreted as placing the economy in a centralized and dominant role (Giddings et al., 2002). The concept also suffers from the perception that it is a method to integrate environmental concerns into economic decision making, increasing the likelihood that the

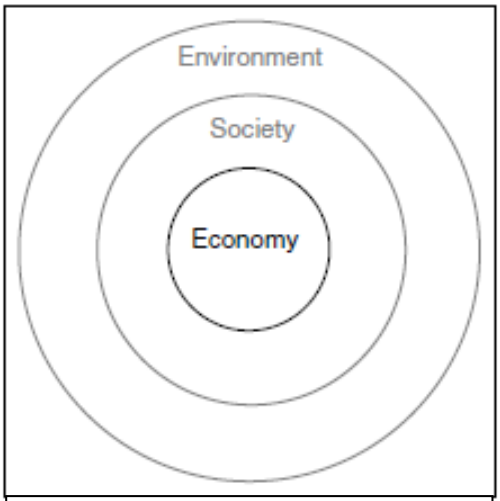


Figure 4: The nested model of sustainable development. Source: Giddings et al, 2002.

economy is prioritized as most important, the environment as second and society is left as an afterthought, if considered at all (Lehtonen, 2004). Lehtonen (2004) points out that "by continuing to distinguish the 'social' from the 'economic', the three-pillar model contributes to strengthening the idea that the economy can be treated as a separate sphere, detached from the social context within which all human activities are embedded", creating a false consensus between the three pillars. Working to achieve this consensus suggests that if an equal balance is achieved between economic needs, social well-being and environmental stability then society can continue along its current, business-as-usual path (Dawe and Ryan, 2002).

Capitals Approach to Sustainable Development

As an alternative to the three pillar model, ecological economics has introduced the capitals approach to sustainable development. This concept considers the maintenance or increase of the total stock of manufactured, natural and social capital as equating to development that is sustainable in the long term (Lehtonen, 2004). Human capital is included by some researchers as the fourth element of the capitals approach (Spangenberg, 2001). The capitals approach is conceptualized as a hierarchically equal, mutually interacting set of components (Lehtonen, 2004). It differs from the three pillar model of economy, environment and society in its definitions of the components. Manufactured capital is simply human-produced goods and services. Natural capital, also referred to as environmental capital is considered "any stock of natural assets that yields a flow of valuable goods and services into the future (Roseland, 2005, p. 78). Social capital refers to organizations, structures and social relations which people create and develop independently of the state or large corporations and is considered a public good (Roseland, 2005). Lastly, human capital, sometimes considered an element of social capital (Lehtonent, 2004), can be explained as "the embedding of resources in people" (Becker, 1962, p. 9). The economic theory behind the capitals approach is based on elasticity of substitution of human-made capital (manufactured and human capital) for natural capital, suggesting that natural resources can approach zero with output remaining constant as long as manufactured and human capital are increased by a compensatory amount (Constanza and Daly, 1992). Constanza and Daly (1992) explain that this reliance on elasticity stems from the mathematical side of economics, more related to stocks and flows than the tangible interactions between humans and the environment, suggesting the capitals approach is a convenient way to place value on the integration of the various capitals. The capitals approach is best suited to explain the substitutability between human and manufactured capital, and among different forms of natural capital (Constanza and Daly, 1992).

The danger of using the capitals approach to sustainable development is derived from the substitutability between the different capitals. Because the capitals are not prioritized and considered equal (Lehtonen, 2004), they can be assumed to be of equal value and therefore perfect substitutes for one another (Constanza and Daly, 1992). Dasgupta (2003) acknowledges that is approach to sustainable development enhances the separation of humans from the environment, allowing for a prioritization of manufactured and natural capital. It also increases the chance of reinforcing the status quo; using the various capitals as separate spheres emphasizes their independence, allowing the economy to be removed from the society from which it relies on to operate (Lehtonen, 2004).

Sustainable Development and Capacity

Capacity, as used in this research, is the ability to contain, accommodate or withstand some action, behaviour and/or the consequence of both. Building capacity is a method of promoting sustainable development identified by the United Nations as building abilities, relationships and values which allow organizations, groups and individuals to work towards their development objectives (UNEP, 2006). Furthermore, it is about building "knowledge, incentives, and learning capabilities into institutions and organizations for managing the capacity of local, regional and global ecosystems to sustain human well-being in the face of complexity and change" (Folke et al., 2002, p. 16). It is not surprising that similar challenges exist in defining capacity and capacity building in the context of sustainable development as exist with defining sustainable development itself; definitions of capacity building are criticised as being vague and occasionally unclear (Chaskin, 2001). Therefore it can be of more academic value to consider the types of capacity being encouraged when viewing capacity and its relationship to sustainable development. There are several types of capacity that are relevant to sustainable development including community capacity (Chaskin, 2001), environmental capacity (Rydin, 1998), institutional capacity (UNEP, 2006), social capacity (Matsuoka et al., 2007), and adaptive capacity (Folke et al., 2002).

- Community Capacity

  Community capacity is defined by Chaskin (2001) as "the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of a given community" (p. 295). There are four main characteristics of community capacity: 1) sense of community, 2) degree of commitment within the community, 3) problem solving aptitude, and 4) access to resources (Chaskin, 2001). Sense of community refers to the connectedness and sense of collective felt and experienced within a community (Chaskin, 2001). This idea of connectedness is explained by Pretty and Ward (2001) as having five elements:

"1. Local Connections - strong connections between individuals and within local groups and communities.

2. Local – Local Connections – horizontal connections between groups within communities or between communities, which sometimes become platforms and new higher-level institutional structures.

3. Local – External Connections – vertical connections between local groups and external agencies or organizations, being one-way (usually top-down) or two-way.

4. External – External Connections – horizontal connections between external agencies, leading to integrated approaches for collaborative partnerships.

5. External Connections - strong connections between individuals within external agencies."

The degree of commitment is represented in a community by those who view themselves as having an influence over the well-being of the community and the willingness of those individuals to be active in that role (Chaskin, 2001). The ability of a community to solve localized problems equates to their ability to "translate commitment into action" (Chaskin, 2001, p. 297). As Brown and Ashman (1996) discuss, a community's problem solving ability is directly related to their level of social capital as it influences their ability to cooperate and participate in acts of what Pretty and Ward (2001) describe as local and local-local connections. Access to economic, human, physical and political resources within and beyond the community has bearing on that community's ability to build and maintain capacity (Chaskin, 2001).

- Environmental Capacity

Environmental capacity can be defined as "the ability of a given environment to accommodate particular activities without suffering significant and irreversible damage" (Owens and Cowell, 1996, cited in Rydin, 1998). The concept, used often in planning and policy creation, insinuates that there are absolute constraints to development, moving beyond those boundaries would cause irreparable damage (Rydin, 1998). Jacobs (1997, sited in Camilleri, 2004) explains that these thresholds, although often perceived as primarily scientific, are ultimately socially derived boundaries of acceptance to environmental change. These thresholds are based on personal values and science alone is not suited to determine the extent to which changes to a spatial landscape would be tolerated (Camilleri, 2004). As environmental capacity is a geographically based measurement, defining the necessary criteria for determining the thresholds to change is a challenge; those using the measurement must determine the extent that spatial scale affects the final result if the measurement is to be useful (Camilleri, 2004). The application of environmental capacity to development plans does not mean that an area will not be developed beyond its local capacity, but it does allow plans to agree with the principles of sustainable development (Rydin 1998). It links to the intergenerational equity

of sustainable development theory; "the emphasis is on identifying those elements of the local environment which future generations should be entitled to enjoy" (Rydin, 1998, p. 750). As mentioned, these elements can be identified scientifically but it is through an assessment of community values and level of tolerance to change that environmental capacity can be most accurately measured.

- Institutional Capacity

  A general definition of institutions would describe them as those bodies whose rules dictate the structure of political decision making and implementation (Spangenberg, 2002). Institutional capacity is the human resource and developmental side of the institution (Wakely, 1997, cited in Heslop, 2006). The European Commission definition of institutional capacity includes legal rules, normative assumptions, governance, and administrative and organizational arrangements (European Commission, 2009). Legal rules pertain to the regulation of employment; normative assumptions are concerned with equality and open competition; governance explains democratic accountability and divisions of responsibility between the tiers of government and society; and administrative and organizational arrangements pertain to how ministries are structured and where their resources come from (European Commission, 2009).

- Social Capacity

  Social capacity is a derivative of social capital (Zadeh et al., 2010). In economic terms, social capacity can be described as the flow from social capital (Mauerhofer, 2010). It is the development of human or social integration within a defined spatial range, commonly a community, shaped by the processes undertaken by an individual, between individuals or groups of individuals (Mauerhofer, 2010). "In order for people of the same community to have shared norms, values and interests, they need to have the capacity to come together, share, relate, and talk about their norms, values and interests" (Zadeh et al., 2010). This capacity can be defined and measured by analysing the actors and factors in a community over a defined period of time (Matsuoka et al., 2007). The actors are commonly government, firms such as NGOs, and citizens; the factors are policies, resources, knowledge, and technology. The ability of each actor to fulfill the function of the factors is a measurement of social capacity (Mauerhofer, 2010).

- Adaptive Capacity

  Adaptive capacity can be defined as a community's ability to adapt to environmental, economic and social changes while maintaining an acceptable level of functionality (Folke et al., 2002). It is

often used to describe a community's aptitude to deal with potential harm from external stresses like that of global climate change (Yohe and Tol, 2002). The concept is context specific and varies between countries and communities, social groups and individuals as well as over time (Smit and Wandel, 2006). A community's adaptive capacity and its ability to cope can be outlined through using the IPCC (2001) set of determinants from Chapter 18. These determinants are as follows:

1. The range of available technological options for adaptation.
2. The availability of resources and their distribution across the population.
3. The structure of critical institutions, the derivative allocation of decision-making authority, and the decision criteria that would be employed.
4. The stock of human capital including education and personal security.
5. The stock of social capital including the definition of property rights.
6. The systems access to risk spreading processes.
7. The ability of decision-makers to manage information, the processes by which these decision-makers determine which information is credible, and the credibility of the decision-makers themselves.
8. The public's perceived attribution of the source of stress and the significance of exposure to its local manifestations.

(IPCC, 2001)

Sustainable Development and Governance

Governance is how one gets to act and through which type of interactions; frequently deliberation, negotiation, self-regulation or authoritative choice, and the degree to which actors agree with collective decisions (Kemp et al., 2005). Traditionally, sustainable development has been seen as the responsibility of government, the body that operates executive function over a community, bestowing upon it direction and order through its processes (Pinson, 2002). Currently, sustainable development is seen as an action of governance, allowing it to become the responsibility of a "broader range of processes which contribute to the aggregation of interests and demands and to the coordination of social activities" (Pinson, 2002, p 478). Ultimately, governance for sustainable development is about the process of working through and with formal and informal institutions to introduce major change (Kemp et al., 2005). Researchers such as Innes and Booher (2003) have criticized formal institutions for failing to fulfill their responsibilities and for having a short reach in terms of authority, leaving gaps where no agency has jurisdiction and therefore no incentive exists to fill those gaps. Good governance, through the collaboration of various levels of

society, is needed to progress towards sustainable development (Innes and Booher, 2003; Kemp et al., 2005).

Community planning, particularly the planning process, is a fundamental contributor to good governance. Planning has been given an increased responsibility in the successful implementation of sustainable development (Berke and Manta , 1999). Bagheri and Hjorth (2007) argue that successful implementation of sustainable development through planning requires a shift from the 'fixed-goal' approach of traditional planning to a 'process-based' approach, essentially moving from the 'what' to the 'how'. A process-based approach requires the involvement of all stakeholders which in turn produces results that are adaptable and ever-evolving (Bagheri and Hjorth, 2007). Bagheri and Hjorth (2007) explain that focusing on the process moves communities and planners away from supply-side and demand-side management which stifle the ability of a policy or action to be implemented in a way which promotes community-wide sustainable development. A process based approach to sustainable development example is offered by Mannberg and Wihlborg (2007) in their research about communicative planning. They describe an approach that integrates social, economic and environmental issues and actions which highly participatory and puts the local government at the lead to create a more bottom-up process than the traditional top-down strategy (Mannberg and Wihlborg, 2007).

3.1.4 Sustainable Development Real World Examples

The following examples showcase how sustainable development is currently being used. It should be noted that there are countless sustainable development examples available from academic and non-academic sources. These examples were chosen because of their repeated presence as examples in academic literature.

Agenda 21

Created as a programme of action in response to the international principles of sustainable development (Appendix 1) resulting from the United Nations Conference on Environment and Development (UNCED) in Rio de Janerio in 1992, Agenda 21 outlines actions to be taken globally, nationally, and locally in an effort to address current issues of sustainability to prepare for future challenges (United Nations, 2009). The program aims to reflect commitment to the cooperation of development and the environment and is to be implemented through top-down and bottom-up strategies involving various levels of government, NGOs and public participation (United Nations, 2009). Agenda 21's most significant contribution to the implementation of sustainable development theory and practice was its introduction of the prominent role to be played by local governments (Selman, 1998). The local programme, although just a small piece of

the overall document, had significant influence on allowing community members to rebuild relationships with their local government (Selman, 1998). Concepts such as civic ethics, participative democracy and citizen participation have resulted in communities all over the world from the implementation of Local Agenda 21 (Echebarria et al., 2004).

The Natural Step

The brain-child of Swedish doctor, Karl-Henrik Robèrt, The Natural Step is a not-for-profit organization dedicated to education, advisory work and research in sustainable development. The product of this organization is 'The Natural Step Framework', a comprehensive planning model for use in complex systems. The Framework is used by a diverse group of organizations to integrate sustainable development into their strategic planning with the intention of creating long lasting transformative change. Initially aimed at the business sector, The Natural Step has an increasing number of local government organizations using its approach to adopt sustainable development. There are several examples out of New Zealand and the list is growing. (Paraphrased from thenaturalstep.org, no date).

The Natural Step was created because Dr. Robèrt saw sustainable business as vital to progressing society towards sustainability (Bradbury and Clair, 1993). Upham (2000) argues that The Natural Step is nothing more than a set of principles that differ from other sustainability principles only in their presentation and perspective. Despite this criticism, the approach is very successful among businesses and organizations looking for strategic methods towards a transition to sustainable development (thenaturalstep.org, no date).

3.2 Rural Coastal Communities

3.2.1 Rural Community Definition

Rural can be used as a geographical description of a location or as a social representation of a culture or way of life (de Plessis et al, 2001). There is no internationally accepted definition for either description of rural but the OECD has developed an internationally recognized methodology for defining geographically rural areas which is widely practiced across Europe and North America (OECD, 2006). The method is based on population density and is a two and sometimes three step approach; in the first step administrative entities (municipalities) are identified at a geographical level as rural if they have a population density below 150 people per square kilometre, in the second step the places are categorized into 3 categories: predominantly rural region, intermediate region, and predominantly urban region (OECD, 2006). Predominantly rural regions have more than 50% of the population of the region living in areas with less than 150 people per square kilometre (OECD, 2006). Intermediate regions are areas where

15 to 50% of the population of the region are living in areas with less than 150 people per square kilometre (OECD, 2006). Predominately urban areas are those with less than 15% of inhabitants living in areas with less than 150 people per square kilometre (OECD, 2006). Occasionally, a region`s rural definition is altered based on its proximity to an urban centre; this is considered the third step of the OECD approach (OECD, 2010). In this step a region considered predominantly rural can be reclassified as intermediate if it contains an urban centre of more than 200,000 inhabitants and that population represents at least 25% of the region`s population (OECD, 2010). Furthermore, a region classified as intermediate becomes predominantly urban if it contains an urban centre of more than 500,000 inhabitants representing at least 25% of the population (OECD, 2010).

The OECD definitions consider population density and size but do not consider functional criteria like commuting distance (OECD, 2010). Canada uses the `rural and small town` definition where the population living in towns and municipalities outside of a predetermined commuting zone of an urban centre with a population of 100,000 or more is considered rural (de Plessis et al, 2001). The United States uses a similar definition to determine the definition of rural neighbourhoods, communities, and regions (OECD, 2010). The introduction of functional criteria to the definition contributes to defining the parameters of what is meant by rural based on the question being asked or the issue being addressed (de Plessis et al, 2001). Using functional criteria like commuting distance allows for the analysis of how the rural areas are integrated or related to urban areas and thereby providing a more realistic picture of a rural population`s access to essential resources (de Plessis et al, 2001).

Taylor and Martin (2001) discuss the accelerated rate in which rural areas are declining, describing the migration to urban areas as an opportunity cost for the rural economy; they lose the productivity of the individuals who move from the rural community. This results in the loss of human and social capital, as capitalist economies are commonly centred in the urban economy, trained individuals have an incentive to leave the rural community (Taylor and Martin, 2001). The incentive is based on an individual perception; given their current income and their level satisfaction with that income, an individual may look to the urban centred economy as a means to improve their income and position in society (Stark, 1984). Stark (1984) suggests that individuals are constantly in the act of comparing incomes, which can lead to miscalculated personal costs and benefits related to the choice of whether to migrate away from a rural setting. Human capital theory would suggest, then, that the impact of this rural out-migration depends on the numbers involved, the length of time the residents are gone, and the concentration of the migrants in specific areas or economic classes (Lipton, 1980). In theory, the young would therefore be more likely to participate in rural to urban migration than the old (Stark, 1984). Even when the numbers are small, a

continuous flow of people from rural areas can cause a signification redistribution of resources within and among communities which may be an irreversible consequence of migration (Lipton, 1980).

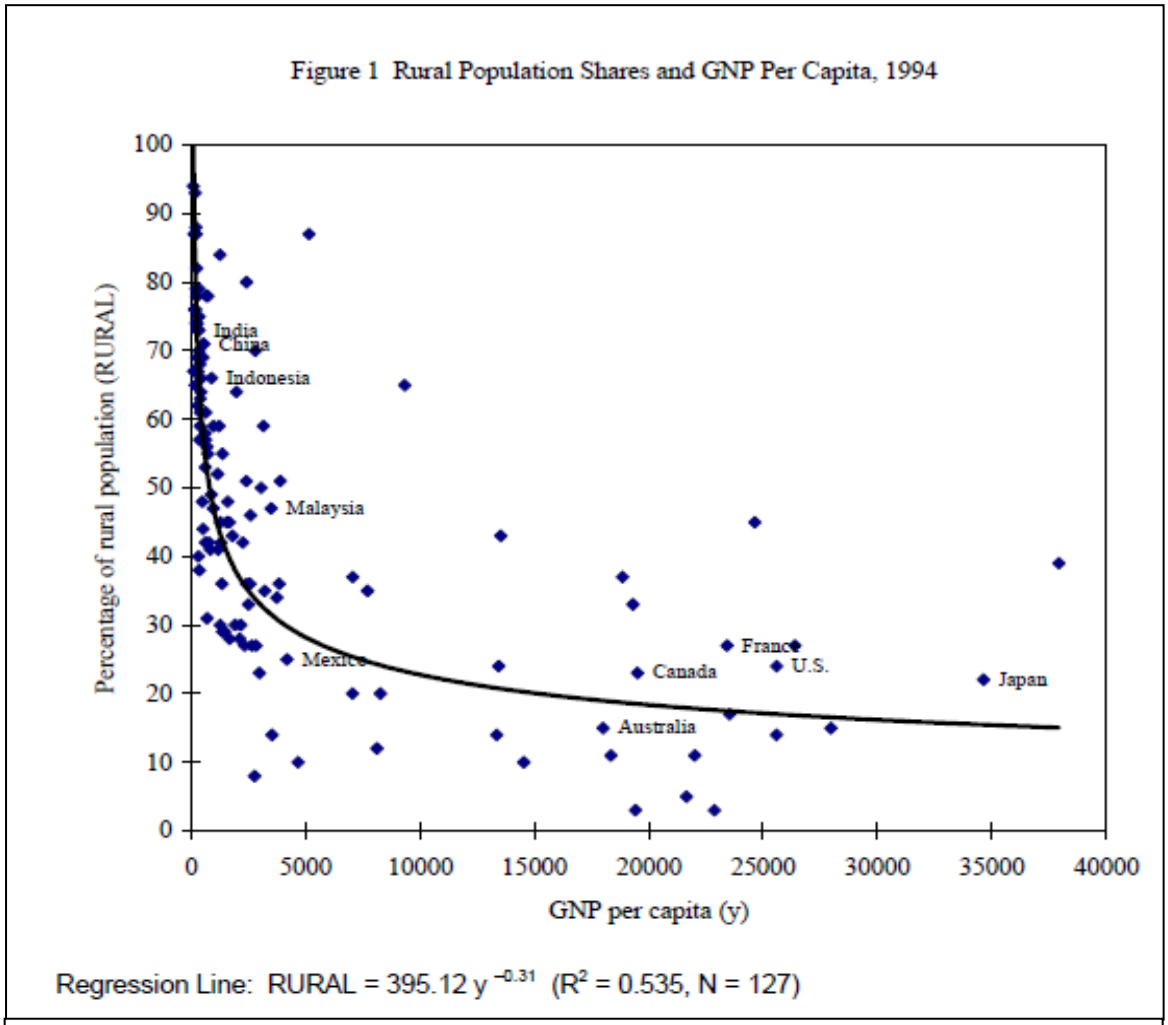


Figure 5: Rural population shares and GNP Per Capita, 1994. Source: Taylor and Martin, 2001.

It is important to identify rural communities properly as resource allocation from the state level is often dependent upon a community's structure (Isserman, 2005). Wrongly labelling communities in this way can influence income distribution, an issue identified as international problematic to urban areas. Taylor and Martin (2001) point out that the economic share of rural populations decline as per capita incomes increase. This is explained in Figure5. This disparity is also reflected in other ways, such as essential services, particularly health care (Zhao, 1999). In her discussion paper for the World Health Organization, Margaret Whitehead points out rural populations have higher mortality rates than their urban counterparts, created by a disparity in accessibility and quality of available health care (Whitehead, 1985).

3.2.2 Rural Planning and Management Theory

When searching for literature on rural planning approaches and management theory, there is very little academic material available that focuses on rural communities in the Global North. The literature is heavily swayed to developing nations experiencing rural poverty and cultural loss through rural migration. There is an abundance of academic literature on the developed nations' patterns of suburban development which often gets included as rural studies. Information appropriate to this research included the topic of rural governance. Goodwin (1998) explains a new style of rural governance that involves empowering rural citizens to govern themselves and gain capacity by sharing resources and skills.

The limited about of information presented in this section is partially attributed to a lack of accessible online journal resources. An explanation is offered in Chapter 7, in Section 7.4.

3.2.3 Coastal Definition

Kay and Alder (2005) define the coast using two distinct but related definitions; biophysical and policy-oriented. For the purposes of the research, the coast will be considered an environment that is biophysically unique and spatially distinct which is further defined by its uses and the planning, policy, and management that is implemented in its proximity. Each component of the coastal definition is explained below.

Biophysical Definition of the Coast

The coast is where the ocean meets the land. It is a dynamic boundary that moves, in both time and space, with the ebb and flow of tides and storms (Kay and Alder, 2005). The movement is generated by the transfer of sediment as a result of ocean waves. The depth of the ocean decreases as it approaches land, allowing waves to exert tremendous force on the ocean floor; as the force of the wave exceeds the staying-power of the floor particles, displacement of those particles occurs (Marsh, 2005). As the waves refract, they carry the particles of sediment with them, carrying or depositing sediments offshore or along the shore, depending on the season or intensity of passing storms (Marsh, 2005). This is a regular process however the transport of the sediment can be unpredictable and altered by activities that happen at different parts of the coastline, including sediment transport from inland rivers (Kay and Alder, 2005). This process creates retreat, the landward displacement of the shoreline usually attributed to erosion but also caused by rising water levels (Marsh, 2005). Retreat makes the coast physically smaller. The opposite extreme is progradation, the seaward building of a coastline from increased sediment deposits

caused by decreased wave action, increased sediment supply, decreased near-shore water depth and manmade sediment trapping infrastructure like groins (Marsh, 2005). A coastal region can experience retreat and progradation concurrently, making it difficult to determine fixed boundaries. Defining the spatial extent of the coast is explained in the following section.

Spatial Definition of the Coast

Defining the spatial limitations of the coast is challenging due to the dynamic nature of the coastal environment (Kay and Alder, 2005). There are several methods to defining the spatial extent of the coast, including the use of features that are visibly discernable at the coast like high water lines, and the use of image processing techniques to determine features that may not be visible to the human eye (Boak and Turner, 2005). The coast has additionally been defined by the inland catchment area, using watershed boundaries as the inward extent of the coast (Cicin-Sain, 1993). The offshore boundary can be dependent on the biophysical environment, particularly the continental shelf system as it helps to mark the physical change from land to ocean (Cicin-Sain, 1993).

In practice, the spatial extent of the coast is defined politically and jurisdictional boundaries form its limitations (Kay and Alder, 2005; Cicin-Sain 1993). Kay and Alder (2005) describe four ways that these political coastal boundaries can be defined; they are:

- Fixed Distance Definitions – Identify a fixed distance from the coast, usually determined from a measure of the boundary between land and water, commonly the high water mark. The ocean component of the definition is regularly associated with the limit of the government's jurisdiction.
- Variable Distance Definitions – Set the boundary from a measure at the coast like the high water mark but the boundaries are not fixed along the coast and range according to physical features, biological features, constructed landmarks, and administrative boundaries.
- Definition according to Use – Definitions based on issue being addressed and how the definition will be put to use.
- Hybrid Definitions – Using one type of coastal definition for the landward coastal boundary and another for the seaward limit. This definition is often use where these a fixe limit of jurisdiction over near-shore waters.

3.2.4 Coastal Planning and Management Theory

The planning approach in coastal areas can be broadly defined as strategic or operational (Kay and Alder, 2005). Strategic planning is considered the highest-order of planning and it provides a context for more detailed plans to operate while guiding the development of policy (Kay and Alder, 2005). These often take shape as national or regional level plans. The functions of strategic plans are typically providing long term visions, planning, prioritizing, and coordinating, and broad regulations (AMCORD, 1995 as cited in Kay and Alder, 2005). Operational plans are goal specific and concerned with the on-the-ground actions will be carried forward (Kay and Alder, 2005). These are common in more localized areas or used to combat specific issues such as beach erosion, for example. These plans are guided by the strategic plans broad goals and policies and concerned with the human resources of implementation (Kay and Alder, 2005). There is a trend in the literature to move towards integrated coastal and ocean management in an effort to move further from goal-based planning and management to participation and process based approaches (as explained in section 3.1.3 under Sustainable Development and Governance). Integrated coastal planning and management is a dynamic process by which decisions are made regarding the sustainable use, development, and protection of coastal areas and their associated resources (Cicin-Sain and Knetch, 1998). This approach has the fundamentals of sustainable development built into its framework, using it as an overarching goal of the concept (Cicin-Sain and Knetch, 1998). Criticism of integrated coastal management are not plentiful in the academic literature but Nichols (1999) does criticize the concept for being a method of opening the world's coastal and marine areas for investment which increases land use and density in sensitive environments.

Results
Chapter 4

4. Results – Assessment Tool

The assessment tool is performed in two steps. The first step is a community worksheet where an inventory of information necessary to complete the assessment is gathered. The worksheet is then used as guide for the assessment tool answers.

4.1 Community Worksheet

Using themes and theories derived from the literature review, the worksheet is a compilation of questions to facilitate the collection of information necessary to complete the Sustainable Development Assessment Tool for Rural Coastal Communities (presented in section 4.2, beginning on page 55). The worksheet is an exploratory tool created to help communities explore their inner-workings from a multi-faceted perspective. It is presented in Table 3, below.

Table 3: Community Worksheet

Governance	Government	***State Level Government***
		What Ministry(s)/Department(s)/Agency(s) are in charge of rural policy/development?
		What Ministry/Department is in charge of coastal issues/management/planning?
		What Ministry/Department is in charge of sustainable development issues/planning?
		What are the policies that deal specifically with rural development?
		What are the policies that deal specifically with coastal issues/management/planning?
		What are the policies that deal specifically with sustainable development?
		Regional Level Government
		What Ministry(s)/Department(s)/Agency(s) are in charge of rural policy/development?
		What Ministry(s)/Department(s)/Agency(s) works with State-level government on rural policy/development?
		What Ministry/Department is in charge of coastal issues/management/planning?
		What Ministry(s)/Department(s)/Agency(s) works with State-level government on coastal issues/management/planning?

		What Ministry/Department is in charge of sustainable development issues/planning?
		What Ministry(s)/Department(s)/Agency(s) works with State-level government on sustainable development issues/planning?
		Municipal or Local Level Government
		What Department/Individual is in charge of rural policy/development?
		What Department/Individual works with Regional- level government on rural policy/development?
		What Department/Individual works with State-level government on rural policy/development?
		What Department/Individual is in charge of coastal issues/management/planning?
		What Department/Individual works with Regional-level government on coastal issues/management/planning?
		What Department/Individual works with State-level government on coastal issues/management/planning?
		What Department/Individual is in charge of sustainable development issues/planning?
		What Department/Individual works with Regional-level government on sustainable development issues/planning?
		What Department/Individual works with State-level government on sustainable development issues/planning?
Governance	Planning	
		State Level Planning Framework
		What are the current plans that address rural issues/development?
		What are the objectives of these plans?
		What are the accompanying policies/acts/action plans associated with rural issues/development?
		What are the current plans that address coastal issues/management?
		What are the objectives of these plans?
		What are the accompanying policies/acts/action plans associated with coastal issues/management?
		What are the current plans for sustainable development (strategic/operational)?
		What are the objectives of these plans?
		What are the accompanying polices/acts/action plans associated with sustainable development?

		Regional Level Planning Framework
		How are state-level rural development plans/policies implemented/enforced?
		Are there current plans that address rural issues/development?
		What are the objectives of these plans?
		What are the accompanying policies/acts/action plans associated with rural issues/development?
		How are state-level coastal management plans/policies implemented/enforced?
		Are there current plans that address coastal issues/management?
		What are the objectives of these plans?
		What are the accompanying policies/acts/action plans associated with coastal management?
		How are state-level sustainable development plans/policies implemented/enforced?
		What are the current plans for sustainable development (strategic/operational)?
		What are the objectives of these plans?
		What are the accompanying polices/acts/action plans associated with sustainable development?
		Municipal or Local Level Planning Framework
		How are regional level rural development plans/policies implemented/enforced?
		How do municipal/local plans address rural issues/development?
		How are regional level coastal management plans/policies implemented/enforced?
		How do municipal/local plans address coastal issues/management?
		How are regional level sustainable development plans/policies implemented/enforced?
		How do municipal/local plans address sustainable development?
Capital	Manufactured	
		What types of manmade goods and services are available in the community?
		What types of manmade goods are produced in the community? Are they essential or non-essential?
		What types of non -essential services are provided in the community?
		What types of goods and services must be purchased outside the community?
Capital	Natural	What natural resources are found within the community?
		What natural resources does the community have free/unrestricted access to?

		How does the community benefit from the extraction or sale of the natural resources?
Capital	Social Capital	List the community groups with environmental missions/objectives:
		List the community groups with economic missions/objectives:
		List the community groups with social missions/objectives (including health and well-being):
		List the community groups with educational missions/objectives:
Capital	Human Capital	What types of traditional skills/knowledge are present in the community?
		What types of educational institutions and resources are available in the community?
		Do community members have mechanisms in place to pass on traditional skills/knowledge to youth?
Capacity	Environmental	What are the most significant changes to the community's physical environment throughout its history? Categorize as natural or manmade.
		What kind of natural changes are typical to the community's environment?
		What kind of manmade changes are visible in the community's physical environment?
		How does the community decide if manmade physical changes to the environment are acceptable/necessary?
		Does current land use affect the stability of the natural environment?
Capacity	Social	Who are the state-level actors (representatives from government, NGOs, and citizens) present in the community?
		Who are the regional-level actors (representatives from government, NGOs, and citizens) present in the community?
		Who are the local-level actors (representatives from government, NGOs, and citizens) present in the community?
		What policies are the state-level actors responsible for?
		What policies are the regional-level actors responsible for?
		What policies are the local-level actors responsible for?
		What resources are the state-level actors responsible for?
		What resources are the regional-level actors responsible for?

		What resources are the local-level actors responsible for?
		How do the actors communicate?
Capacity	Institutional	How is employment regulated and by whom?
		How is the market regulated and by whom?
		How are decision-makers held accountable for their actions (good and bad)?
		What is the difference between the responsibilities of the state and regional governments?
		What is the difference between the responsibilities of the regional and municipal governments?
		How are the state-level ministries structured and where do their resources come from?
		How are the regional-level ministries structured and where do their resources come from?
Capacity	Adaptive	What types of technology/resources are locally available in the case of environmental change or disaster?
		What types of technology/resources are locally available in the case of economic change or disaster?
		What types of technology/resources are locally available in the case of social/culture change?
		Are essential resources (those needed for basic human survival) equally available? equally distributed?
		How is decision-making authority allocated?
		What are the current stresses on the community?
		How do decision-makers manage these stresses (include spatial and demographic information if possible)?
Capacity	Community	***Sense of Community (measured by connectedness)***
		How are the members of the community connected?
		How do community members facilitate connections between individuals?
		How does the community facilitate connections between community groups?
		How does the community facilitate connections between community groups and external agencies/other communities?
		How does the community facilitate partnerships with regional/state government?
		Degree of Commitment
		How do community members participate in the local government?

		Who participates in community meetings/activities?
		How do community members influence decisions about the well-being of the community?
		Problem Solving Aptitude(translating commitment into action)
		Refer to social capital section: How are the community groups distributed? How many are environmental/economic/social?
		Who (demographically) is typically involved in community groups?
		Access to Resources
		How do community members access economic resources? (including manufactured and natural capital)
		How do community members access human resources? (including social and human capital)
		How do community members access physical resources? (including natural and manufactured capital)
		How do community members access political resources – locally, regionally, and at the state-level?
Community Structure	Economy	
		How does the local economy relate/compare to the regional economy?
		How does the local economy relate/compare to the state economy?
		List the recent/current economic development activities in the community.
Community Structure	Environment	What are the natural assets within the community?
		What are the natural hazards within the community?
		How does the community use the natural resources found within the community?
		What are the coastal features within the community?
		How does the community plan/manage the community's natural assets?
		How does the community mitigate impacts from natural hazards?
		How does the community plan/manage community owned natural resources?
		How does the community plan/manage coastal features?
Community Structure	Society	***Access to Essential Services***
		How does the community access health care?
		What health care services are provided in the community full-time?
		What health care services are provided in the community part-time or irregularly?

	How does the community access education?
	What are the education institutions present in the community?
	How do community members access employment services?
	What types of employment are available in the community?
	Urban – Rural Connection
	List the closest urban areas in order of commuting distance (by automobile):
	What services must be sought in urban areas?
	What services do urban inhabitants commute to the rural community to obtain?
	Population
	What is the density of the community? (people per square kilometre)
	What is the density of the region? (people per square kilometre)
	How do community members access urban areas?

4.2 Sustainable Development Assessment Tool for Rural Coastal Communities

The Sustainable Development Assessment Tool for Rural Coastal Communities is a checklist organized according to the major sustainable development theories presented in the literature review (Chapter 3). It was designed as a series of yes or no questions to facilitate the creation of a clear representation of a local community's sustainable development activity level. The assessment is presented in Table 4, below

Table 4: Sustainable Development Assessment Tool for Rural Coastal Communities

Theme				Yes	No	N/A	Notes:
Governance	Government	State – level Government	Are there rural development policies in place?				
			Are there policies specific to coastal management in place?				
			Are there polices specific to sustainable development in place?				
		Regional – level Government	Are there mechanisms in place to implement/enforce state-level policies?				
			Are there rural development policies in place?				
			Are there policies specific to coastal management in place?				
			Are there policies specific to sustainable development in place?				
		Municipal-level (local) Government	Are there mechanisms in place to implement/enforce regional-level rural policies?				

			Are there mechanisms in place to implement/enforce regional- level coastal policies?				
			Are there mechanisms in place to implement/enforce regional-level sustainable development polices?				
	Planning Framework	State – level Planning Framework	Are there state-level plans for rural areas?				
			Are there state-level plans for coastal areas?				
			Are there state-level plans for sustainable development?				
		Regional – level Planning Framework	Are there regional-level plans for rural areas?				
			Are there regional-level plans for coastal areas?				
			Are there regional-level plans for sustainable development? (strategic or operational?)				
		Municipal – level (local) Planning Framework	Are there municipal/local –level mechanisms to support/implement/enforce state/regional level rural plans?				
			Do municipal/local plans address rural issues/development?				

			Are there municipal/local – level mechanisms to support/implement/enforce state/regional level coastal plans?				
			Do municipal/local – level plans address coastal issues/management?				
			Are there municipal/local – level mechanisms to support/implement/enforce state/regional level sustainable development plans (strategic and/or operational)?				
			Do municipal/local – level plans address sustainable development?				
Capital (access to)	Manufactured Capital (human produced goods and services)		Do members of the community have equal and immediate access to basic commercial necessities (food, water, shelter, clothing)?				
			Are there basic commercial necessities produced in the community?				
			Do members of the community have access to manufactured capital in excess of basic necessities?				
			Is there manufactured capital produced in the community in excess of the basic necessities?				

	Natural Capital (environmental and natural resources)	Do members of the community have equal access to natural resources within the community?				
		Do members of the community benefit equally from natural resource extraction/sale?				
	Social Capital (organizations, structures, social relations that exist outside of government)	Are their community groups that reflect the environmental priorities of the community?				
		Are their community groups that reflect the economic priorities of the community?				
		Are their community groups that reflect the social priorities of the community?				
	Human Capital (embedding of resources in people)	Do traditional skills/knowledge get introduced to the next generation?				
		Is there educational opportunity in the community?				
Capacity	Environmental Capacity	Are environmental changes the result of natural processes?				
		Are environmental changes the result of manmade processes?				
		Does the community influence changes to the environment?				
	Social Capacity	Does the community have the ability/resources to manage its activities independently?				
	Institutional Capacity	Do institutions exist to oversee employment?				

				Do institutions exist to oversee the market?				
				Are decision-makers held accountable?				
				Are responsibilities evenly/reasonable distributed through the tiers of government?				
				Are the resources collected and used by the ministries evenly/reasonably distributed?				
	Adaptive Capacity			Is the community prepared for environmental change/disaster?				
				Is the community prepared for economic change/disaster?				
				Is the community prepared for social/cultural changes?				
				Is the management of local stresses reliable?				
				Is the entire community (spatially and demographically) considered in the management of changes/disasters/stresses?				
	Community Capacity	Sense of Community	Connectedness	Are there strong connections between individual members of the community?				
				Are there strong connections between community groups?				
				Are there strong connections between the community and surrounding communities?				

				Are there strong connections between the community and the regional/state government?				
		Degree of Commitment	Are community members willing to participate?					
			Do community members have influence over the decisions made in the community?					
	Community Capacity (continued)	Problem Solving Aptitude	Are community interests equally represented in community groups?					
			Are the community groups demographically diverse?					
		Access to Resources	Does the community have reasonable and equal access to economic resources?					
			Does the community have reasonable and equal access to human resources?					
			Does the community have reasonable and equal access to physical resources?					
			Does the community have reasonable and equal access to political resources?					
Community Structure	Economy	Is the local economy diverse?						
		Are local employment opportunities diverse?						

			Is economic development long-term (25+ years) focused?					
			Can the local economy function independently of the region?					
			Can the local economy function independently of the state?					
	Environment		Are the community's natural assets protected/planned/ managed?					
			Are there community level plans to mitigate impacts from natural hazards?					
			Does the community manage its own natural resources?					
			Are coastal features protected/planned/managed locally?					
	Society	Access to Essential Services	Do community members have equal access to health care?					
			Do community members have equal access to education?					
			Do community members have equal access to employment services?					
		Urban-rural connection	Is it necessary for community members to commute to urban areas for any essential service?					
			Is it necessary for urban residents to commute to the rural community for any essential service?					

		Population	Is the community predominantly rural? (more than 50% live in areas with less than 150 people per square kilometre)				
			Is the community an intermediate region? (15-50% live in areas with less than 150 people per square kilometre)				
			Is the community a predominantly urban region? (less than 15% live in areas will less than 150 people per square kilometre)				
			Is the community suburban?				
Assessment of Current Community Practices	Principle 1: Work in harmony with Nature		Do (current) land uses respect/preserve biodiversity?				
			Do (proposed/future) development activities respect/preserve biodiversity?				
			Do (current) land uses respect/preserve coastal ecosystem services?				
			Do (proposed/future) development activities respect/preserve coastal ecosystem services?				
	Principle 2: Create/promote livable		Do (current) land uses create appropriate spaces for local activities?				

	environments	Do (proposed/future) development activities create appropriate spaces for local activities?				
		Does current development encourage community connectedness by accessibility to land uses?				
		Does development support a sense of place by protecting special places?				
	Principle 3: Place-based Economy	Does the local economy operate within natural system limits (determined by environmental capacity)?				
Assessment of Current Community Practices	Principle 4: Reflect Equity	Does development deprive individuals of basic levels of environmental health and human dignity?				
		Is there equal access to social resources?				
		Is there equal access to economic resources?				
	Principle 5: Polluter Pays	Are polluters who cause adverse community-wide impacts required to compensate the community?				
		Are polluters who cause adverse community-wide impacts required to clean-up?				
		Are polluters who cause adverse community-wide impacts required to pay for clean-up?				

	Principle 6: Responsible Regionalism	Does the community account (financially or otherwise) for the consequences of its actions on neighbouring jurisdictions?				
Assets What we're doing well:		Liabilities Where we can improve :		Opportunities What could help us improve:		Constraints Barriers to Sustainable Development:

Case Study

Chapter 5

5. Case Study: Isafjordur, the Westfjords, Iceland

The following is a single-case exploratory-explanatory case study (Umit, 2005) of Isafjordur, in the Westfjords of Iceland. Using the Sustainable Development Assessment Tool for Rural Coastal Communities presented in Chapter 4 Results, the community was studied to determine its use of sustainable development practices in the context of coastal and rural parameters. The case study was used to test the effectiveness of the assessment tool in determining what the community was doing well, where it was failing, where it had opportunity for improvement and where there were gaps and barriers to sustainable development.

The case study presented below is presented in three sections. First, an introduction to the Icelandic context is offered. This is followed by the results of the five semi-structure, exploratory interviews conducted with local experts and those with specialized knowledge of the area. The third section contains the application of the Sustainable Development Assessment Tool for Rural Coastal Communities. An analysis of the assessment tool is found in Chapter 6 Analysis.

5. 1 Context

Iceland is home to one of the world's oldest parliamentary democracies, with the Althingi established in 930 (Government of Iceland, 2010). Independent for over 300 years, Iceland was taken over by Norway and then Denmark, becoming a sovereign state under the Danish Crown in 1918. Iceland secured its independence once again in June of 1944 (CIA World Factbook, 2010). At present, Iceland is a constitutional republic and uses a multi-party system with the chief of state being the President and the head of government being the Prime Minister (Government of Iceland, 2010). The country is spatially divided into eight administrative regions; Austurland, Hofudhborgarsvaedhi, Nordhurland Eystra, Nordhurland Vestra, Sudhurland, Sudhurnes, Vestfirdhir, and Versturland (CIA World Factbook, 2010). The division of the regions can be seen in Figure 6. There are twelve ministries responsible for the administration of the country's activities; of these ministries, the Prime Minister's Office (PMO) is responsible for the delegation of roles and duties to the other Ministries and general administration of the country. The State hands down instructions directly to the

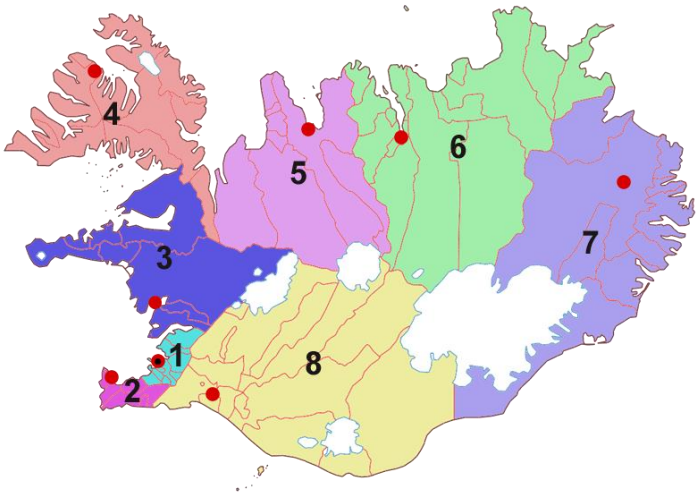


Figure 6: The 8 Administrative Regions of Iceland: (1) Hofudhborgarsyaedhi, (2) Sudhurnes, (3) Versturland, (4) Vestfirdhir, (5)Nordhurland Vestra, (6) Nordhurland Eystra, (7) Austurland, (8) Sudhurland Source: Wikipedia Images: http://en.wikipedia.org/wiki/File:Regions_of_Iceland.png

municipalities through the Department of Municipal Affairs and Equalization Fund at the Ministry of Transportation, Communications and Local Government (Government of Iceland, 2010). There is no regional level governance in the country however regional associations of municipalities can legally exist yet are considered voluntary organizations with no official jurisdiction. Municipalities are expected to carry out a list of tasks including the provision of elementary education, waste management, and other basic services regardless of their tax base or population size.

With a population of just over 300,000, and with total land area just above 100,000 sq km, Iceland has a low overall population density but nearly 40% of its population is found in the capital city of Reykjavik (Hofudhborgarsvaedhi)(CIA Factbook, 2010). Other notable urban centres include Akureyri in the north with a population of approximately 17,500 and Reykjanesbaer found just southeast of Reykjavik with a population exceeding 14,000 (US Dept of State, 2010). The OECD (2010) classified the eight regions of Iceland according to their demographic typology; details of which can be found below in Table 5. The Hofudhborgarsvaedhi region, the capital region, is the only part of Iceland recognized as an intermediate region, with 20.2% of its population living in areas with less than 150 people per square kilometre. The remainder is classified as predominantly rural, which is defined as more than 50% of the population living in areas with less than 150 people per square kilometre.

Table 5: Classification of the eight administrative regions of Iceland and the percentage of rural inhabitants in each region. Source: OECD, 2010.

Country Code	Region Code	Region Name	Typology	% of rural Population
ISL	15011	Capital Region	IN	20.2
ISL	15021	Suournes	PR	100.0
ISL	15022	Vesturland	PR	61.3
ISL	15023	Vestfiroir	PR	100.0
ISL	15024	Norourland Vestra	PR	100.0
ISL	15025	Suourland	PR	71.0
ISL	15026	Norourland Eystra	PR	100.0
ISL	15027	Austurland	PR	100.0

This case study focuses on Isafjordur, a community in the Westfjords (Vestfirdhir) classified by the OECD (2010) as 100% rural. A context map of the Westfjords and its communities can be seen in Figure 7. The region is geographically isolated, dominated by fjord systems, rough terrain, and the absence of a hinterland. Once home to a booming fishing industry and therefore an expanding population, the Westfjords has been plagued by political and environmental issues including the decrease of fishing quotas and fish stocks. As a result, the region has experienced a lull in economic development and rapid depopulation in the past century. What remains is an economy dependent on fisheries and aquaculture along with a seasonal tourism sector that relies on the maintenance of the natural environment for its success.

Figure 7: The Westfjords of Iceland. Source:Wikimedia URL: http://upload.wikimedia.org/wikipedia/commons/9/94/Vestfir%C3%B0ir_features.png

Perhaps, in effort to maintain the longevity of these natural resource-based activities, many municipalities in the Westfjords have begun to discuss the implementation of sustainable development strategies. Several initiatives such as the Master Plan for Isafjordurbaer, the Marine Spatial Plan for Arnardalur, Sustainable Education in the Westfjords, and Sustainable Westfjords are examples of the interest being shown in creating longevity within the region. These primarily bottom-up initiatives are powerful mechanisms for change however many are underfunded and lack State-level support, threatening their long-term existence and implementation. This is particularly relevant as these projects work to reverse the trends of depopulations and economic specialization.

The community of Isafjordur is one of four communities within the Municipality of Isafjordurbaer. The total population the Municipality is approximately 3800 individuals, with about 2700 of those living in the community of Isafjordur (Statistics Iceland, 2011). The community is a central hub and provides the surrounding communities with essential services such as health care. The issues in the community are similar to that of the region; depopulation is steady and the economy is becoming specialized around fisheries and aquaculture despite the overall decline in the local fisheries sector. The graph in Figure 8 shows the population trends in Isafjordurbaer between 1986 and 2010. It is important to note that this graph depicts migration to and from the community. Aside from 1998, the numbers have been consistently negative. The depopulation can be attributed to the decline of the local fisheries sector (Jóhannesson et al, 2003). Johannesson et al (2003) describe Isafjordur as a

community on the brink of transition from a traditional resource-based economy towards a cultural economy, one which is based more on tradition, the natural environment, and local residents than resource extraction and processing.

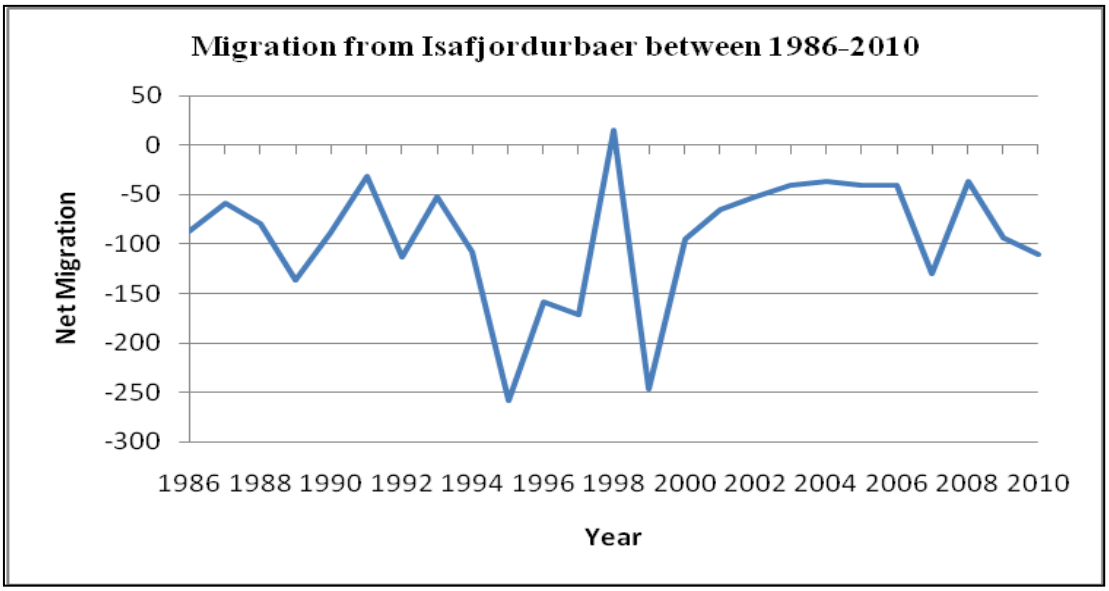


Figure 8: Graph showing migration statistics from Isafjordurbaer between 1986 and 2010. Data Source: Statistics Iceland, 2011.

5.2 Exploratory Interviews

In order to gain insight into perspectives held in the Isafjordur, five semi-structured interviews were conducted. These interviews were paramount in providing the information necessary to complete the Sustainable Development Assessment for Rural Coastal Communities shown in section 5.3. The interview responses are provided in Table 6 as direct quotations organized by theme and question. The major themes are sustainable development, institutional responsibility and jurisdictional authority, coastal and marine cooperation and/or disagreement, and the Westfjords, which accounts for any information contextually specific to the area. Sub-themes, those mentioned by at least three of the interviewees, are tourism, aquaculture, urban-rural separation and isolation, and the three pillars of sustainable development.

Table 6: Exploratory Interview Responses

Theme:	Sustainable Development
Question Asked:	What is your organization's role in sustainable development?
Respondent:	Answer:

IA	"What we are doing, we take the – once a year we have this general meeting for municipalities in Westfjords and this meeting takes about 2 days, then we discuss matters for these municipalities, especially matters for the whole – for the area as a whole maybe not issues from one municipality." "So we are trying to make a common platform as you say it" "And you see these goals here – I'm running out of the brochures – ok you see these goals, so that have been – but there have been a lot of things coming in these goals. So to answer your question, what about sustainable... this general meeting we are coming together with one statement or something about that – And we have, from the year 2003, we have a kind of statement about this – where we are trying to find out the vision for this region. Should we stand on these issues about sustainable issues ..." "Yes, we are listening". "This is, as I said, an association to take the common the common issues in the municipalities in the Westfjords".
IC	"Whether it has a specified role in that kind of context I'm not sure but we have a lot of our contracts we make, I can talk maybe more in general about the Westfjords Growth Agreement, the contracts we make with the Ministry of Industry and Commerce, is that we have to look at projects that are sustainable in that sense, so we have that as a kind of red line, what you could say a theme of our projects"
ID	"We are of course responsible for environmental issues within the municipality in general and they're including waste and yeah, waste but there's like a health committee - that's like for the whole of Westfjords". "but like which would be more related to sustainable development is more with each municipality and here in Isafjordur we have two committees, the environmental committee that's more like allowing people to build houses and stuff but also the protection of environment and then we have another committee which is committed to waste". "Definitely, both in regards to waste, like try to lower the amount of waste that we have, that we produce, and also in regards to projects and stuff within the municipality because the sustainable way is in the end the more cheaper way, because it's more sustainable".
IE	"we are consultants for planning and environmental issues and... our biggest projects for the last two years have been these two municipal plans for Isafjordurbaer and also for Bolungarvik but then we've also been involved in other smaller planning projects, and also some other environmental projects, for example for the university centre, the master's programs and other works as well...".
Question Asked:	What does sustainable development mean for Iceland?
Respondent:	Answer:

IA	"I think it will be a part of this work" "You will take this vision and how we should define sustainability in these fjords and how are we dealing, how will we answer the questions because you take aquaculture, as today, people who are buying salmon, cod, where is it – where is it from and how is the situation in this area, are they taking care of it"
IC	"...So I think if we had economic stability for a long period of time then we might be able to discuss these sustainable issues of more kind of, for lack of a better term, more serious than it is today but I think that we could have, if we didn't have this kind of migration from this area and the decline in the economy, maybe 5-6 years ago or even further back, then I think we could be at a place today where we could be a leader regarding the sustainable development in the seafood and maybe in the tourism".
ID	"First of all I think it would make the Westfjords a better place to live at, because if we are – with sustainable development you're sort of – if you are being sustainable I think your attitude towards yourself becomes more positive and also, so that's the inwards thought, the outward affects would be of course positive discussions about the Westfjords but I think it could also be a selling point for us in regards to tourism and like as marketing the Westfjords as a cool place to be at".
IE	"... I think the people's perspectives has changed a lot over the last years. I think with the university centre and, I mean the community is shifting a bit from only focusing on fisheries to other areas and I think much has changed for the last several years, but I think people like to see something, I think people like to think about sustainable development and like to focus on it both the politicians and the, just the public...". "It's going to mean an increase in the population, it's going to mean that we're going to base, you know – it's going to mean of course, there is a lot of focus on sustainability in this project and it's going to mean that, you know, we're going to focus on long term view and things like that".
Question Asked:	Where is the sustainable development conversation coming from/who is working on sustainable development in Iceland?
Respondent:	Answer:
IA	"That's this office here".
IC	"At some points, I think that, sector specific, I think it's tourism, I think it's a lot of the people involved in the sector are aware of the fact that the tourist we are getting are environmentally aware, so I think that within the sector there's a good level of knowledge about the need for this kind of sustainable development". "In other sectors I don't think that it is such common knowledge but I think

	the seafood sector might stand out in that sense because we have, stand out in sustainable development issues because all the systems, the fishing quota systems, all that we have aims at sustainable development, but this, maybe this – the difficulty with the seafood sector is that from my perspective I think sustainability is a little bit like politics, people you know, there are some people that can say you're sustainable while there's another part who say you're not sustainable, there's no real kind of guideline, there's no black or white regarding sustainability". "But I know some of the villages here within Isafjordur, like Suderyri, they are quite hung up on the sustainable kind of thing and a lot it is, I mean this discussion is always increasing, but I think our strength will primarily be with the fisheries and the seafood, and the possibilities there to be a leader in cod farming or mussel farming".
ID	"The tourism and there was the annual conference of the Municipalities in the Westfjords was in September where they agreed to at least start preparing Sustainable Westfjords idea, which comes from the association of tourism in the Westfjords, so we're looking into going the same way as Snaefellnes did..". "I think it's a mixture of both, it's obviously coming from the tourism sector but it's also coming from the people, people are becoming more aware of sustainability, I think partly it's because costs are rising for many things, like many things related to consumption so I think that's sort of, I wouldn't say forcing but like - leading to people thinking more sustainably and trying to figure out cheaper ways to do things and also maybe becoming more aware of the importance of not ruining".
Theme:	Institutional Responsibility/Jurisdiction/Authority
Question Asked:	Who is working on sustainable development/ who is in charge or involved in sustainable development initiatives?
Respondent:	Answer:
IA	"That's this office here". "I think we are kind of pioneering this – maybe Snaefellness, they are already have this Green Globe – so they are working in this already but as a kind of region and take the coast as well, that's new". "As the law it is today, in the end it would be the board of the municipalities, it would be the council of each municipality, they take this decision". "it's not possible, they have to cooperate with the municipalities". "we have 5 Ministries which work in this area, and Hafro is part of the Ministry of Fisheries and Aquaculture - no and Agriculture and also part of aquaculture, that's part of the ministry of Fisheries - The ministry of the Environment, the you have the Ministry of the Local Governments, the same Ministry that takes care of transport because you have the travel around the sea and then you have the Ministry of Industry which is taking care of the sea bottom, then you can say you have the Ministry of – how do you say – not the

	foreign – it's the Ministry called of Justice - and Human Rights, yes, so that's the 5th ...but they are this, there are institutions under these ministries, like Hafro, then you have this Ministry of – no this institution of environmental affairs in Iceland and you have the institution of all planning and then you have the institution that is taking care of health, and they also giving license for the firms that are producing food...".
IC	"...they might be not directly but indirectly, we are funding it so you know indirectly Ministry of Industry coming through to that project and they have introduced that project to the Environmental Ministry, the Ministry of Industry and Fisheries and so on. So I know that they have done their part of, you know, keeping them involved but directly they're not maybe involved, indirectly through our fund and just you know them giving us the order that you need to take part in these kind of projects and we do that".
ID	"Yeah and nobody actually knows who's giving permits to whom - No, everyone is in charge... and all of them can say yes and without consulting each other, I think though that one of them is responsible for getting comments from like the municipality and stuff. And they should have all the strings but I'm not sure – I doubt that they do". "I'm a bit scared that the ministries, like the government won't give us the leverage that we would need but I guess it's always the question of how we discuss it with them, like how we bring it up".
IE	"...the planning agency, the environmental agency, Orkostofan, and national energy authority, and Havro, the marine institute. So these four agencies, and then we are also in contact with, I think it's four ministries, yeah four ministries and they put a little bit, each of them, a little bit of money into the project so they support it both financially and then with this back-group of agencies, with experts from these agencies...".
Theme:	Coastal and Marine Cooperation/Disagreement
Question Asked:	What is the relationship between those in charge on land and those in charge at sea?
Respondent:	Answer:
IA	"I think we are thinking about it as a whole"
IC	"I think it's more vague, the issues regarding the sea, it's more structured regarding the land, so I think that's basically due to the zone and all that stuff, I think, like I told you before that now we are facing the kind of issues of how we are going to look at the ocean as maybe, you know, as land, and I think,

	for me it has never been vague that the industry of seafood, the seafood industry and agriculture industry has been the primary agent in that sense, but now you're touching on a lot of issues which have to reflect onto the local authority and maybe take consideration of the land zoning and access to the sea for the farming and all that stuff." "Well, I think we're just too short into that kind of thing, just in recent kind of projects, I have seen the possibilities of conflict but then just, you know, because we have all this space and we are not that concentrated so we have an abundance of both land and access to sea so, you know". "...I think in general there is a lot discussion about it but I know within our region we are going ahead with more, I think, that, I can't remember the zoning project which was done downstairs". (Teiknistofan)
ID	"It's non-existing". "No, that's one of the problems". "So as it is today I think it's not good enough. I think it more, it should go to the municipalities more, especially as the Iceland law is also thus that if you own land that lies by the sea you have, you own a certain part of the water as well and the sea floor as well, so it's sort of stupid that we don't have that authority as well...". "you have to go to each - and then they send a letter to the other ministry and it's kind of just a bunch of letters". "– if you wanted to start up a land based aquaculture I think you only need to talk to one ministry of something, the Ministry of Fisheries, but with the other one you need to talk to - Ministry of Fisheries and justice –....".
IE	"...it's not written how you should do it, we have to look at some, you know, a lot of research and try to figure it out".
Theme:	Westfjords
Question Asked:	No specific questions asked. Any response contextually specific to the Westfjords is included as are any responses where interviewee was asked to expand on their response using Westfjords specific examples.
Respondent:	Answer:
IB	"...all of these regions have been either stable or growing for the last 100 years and the Westfjords is the only place you really have significant population decline". "The thing with the Westfjords is, you know, it's only one area in people's minds". "I really do think that, I mean the fate of the Westfjords will be dramatic, it really hinges on Isafjordur". "you know, the Westfjords are particularly disadvantaged, I mean in just the lay of the land".

IC	"I think we have a strength of being able to work on further long term projects like I told you, within the sustainable sense with aquaculture and all that. Our weakness might be we are economically we've been suffering for quite some time, so we might be looking at short-term fixes to the economy which could not have any sustainable connection at all". "I think for fishing and hunting based community like the Westfjords is, I think it's very important to get that message across that whatever we do today can not affect future generations. That's basically the underlying theme for me, even though you have aspects economic, social and environmental which touch on sustainability as well, I think that the only message which will be understood in such a kind of – not going to say simple community – but it is simple in that context, we are based on the fisheries and if the fisheries were to collapse then this community is going to collapse".
ID	"If it's done properly I definitely think we can reach sustainable development, like especially in regards to the municipalities and we should at least definitely be able to get to the same point as Snaefellness has reached – and they've been doing some pretty cool stuff I think, which we should look at and yeah, that's looking to the future." "I think because the municipalities have realized that one of the ways to cut down costs is to become more sustainable, however I think in the panic that has been going on in Reykjavik, it's just like they just haven't taken time to think about ok like this is the problem, how can we change our way of living, how can we adjust ourselves to this situation, instead it's just like slash and cut".
Sub-Theme:	Tourism
Respondent:	Comment:
IA	"No, it is more like tourism, they are thinking this, but as well we are living in this area, I think all of us will take care of this area". "We are not, we don't like mass tourism". "They show up and people here in the harbour they like to have them so it is not an issue here today. We like to have these tourists so that's ok".
IB	"I mean tourism is tricky". ".. I mean I think I mean tourism certainly an important source of income here but it's, you know, it really doesn't work as a...(growth mechanism)".
IC	"tourism is not going to come back and you know, create that output that would keep this community alive"
IE	"for tourists it might be interesting to go back in time go to the Westfjords, you know, but I think for the people, you know, who live here and if you want to attract more people it's just going to be just a very small portion of people who want to move to an area (like this)".

Sub-Theme:	Aquaculture
Respondent:	Comment:
IA	"As part of it, we have, should be established as aquaculture for cod or salmon or whatever - blue shell. You can't have it in all these areas, I think that's part, you have to decide where you should put it then you kind of take care of environmental - the issues, yeah, the best places and then leave the other places free from, that's my idea".
IC	"the firms here are working on the cod farming and the statistic on that is that we have 80% of the cod farming in Iceland is based in this area, so you know 20% of it is somewhere else. So you know that's a, you know if we could have 80-90 even 100 percent then we are going to be leading in cod farming, and when the research and development in cod farming has reached the stage where you can hatch the spawn or whatever you call it, and grow it to the market size then you have got the whole kind of connection with the sustainable kind of feeling to it."
ID	"there are quite strict rules about it though but not as strict as on land though, and actually there are very strict laws regarding salmon but not as strict regarding cod, which is weird, and I actually think that perhaps because it's quite recent it's still developing, I think we're still trying to find the best solutions in that regard, which is taking far too long though, because it's still 20 or 30 years since it started. But there are some things that need to be considered though and it relates to planning out on water it's like the boat routes and like the distance from the waste pipes that I don't think has been considered, not in all cases anyway". "in regards to aquaculture which they consider to be sustainable, whether it is I'm not going to comment on that".
Sub-Theme:	Urban-Rural Separation and Isolation
Respondent:	Comment:
IA	"So this Westfjords is a whole definition apart - geographically we are isolated, as you know" "No I don't think so, but still you have this, 9 municipalities in the Westfjords, 5 of them, 2 of them are very small, very small, you have nano and you have (Community Name) they have 50 people they have to do everything like Reykjavik".
IB	"So that's really the beginning of this big transition of the population and it's really, I mean people often talk about it as, you know, the growth of Reykjavik is the big story, but the big story is really the story of urbanization. so you have these little villages that are just scattered around the coast and as time goes by some of them stop growing". "Yeah so, it grows up to being the southwest being 2/3rds of the country and there are very, more and more very strong voices in the southwest saying, you know, who needs the countryside anyway". "I mean the thing is that if you go out to Holmavik, once you pass Sudavik, it's not even rural it's empty".

	"...about half the taxes people pay here go to Reykjavik... that it's literally people are paying for things that they don't really have much of a chance of using". "and I mean here like in many places, it's funny that, you know, there seems to be some sort of cultural resistance against moving from Reykjavik to rural areas". "There's, I mean, kind of this urban rural debate has been going on for a hundred years, it's quite vicious at the moment, you know, where you really have people in Reykjavik saying we don't need any of this, we can't afford it, let's just move everybody here ...".
IE	"...we have this history of people moving from the Westfjords, you know one might think we are desperate you know to keep the people here and bring something in, I think it's not like that but there's risk that if an investor comes in with some idea that it's going to bring a lot of, you know, employment opportunities, people are just going to say yes, we'll take it but I think it's not, it's not like that". "I mean, the focus has been so much on Reykjavik and the construction in Reykjavik so it, that has not been helping other areas in Iceland to do something, to build something up, so that has been a weakness, I don't know if it's changing or not". "But you can also say that that has helped the area, it has been a bit isolated and you know, like Hornstrandir here, there's no road, there was never a road built in this area, today that's good because it means that it's pretty unique and not spoiled, so you can also view that, say ok, the Westfjords they are like some other areas in Iceland like 20 years ago, it's an opportunity also".
Sub-Theme:	3 Pillars of Sustainability – Finding the balance between environment, economy, and society
Respondent:	Comment:
IA	"But we are trying to find this balance between sustainability – you have 3 parts, you have the nature, you have the communities, the people and what was the third – economy, yeah". "That's not – no one is thinking about that, we are trying to find this balance between taking care of nature but as well have some economic". "ok, we have, all these general plans have this vision, each of them and you can put them together and you can unite it with the vision about the economy, the communities and the nature".
IC	"..the underlying thing regarding the fisheries is that we have a quota system but, you know, does it – it is suppose to aim at maintaining the stocks for future generations and there touching on your three aspects, so that, just having that in place is a major factor on why the seafood could be a leader in

	the sustainable kind of context and tourism can follow...".
IE	"I think, of course, we have very, we have these resources, we have the fish, we have this long coastline so we have not only the fishery, we have all the resources in the coastal area meaning in the sea, close to the sea, we have pretty, let's say unspoiled nature so it's going to be easier to sell these products, we have, well I think we have strong communities, you know people willing to support like this idea, willing to participate in some projects, I mean all kinds of projects, so yeah so I've talked about the resources I've talked about the communities and of course the economy is linked to these, I mean all these resources that it should be easy to produce something that gives back of course, rents or rent money, something else...this is at least what comes to my mind".

5.3 Application of Sustainable Development Community Assessment for Rural Coastal Communities to Isafjordur

The assessment was performed in two steps. First an inventory of information was completed which was compiled using the Community Worksheet. The worksheet was completed using the contextual literature review, participant observations, and the collected interview data. The second step was the completion of the assessment, made possible by the information collected using the worksheet. The worksheet for the community of Isafjordur is presented below in Table 7. This is followed by the assessment, completed in Table 8, beginning on page 99.

Table 7: Community Worksheet for Isafjordur

Governance	Government	***State Level Government***
		What Ministry(s)/Department(s)/Agency(s) are in charge of rural policy/development? Ministry of Industry, Energy and Tourism Department – The Icelandic Regional Development Institute – operations aimed at strengthening settlements in rural areas through the support of viable, long-term projects with diverse economic basis.
		What Ministry/Department is in charge of coastal issues/management/planning? Ministry of the Environment Departments – Environment and Food Agency Icelandic Institute of Natural History National Planning Agency The Environmental Agency of Iceland Ministry of Fisheries and Agriculture Department – Natural Resources Office Ministry of Industry, Energy and Tourism Departments – Icelandic GeoSurvey

	Icelandic Tourism Board Ministry of Justice and Human Rights Departments: Icelandic Coast Guard Ministry of Transport, Communications and Local Government Departments – Icelandic Maritime Administration Ministry of Foreign Affairs Departments – Department of Natural Resources and Environmental Affairs
	What Ministry/Department is in charge of sustainable development issues/planning? All Ministries mention planning for sustainable development or sustainability.
	What are the policies that deal specifically with rural development? Act 106/1999 Institute of Regional Development – work towards strengthening regional and economic development in Iceland outside the greater Reykjavik area.
	What are the policies that deal specifically with coastal issues/management/planning? There were no specific policies found.
	What are the policies that deal specifically with sustainable development? There were no specific policies found although it is rumoured (based on conversations with interviewees) that the State will soon create a new vision for the country. There is a strong possibility that it will use the term sustainable development.
	***Regional Level Government* –** Not applicable as Iceland has no regional level government .
	What Ministry(s)/Department(s)/Agency(s) are in charge of rural policy/development?
	What Ministry(s)/Department(s)/Agency(s) works with State-level government on rural policy/development?
	What Ministry/Department is in charge of coastal issues/management/planning?
	What Ministry(s)/Department(s)/Agency(s) works with State-level government on coastal issues/management/planning?
	What Ministry/Department is in charge of sustainable development issues/planning?
	What Ministry(s)/Department(s)/Agency(s) works with State-level government on sustainable development issues/planning?
	Municipal or Local Level Government
	What Department/Individual is in charge of rural policy/development? The Municipality - elected members of council
	What Department/Individual works with Regional- level government on rural policy/development? No Regional government but there is a voluntary association of municipalities in the Westfjords.
	What Department/Individual works with State-level government on rural policy/development?

		Facilitated through the Association of Municipalities in the Westfjords
		What Department/Individual is in charge of coastal issues/management/planning? The Municipality of Isafjordurbaer – elected members of council – facilitated through Municipal plan prepared by external consultant.
		What Department/Individual works with Regional-level government on coastal issues/management/planning? Municipal council works with the Association of Municipalities of the Westfjords
		What Department/Individual works with State-level government on coastal issues/management/planning? Municipal council consults with the state directly on coastal issues (when necessary).
		What Department/Individual is in charge of sustainable development issues/planning? The Municipality of Isafjordurbaer – elected members of council and the Environmental Committee of the Town.
		What Department/Individual works with Regional-level government on sustainable development issues/planning? Municipal council (and by proxy the town's environmental committee) works with the Association of the Municipalities of the Westfjords.
		What Department/Individual works with State-level government on sustainable development issues/planning? Municipal council works directly in response to state-level sustainable development initiatives (takes direction from Ministry of Transport, Communications and Local Government)
Governance	Planning	
		State Level Planning Framework
		What are the current plans that address rural issues/development? Unable to find specific plan but intention of plan is found in: Act 106/1999 Institute of Regional Development – states that a strategic plan for regional development was to be created by 2009 and updated every two years.
		What are the objectives of these plans? Improve living conditions for those living outside the Reykjavik area (capital region) through: - Strengthening regional centres, while making special effort to curb population decline in rural areas. - Enabling rural communities to adjust to changes in industrial culture. - Supporting employment, education and culture and promoting social equality in areas far from the capital region. Isafjordur was mentioned in these plans as receiving special attention in terms of education, culture, endeavours to promote innovation and progress in industry, improvements in transport

	and communications.
	What are the accompanying policies/acts/action plans associated with rural issues/development? Act 106/1999 on Institute of Regional Development – not able to find plan or action plan.
	What are the current plans that address coastal issues/management? There is no integrated coastal management plan for Iceland. Each Ministry that has responsibility at the coast has their own objectives pertaining to management.
	What are the objectives of these plans? Unavailable.
	What are the accompanying policies/acts/action plans associated with coastal issues/management? Unavailable.
	What are the current plans for sustainable development? No specific national level plan. Sustainable development is considered on a sector specific basis and on a case by case basis by the Ministries.
	What are the objectives of these plans? Unavailable.
	What are the accompanying polices/acts/action plans associated with sustainable development? Unavailable.
	Regional Level Planning Framework
	How are state-level rural development plans/policies implemented/enforced? No regional implementation/enforcement.
	Are there current plans that address rural issues/development? No regional plan.
	What are the objectives of these plans? Unavailable.
	What are the accompanying policies/acts/action plans associated with rural issues/development? Unavailable.
	How are state-level coastal management plans/policies implemented/enforced?

	No regional implementation/enforcement.
	Are there current plans that address coastal issues/management? There is a proposed regional coastal management plan facilitated through the Association of Municipalities in the Westfjords.
	What are the objectives of these plans? Project is defined but objectives are not.
	What are the accompanying policies/acts/action plans associated with coastal management? If implemented, the plan is voluntary and not legally binding therefore will not have any associated acts or policies. It will have an action plan developed and specific to different municipalities.
	How are state-level sustainable development plans/policies implemented/enforced? No regional implementation/enforcement.
	What are the current plans for sustainable development (strategic/operational)? Unavailable.
	What are the objectives of these plans? Unavailable.
	What are the accompanying polices/acts/action plans associated with sustainable development? Unavailable. NOTE: As mentioned, sustainable development and/or sustainability appears in the language of several of the ministry's introductions to their activities and responsibilities.
	Municipal or Local Level Planning Framework
	How are regional level rural development plans/policies implemented/enforced? There are no regional level rural development plans.
	How do municipal/local plans address rural issues/development? Take direction from Ministry of Industry, Energy and Tourism, from their department: Icelandic Regional Development Institute; additional direction from Ministry of Transport, Communications and Local Government. Municipal plan for Isafjordurbaer works indirectly and directly to combat issues caused by the rural location of the town (depopulation, economic struggles, etc.).
	How are regional level coastal management plans/policies implemented/enforced? No current regional level coastal management plans.
	How do municipal/local plans address coastal issues/management? The coast is addressed through its identification as a place of interest and for protection. It is

		protected in a physical way through seawalls and barrier structures. Access to the coast is identified as something to be maintained for social and economic purposes. Notable Activity: Proposal for Marine Spatial Plan in Arnarfjordur.
		How are regional level sustainable development plans/policies implemented/enforced? No current regional level sustainable development plans/policies.
		How do municipal/local plans address sustainable development? Sustainable development is an objective of the municipal plan.
Capital	Manufactured	**What types of manmade goods and services are available in the community?** (The following list is not exhaustive but effectively depicts the local situation. Any oversights are unintentional) There are two grocery stores which carry an extensive array of pre-pared food products, and an array of produce, fish, poultry, and meat. A limited number of clothing stores exist; there is a second hand clothing store organized by the Red Cross. Vehicles can be purchased and repaired locally. Tools and a small amount of building supplies can be purchased. Household tools such as kitchen appliances and other small appliances can be purchased in limited quantities. There are three restaurants that serve food year round. There are three restaurants/cafes that serve food seasonally. There are two fast food type cafes that have limited kitchen hours. There is one knitting themed cafe. There are two bakeries. There are three hair salons with regular hours. There is one pharmacy. There is one hospital. There is a police station. There is a fire station (volunteer). There are Emergency Rescue Services (volunteer). There is an elderly care facility. There are two banks.

		What types of manmade goods are produced in the community? Are they essential or non-essential? Hand crafts are produced in the community. They are non-essential. Fish are processed in the community. They can be included in food and therefore essential. Baked goods are produced at one of the two bakeries. They produce bread on site which can be considered an essential good.
		What types of non -essential services are provided in the community? There is one movie theatre that has limited hours of operation. There are two fitness centres; one is facilitated through a physiotherapy office. There are three hair salons. There are two bars with regular weekend hours, and one bar that opens for special events. There is a ski hill with downhill and cross-country trails. There is a swimming pool. There is one large gymnasium and one small gymnasium available for community use. There is a golf course. There is a campsite for trailers and tenting. There is a yoga studio. There is a music school. There are several churches. There is one library. There is one museum focusing on local history.
		What types of goods and services must be purchased outside the community? 'Big ticket' household items like refrigerators, stoves/ovens, washing machines, etc. must be purchased and delivered from elsewhere. It is notable that families with children often travel outside the town to purchase clothing and other basic household items (bathroom and bedroom linens and supplies) because these items are more expensive locally.
Capital	Natural	**What natural resources are found within the community?** There is a large aquifer within town limits that provides the community with drinking water. Tidal Energy River energy (seasonal) Fish (it could be argued that the fish actually occur outside of town limits but because the

		habitat exists inside the spatial boundary it is considered a resource).
		What natural resources does the community have free/unrestricted access to? Drinking water.
		How does the community benefit from the extraction or sale of the natural resources? Benefits from use. No monetary benefit.
Capital	Social Capital	**List the community groups with environmental missions/objectives:** No community groups with environment or environmental activism as the primary focus. The Tourism Association of the Westfjords based in the community has environmental objectives although the group is not solely focused on the environment.
		List the community groups with economic missions/objectives: Business association Tourism Association of the Westfjords
		List the community groups/organizations with social missions/objectives (including health and well-being): (This list is not exhaustive but effective represents the local situation) Hospital Physiotherapy Clinic Running Club Kayak Club Dive Club Knitting Club(s) Skiing Club Basketball Club Football (soccer) Club Volleyball Club Handball Club Aegir Student Association
		List the community groups/ organizations with educational missions/objectives: Local schools

		University of the Westfjords Aegir Student Association Parent-Teacher Groups
Capital	Human Capital	**What types of traditional skills/knowledge are present in the community?** Farming – agricultural, sheep, and horse. Gardening – including greenhouse maintenance. Knitting and wool related hand crafts. Ceramics Fishing and fishing technology, including traditional drying practices Aquaculture Local History Sailing
		What types of educational institutions and resources are available in the community? Elementary Education High School Education Distance Education facilitated through the University of the Westfjords – programs include undergraduate and graduate level courses. Masters Studies facilitated through the University of the Westfjords – one full time programme (Coastal and Marine Management) Adult Education including language classes (Icelandic and English).
		Do community members have mechanisms in place to pass on traditional skills/knowledge to youth? Knitting cafe provides hand craft lessons. Natural history museum. Fishing industry training.
Capacity	Environmental	**What are the most significant changes to the community's physical environment throughout its history? Categorize as natural or manmade.** Infilling to create land bridge to mainland. Manmade change. Seawalls/rockwalls surrounding the isthmus portion of the town, stopped natural movement of

		coast line. Manmade change. Avalanche barriers. Manmade change.
		What kind of natural changes are typical to the community's environment? Erosion/land slide/shift from avalanches. Erosion of sandy banks from ocean waves. Wind erosion on mountains.
		What kind of manmade changes are visible in the community's physical environment? Infill along roadway infrastructure. Avalanche barriers. Seawalls General development and land use.
		How does the community decide if manmade physical changes to the environment are acceptable/necessary? Local plans dictate the parameters of physical environmental change at the coast. The local plans are created in accordance with the municipal plan which was created with extensive community participation.
		Does current land use affect the stability of the natural environment? How? Current land use does not affect the stability of the environment within the community.
Capacity	Social	**Who are the state-level actors (representatives from government, NGOs, and citizens) present in the community?** Environmental Agency – office responsible for parks State- level representation through the Ministry of Foreign Affairs office (translation department)
		Who are the regional-level actors (representatives from government, NGOs, and citizens) present in the community? Association of Municipalities in the Westfjords is the only NGO responsible for regional level activities. Tourism Committee – not necessarily regional but has the potential to be with the inclusion of more individuals from outside the Municipal boundary.
		Who are the local-level actors (representatives from government, NGOs, and citizens) present in the community? Municipal council and sector specific groups within the council (environmental group for example).

		Tourism Committee
		What policies are the state-level actors responsible for? Locally represented state-level actors are responsible for policies on park protection, conservation and use.
		What policies are the regional-level actors responsible for? Not applicable as the Association of Municipalities in the Westfjords can not develop of implement policy.
		What policies are the local-level actors responsible for? Policies pertaining to environment, economic development, social services and essential services.
		What resources are the state-level actors responsible for? Locally represented actors are responsible for state-owned park land.
		What resources are the regional-level actors responsible for? Not applicable.
		What resources are the local-level actors responsible for? Local natural resources including drinking water and some coastal waterways.
		How do the actors communicate? Communication is often unofficial and done on a personal basis. Communication is often facilitated through personal connections. This is true of communication between state, regional and municipal levels.
Capacity	Institutional	How is employment regulated and by whom? Employment is regulated by the Ministry of Social Affairs and Social Security though the department of equality and labour. They ensure that all Icelandic citizens have equal and reasonable access to employment opportunity.
		How is the market regulated and by whom? The market is regulated and overseen by the Ministry of Economic Affairs through the Financial Markets Department. They are responsible for ensuring Icelandic citizens have equal access to the market it their resources permit it.
		How are decision-makers held accountable for their actions (good and bad)? Through democratic process.
		What is the difference between the responsibilities of the state and regional governments? No regional responsibility.
		What is the difference between the responsibilities of the regional and municipal governments?

		No regional responsibility.
Capacity	Adaptive	
		How are the state-level ministries structured and where do their resources come from?
		What types of technology/resources are locally available in the case of economic change or disaster? Town Council assumed to have the knowledge and ability to manage the local economy regardless of economic situation while keeping local interests as a priority. Westfjords development agency – has the knowledge and resources to manage and allocate emergency funding.
		What types of technology/resources are locally available in the case of social/culture change? Limited social resources.
		Are essential resources (those needed for basic human survival) equally available? equally distributed? Availability is based on ability to afford basic necessities at elevated prices (elevated due to increase in shipping costs due to isolation).
		How is decision-making authority allocated? Through democratic election which elects municipal council for the whole of Isafjordurbaer. The council is not proportionally represented therefore decision-makers could be from other communities outside Isafjordur and not sympathize with local issues.
		What are the current stresses on the community? Depopulation and retaining of youth (including young professionals) , decreases in essential services(recent funding cuts to health care including limiting hours of operation at the Isafjordur hospital), unemployment (dramatic decreases are very worrisome), economic specialization, avalanches and landslides, storm surge and increased wave action,
		How do decision-makers manage these stresses? It is the responsibility of the Municipality to manage social stresses however this management is often funded through state-level programs. Economic specialization is the responsibility of both the Municipality and the State. The Municipality is responsible for retaining business and for giving business owners incentives for business start-ups within the community. The State is responsible for providing Municipalities with the resources (financial/human/social) to do this and to support these initiatives through policy. Environmental stresses such as landslides and avalanches are managed by the Avalanche Centre which is a state-level institution. Other environmental stresses such as impacts from storm surge are managed by the Municipality with the exception of impacts to state-owned wharf facilities.

Capacity	Community	***Sense of Community (measured by connectedness)***
		How are the members of the community connected? Community members are connected through personal histories, family histories, and family relationships. Families originally from Isafjordur and still residing in the town for more than one generation are well connected to each other.
		How do community members facilitate connections between individuals? Through community groups. Through community facilities like the swimming pool and fitness centres. Through schools and school activities. Through athletic activities.
		How does the community facilitate connections between community groups? Connections are established through members who participate in more than one community group and serve as the communicator and link between various community groups. Social networking sites like Facebook.
		How does the community facilitate connections between community groups and external agencies/other communities? Through personal/individual connections.
		How does the community facilitate partnerships with regional/state government? These connections are primarily the responsibility of the local council and mayor.
		Degree of Commitment
		How do community members participate in the local government? Community meetings. Protests.
		Who participates in community meetings/activities? Members of council. Local business owners. Members of local political parties.

	Concerned citizens.
	How do community members influence decisions about the well-being of the community? Attend community meetings. Vote. Protests and gatherings.
	Problem Solving Aptitude(translating commitment into action)
	Refer to social capital section: How are the community groups distributed? How many are environmental/economic/social?
	Who (demographically) is typically involved in community groups?
	Access to Resources
	How do community members access economic resources? (including manufactured and natural capital) Many 'big ticket' items are purchased in or from Reykjavik. Food is shipped from Reykjavik. Clothing is primarily purchased from Reykjavik or outside of Isafjordur. Manmade goods are purchased online. Some natural resources (like drinking water) provided by municipality.
	How do community members access human resources? (including social and human capital) Human capital is problematic due to depopulation. Social capital is accessed through traditional economic activities like fishing and hand crafts.
	How do community members access physical resources? (including natural and manufactured capital) Mostly shipped from Reykjavik or from outside the country. Can be purchased locally at the commercial sales outlets.
	How do community members access political resources – locally, regionally, and at the state-level? Locally – access through community meetings, community groups, and personal connections. Regionally – communities connected through Association of Municipalities in the Westfjords. State-Level – Accessed through local council's connections with individual ministries. State-Level agencies represented locally (Maritime Administration, Environmental Agency

		has a parks office) Accessed through local council's connection to state-level government (top-down connection only).
Community Structure	Economy	
		How does the local economy relate/compare to the regional economy? The local economy is highly dependent of natural resources – specifically fish. A large percentage of Isafjordur residents work as fishermen, in the aquaculture sector, in fish processing, or in the administration and management of the local fishing industry. The communities within the region of the Westfjords are all very similar in this respect. It is commonly understood that the region is highly dependent economically on the fishing industry. The local economy is boosted seasonally by tourism. This can also be said for the rest of the Westfjords. Isafjordur benefits from cruise ship traffic which is unique for the region.
		How does the local economy relate/compare to the state economy? The overall economy of Iceland is primarily a mix between natural resource extraction (fishing, tidal energy from the damming of rivers, geothermal energy, etc.), heavy industry (aluminum smelting, etc.), private sector industry, tourism, and public service. The community of Isafjordur is primarily dependent on natural resources and tourism. There is very little private sector interest and the area is not suitable for heavy industry.
		List the recent/current economic development activities in the community.
		Westfjords Development Agency – projects including aquaculture, regional labelling for local fish products. Sustainable Westfjords – Looking into eco-labelling for the entire region as a method of increasing tourism and creating job opportunities.
Community Structure	Environment	**What are the natural assets within the community?** Natural environment surrounding the community is pristine. Traditional skills and knowledge of residents. Natural harbour. Natural vistas including mountains and ocean.
		What are the natural hazards within the community? Transportation routes prone to avalanches/rock falls Storm surges. Parts of community in moderate to high risk avalanche zones.
		How does the community use the natural resources found within the community? Personal consumption (water). Use for tourism related activities.
		What are the coastal features within the community? Coastal lagoons and ponds. Beaches.

		Small river estuary.
		How does the community plan/manage the community's natural assets? Planned for the Isafjordurbaer plan.
		How does the community mitigate impacts from natural hazards? Through the Municipal plan. Avalanche centre (state-level) maps hazards and has a local office in the community.
		How does the community plan/manage community owned natural resources? The only community owned natural resource is the aquifer (drinking water supply) and that is managed by the municipality.
		How does the community plan/manage coastal features? Included in municipal plan.
Community Structure	Society	***Access to Essential Services***
		How does the community access health care? There is one hospital which provides most services and on-call emergency care.
		What health care services are provided in the community full-time? General practice. Elderly care.
		What health care services are provided in the community part-time or irregularly? Eye care. Dentistry. Mental health services.
		How does the community access education? Primary education can be accessed in the community (some children in Westfjords must travel to Isafjordur for high school).
		What are the education institutions present in the community? Pre-school/kindergarten Elementary school High school University of the Westfjords (distance and one graduate program)
		How do community members access employment services? No evidence of state-funded employment services in the community. There is an immigration centre that deals with employment services for those who need

	permits to work or are pursuing green cards/Icelandic citizenship.
	What types of employment are available in the community? Municipal employment. Fisheries (fishermen, fish processing, net production/maintenance, management) Marine research and engineering (matis for example) Retail (Bonus, Samkaup, Bakeries, clothing/souvenir shops, etc).
	Urban – Rural Connection
	List the closest urban areas in order of commuting distance (by automobile): Reykjavik – approximately 6 hours about 500km Akureyri – approximately 6 hours about 550 km
	What services must be sought in urban areas? Some health care services including – child birth, minor and major surgery, some dentistry including cosmetic.
	What services do urban inhabitants commute to the rural community to obtain? Entertainment in the form of tourism. Isafjordur is home to the music festival Aldrei for eg Sud.ur which draws several hundred urban inhabitants to the area each Easter.
	Population
	What is the density of the community? (people per square kilometre) Population is 2700. Size of the community : Could not find spatial measurement of Isafjordur
	What is the density of the region? (people per square kilometre) Population of about 7000. Size of region is about 22,000 – Density is about 3 people per square kilometre.
	How do community members access urban areas? By plane (Air Iceland) By car. Commercially by sea.

Table 8: Sustainable Development Assessment Tool for Rural Coastal Communities

Theme				Yes	No	N/A	Notes:
Governance	Government	State – level Government	Are there rural development policies in place?	X			Through the Institute of Regional Development.
			Are there policies specific to coastal management in place?		X		There are no policies specific to coastal management.
			Are there polices specific to sustainable development in place?		X		There are no integrated or strategic policies specifically related to sustainable development although it is often mentioned as a goal or mission of various ministries.
		Regional – level Government	Are there mechanisms in place to implement/enforce state-level policies?			X	This section is not applicable as Iceland does not use regional level government.
			Are there rural development policies in place?			X	----------
			Are there policies specific to coastal management in place?			X	----------
			Are there policies specific to sustainable development in place?			X	----------
		Municipal-level (local) Government	Are there mechanisms in place to implement/enforce regional-level rural policies?			X	No regional level policies or plans exist.

			Are there mechanisms in place to implement/enforce regional- level coastal policies?		X		This is a factor if regional coastal development plans are complete as there would be no legal mechanism of enforcement.
			Are there mechanisms in place to implement/enforce regional-level sustainable development polices?			X	No regional level policies or plans exist.
	Planning Framework	State – level Planning Framework	Are there state-level plans for rural areas?	X			There is the intention of plans from Act 106/1999 on the Institute of Regional Development although no current plans were found.
			Are there state-level plans for coastal areas?		X		This would be the responsibility of the Ministry for the Environment's Planning Agency. There is no evidence the a coastal planning approach is used at the state-level.
			Are there state-level plans for sustainable development?		X		Many ministries used the term sustainable development but an overarching state-level framework was not found.
		Regional – level Planning Framework	Are there regional-level plans for rural areas?			X	No regional level policies or plans exist.
			Are there regional-level plans for coastal areas?			X	There is currently a proposal for coastal zone management in the Westfjords.
			Are there regional-level plans for sustainable development? (strategic or operational?)			X	No regional level policies or plans exist.
		Municipal – level (local) Planning Framework	Are there municipal/local –level mechanisms to support/implement/enforce state/regional			X	No regional level policies or plans exist.

			level rural plans?				
			Do municipal/local plans address rural issues/development?	X			The Municipal Plan for Isafjordurbaer is based on extensive public meetings and therefore represents the issues/concerns of rural community inhabitants.
			Are there municipal/local – level mechanisms to support/implement/enforce state/regional level coastal plans?	X	X		State-level mechanisms exist however no regional level mechanisms exist because there is no necessity for them. (This could be an issue if the pilot project in Arnarfjordur were to be implemented.)
			Do municipal/local – level plans address coastal issues/management?	X			Plans for the maintenance and consistent upkeep of seawalls and other forms of coastal protection for example.
			Are there municipal/local – level mechanisms to support/implement/enforce state/regional level sustainable development plans (strategic and/or operational)?	X			The Municipality is responsible for implementing any state-level strategic plan passed down to them by the deadline suggested by the state. The state-level plans are put into action by the municipal plans.
			Do municipal/local – level plans address sustainable development?	X			Sustainable development is an objective of the Municipal Plan for Isafjordurbaer.
Capital (access to)	Manufactured Capital (human produced goods and services)		Do members of the community have equal and immediate access to basic commercial necessities (food, water, shelter, clothing)?		X		It is necessary to purchase some items (clothing and any special dietary requirements) from outside the community.
			Are there basic commercial necessities produced in the community?	X			Food – bread and fish.

		Do members of the community have access to manufactured capital in excess of basic necessities?	X			There are several retail stores that sell luxury (in excess of basic) items.
		Is there manufactured capital produced in the community in excess of the basic necessities?	X			Some hand crafts are produced within the community.
	Natural Capital (environmental and natural resources)	Do members of the community have equal access to natural resources within the community?		X		Natural resources like land and, in some cases, coastline and ocean are privately owned. Publicly owned natural resources are generally accessible.
		Do members of the community benefit equally from natural resource extraction/sale?		X		Privately owned – no Publicly owned – mostly yes – benefit from municipal aquifer, do not equally benefit from harbour or tourist activities.
	Social Capital (organizations, structures, social relations that exist outside of government)	Are there community groups that reflect the environmental priorities of the community?	X			There are very few groups concerned with the environment. There are none concerned solely with the environment. Most groups are connected to environmental use for economic gain (Tourism groups for example).
		Are there community groups that reflect the economic priorities of the community?	X			Groups concerned with the fishing industry, the tourism industry, as well as the Westfjords Development Agency (located in Isafjordur).
		Are there community groups that reflect the social priorities of the community?	X			Several socially focused groups exist but an organization concerning the overall social health of the community (or Municipality) was not found.
	Human Capital (embedding of resources in people)	Do traditional skills/knowledge get introduced to the next generation?	X			Through family connection but not through the local school system.

		Is there educational opportunity in the community?	X			Educational opportunity is limited to distance education after high school. The Coastal and Marine Master's programme is taught locally.
Capacity	Environmental Capacity	Are environmental changes the result of natural processes?	X			Avalanches, landslides, coastal migration and erosion are natural environmental changes happening consistently in the community.
		Are environmental changes the result of manmade processes?	X			Land use and development alter the landscape, as does infrastructure improvements.
		Does the community influence changes to the environment?	X			Through their participation in the creation of the Municipal plan; town meetings; protests, etc. Community members who own coastal property are permitted to initiate changes to coastline as they deem suitable.
	Social Capacity	Does the community have the ability/resources to manage its activities independently?	X	X		The community is currently managing without state-level representatives present therefore proving they can function on their own. That said, local state-level support could help the community solve some issues like depopulation (through increase employment opportunities) and economic stability (through incentives to diversify local economy).
	Institutional Capacity	Do institutions exist to oversee employment?	X			Ministry of Social Affairs and Social Security has a department of equality and labour which ensures access to employment. No local representative found.

		Do institutions exist to oversee the market?	X			Ministry of Economic Affairs, Financial Markets Department. No local representation found.
		Are decision-makers held accountable?	X	X		If close to election time, a decision-maker will simply not be voted back in. That said, with some activities it is not clear who is responsible so nobody is held accountable.
		Are responsibilities evenly/reasonable distributed through the tiers of government?		X		Because there is no regional representation, local municipalities must take on more responsibilities than their resources allow.
		Are the resources collected and used by the ministries evenly/reasonably distributed?		X		Taxes paid my rural citizens go to the Capital and then a portion of those taxes are given back to the community. They do not control where there taxes go.
	Adaptive Capacity	Is the community prepared for environmental change/disaster?	X			Institutions with the knowledge and skill to manage and mitigate impacts are available locally. Health care could affect the successful management of a local environmental disaster.
		Is the community prepared for economic change/disaster?	X			Local institutions and local human capacity to manage impacts (as seen in recent financial collapse). Mitigation of economic impacts is temporary, long term strategies would require state-level assistance.
		Is the community prepared for social/cultural changes?	X			Isafjordur is prepared to an extent for social/cultural change. This could be improved with the addition of more diverse social services including counselling and family services.

				Is the management of local stresses reliable?	X			Local management of local stresses are reliable because of personal accountability. This arises from the plethora of personal connection in the community.
				Is the entire community (spatially and demographically) considered in the management of changes/disasters/stresses?	X			The Municipal Plan for Isafjordurbaer considers the entire community spatially and demographically in its plans.
	Community Capacity	Sense of Community	Connectedness	Are there strong connections between individual members of the community?	X			These connections are based on family and personal histories.
				Are there strong connections between community groups?	X			Due to the overlapping of many of their members, community groups are connected.
				Are there strong connections between the community and surrounding communities?	X	X		Isafjordur is connected to the other communities in the Municipality with the addition of Bolungarvik. The connection between Isafjordur and the communities of the Westfjords can be seen as weak, due in part to limited/seasonal transportation.
				Are there strong connections between the community and the regional/state government?		X		There is a large disconnection between the community and the rest of Iceland – particularly the capital region. This includes disconnections caused by limited/seasonal transport and disconnection caused by attitudes and perceptions.
		Degree of Commitment		Are community members willing to participate?	X			Members of the community are generally very involved and public meetings are very well attended.
				Do community members have influence over the decisions made in the community?	X			Local decisions, those that are the responsibility of town council, are reflective of the citizens voice. Local decisions that come as a result of state-level influence are

							often met with distain and require large demonstrations in order to influence the decision-making process. (Decision regarding the closing of the local hospital for example).
	Community Capacity (continued)	Problem Solving Aptitude	Are community interests equally represented in community groups?	X	X		Limited voice of youth and young adults
			Are the community groups demographically diverse?		X		This is a reflection of the lack of diversity in the age structure of the local population.
		Access to Resources	Does the community have reasonable and equal access to economic resources?	X			Goods and most services can be sought with relative ease by most of the population however it is inconvenient to the point it influences migration patterns. Natural resources are equally available to those who can afford to enter the market.
			Does the community have reasonable and equal access to human resources?		X		Specialization of economy is causing specialization of workforce which cause a decrease in the diversity of available knowledge.
			Does the community have reasonable and equal access to physical resources?	X			This does depend on market price but if they can afford to enter the market then they have opportunity for access.
			Does the community have reasonable and equal access to political resources?		X		There is disconnection between the community and the region. There is major disconnection between the region and the state.

Community Structure	Economy	Is the local economy diverse?		X		Isafjordur's economy is specialized around fisheries and fisheries related business and activities.
		Are local employment opportunities diverse?		X		Local employment opportunities are limited natural because of location but further limited because of industry specialization.
		Is economic development long-term (25+ years) focused?		X		Economic development is largely based on aquaculture and tourism. There are no long term plans of strategies for either of these activities.
		Can the local economy function independently of the region?	X			The local economy is dependent on the other communities of Isafjordurbaer but as a municipality, the communities could function independently of the region.
		Can the local economy function independently of the state?		X		Due to the necessity for government subsidies in the fishing industry, and to a lesser extent the tourism sector, the local economy is dependent on the state for support.
	Environment	Are the community's natural assets protected/planned/ managed?	X			Some are planned at the state level (parks) and some are the responsibility of the municipality (water, coastal areas, etc)
		Are there community level plans to mitigate impacts from natural hazards?	X			There are emergency plans and disaster plans for the community related to avalanche impacts.
		Does the community manage its own natural resources?	X			Those owned by the community are also managed by the community.
		Are coastal features protected/planned/managed locally?		X		No evidence that coastal features are given special attention.

	Society	Access to Essential Services	Do community members have equal access to health care?		X		Some procedures are not available in the community and emergency care is on a on call basis.
			Do community members have equal access to education?	X			Primary and secondary education is available. Limited post-secondary and graduate level studies are available.
			Do community members have equal access to employment services?			X	No evidence of employment services found.
		Urban-rural connection	Is it necessary for community members to commute to urban areas for any essential service?	X			Women must travel to Reykjavik to give birth. Some other health care procedure are not always available locally.
			Is it necessary for urban residents to commute to the rural community for any essential service?		X		There are no services exclusively available in rural communities like Isafjordur that urban inhabitants would require.
		Population	Is the community predominantly rural? (more than 50% live in areas with less than 150 people per square kilometre)	X			----------
			Is the community an intermediate region? (15-50% live in areas with less than 150 people per square kilometre)		X		----------
			Is the community a predominantly urban region? (less than 15% live in areas will less than 150 people per square kilometre)		X		----------
			Is the community suburban?		X		Not in the proximity of an urban area therefore does not have suburban structure.

Assessment of Current Community Practices	Principle 1: Work in harmony with Nature	Do (current) land uses respect/preserve biodiversity/the natural environment?		X		Current land uses were created out of necessity and not with regard to environmental concerns or issues.
		Do (proposed/future) development activities respect/preserve biodiversity/ the natural environment?	X			The Municipal Plan for Isafjordurbaer plans for the preservation of pristine areas and conservation of natural areas for the benefit of the tourism industry.
		Do (current) land uses respect/preserve coastal ecosystem services?		X		The coastal areas is not given priority or special significance in land use plans therefore coastal ecosystem services are not considered.
		Do (proposed/future) development activities respect/preserve coastal ecosystem services?	X			The proposed Coastal Zone Management Plan for the Westfjords would act to effectively manage coastal ecosystem services.
	Principle 2: Create/promote livable environments	Do (current) land uses create appropriate spaces for local activities/community groups?	X			Although the space is limited. The town gymnasium is scheduled to capacity during most of the year.
		Do (proposed/future) development activities create appropriate spaces for local activities?	X			An example of this would be the interest in building a bike park for the local youth in the town.

		Does current development encourage community connectedness by accessibility to land uses?	X	X		Access to the majority of land uses in the community is open. It could not be determined if this truly encouraged community connectedness. This could be heavily based on cultural norms – for example, if it is culturally common for people to socialize on a beach, the beaches of Isafjordur are mostly inaccessible due to coastal protection infrastructure, therefore if that were important social it would interrupt connectedness.
		Does development support a sense of place by protecting special places?	X	X		Historical sites are commonly protected and enhanced for tourism purposes. It could not be successfully determined if this promoted a sense of place to the community members or created a sense of place just for the tourists.
	Principle 3: Place-based Economy	Does the local economy operate within natural system limits (determined by environmental capacity)?	X	X		Natural resource extraction such as fishing and the use of the natural environment in activities like aquaculture cannot be performed at the current rate until the end of time. However, they are dependent on the unique characteristics of the local environment and therefore are considered place-based. The degree to which these activities exceed the natural limits is debateable.
Assessment of Current	Principle 4: Reflect Equity	Does development deprive individuals of basic levels of environmental health and human dignity?	X			State-level neglect of Isafjordur and the surrounding region is seen by many as depriving the local community of long term environmental health and human dignity by limiting opportunities for development.

		Is there equal access to social resources?	X	X		Those that are available are fully accessible. Those social services that are not available in Isafjordur are available in Reykjavik which would mean they are not immediately available.
		Is there equal access to economic resources?	X	X		Those resources that are available are accessible to the majority of the community. Employment is part of the unequal access or limited access issue. Due to economic specialization, those with knowledge outside the fisheries sector have little economic opportunity in the town.
	Principle 5: Polluter Pays	Are polluters who cause adverse community-wide impacts required to compensate the community?		X		Polluters currently causing community-wide impacts are owned and operated by the community. For example, the incinerator, Funi, has caused soil contamination, water pollution, and air pollution but is not required to compensate as it is the community who is in charge of operating the facility. (Funi was recently closed. Municipal waste will be diverted to Reykjavik).
		Are polluters who cause adverse community-wide impacts required to clean-up?		X		The Municipal Plan for Isafjordurbaer does not stipulate or define the parameters of pollution and there was no mechanism for mandatory local clean-up found.
		Are polluters who cause adverse community-wide impacts required to pay for clean-up?		X		There was no evidence found that polluters could be forced to pay for mandatory clean-up.

	Principle 6: Responsible Regionalism	Does the community account (financially or otherwise) for the consequences of its actions on neighbouring jurisdictions?		X		The best example of this would be the waste pipes from communities conflicting with the aquaculture nets. There is no accountability for these conflicting uses.

Assets What we're doing well:	Liabilities Where we can improve :	Opportunities What could help us improve:	Constraints Barriers to Sustainable Development:
• Community connectedness. • Surroundings – environment around Isafjordur is pristine. • Municipal Plan for Isafjordurbaer • Social groups	• Disconnection between community and region, region and state. • Protecting/valuing the local environment/economy/ culture.	• Regional level governance • Securing public services such as health care. • Improvements to transportation structure.	• Low Population • Economic specialization • Location • Image of the region

Analysis
Chapter 6

6. Analysis

The analysis was performed through the use of a strengths, weaknesses, opportunities, and threats (S.W.O.T.) analysis. The application of the Sustainable Development Assessment Tool for Rural Coastal Communities to the community of Isafjordur was analysed to determine how the tool performed with regards to its design. Strengths were considered to be a positive feature the assessment tool, weaknesses were negative features of the tool, opportunities were considered to be factors outside the assessment tool that could positively influence the result or use of the tool, and threats were those external attributes or actions that could negatively affect the implementation or results of the assessment tool. (Further explanation is offered in section 2.4 of the Chapter 2 Method). The S.W.O.T. is summarized in Table 9; elaborations on each point are presented below the table.

Table 9: S.W.O.T. Summary Table

Strengths	Weaknesses
• Presents a diverse amount of information. • Highlights connections between people and resources. • Exhibits degree of dependence on resources. • Points to obvious opportunities.	• Yes/No Format not always appropriate. • Assessment answers not weighted. • Presents information with no course of action. • Answers can reflect bias.
Opportunities	Threats
• Participation through focus groups. • Plan for action first, assessment follows. • Assessments gauging state/regional level activities.	• Weak governance. • Prioritization of local issues. • The image of sustainable development.

Strengths

Presents a diverse amount of information. The assessment tool allows for a diverse amount of information to be presented on the worksheet component. This allows for a well rounded and holistic representation of the current circumstances of a community from a variety of angles including economic, environmental and social while not prioritizing either element.

Highlights connections between people and resources. The assessment tool and accompanying worksheet asks the participants to list the resources produced and used by the community and explain the human relationship that exists with these resources through employment and in some cases personal attitudes. This allows communities to see resources from a perspective outside of economic and introduces a social element to their local economy.

Exhibits degree of dependence on resources. Communities are able to gauge the extent to which they are dependent on outside resources through the information requested on the assessment worksheet. They are asked to differentiate between local and external resources and whether these are necessities or luxuries. This helps the community determine the degree of independence it currently has and gauge the work that must be done to become a self-sustaining community or region. Furthermore, the community can determine where this dependence is concentrated; on food but not water, for example.

Points to obvious opportunities. The assessment tool was designed so questions that required a 'not applicable' answer could lead to opportunities in the community. Because the assessment tool is based on sustainable development theory, if the community does not have evidence of participating in some part of the theory it can be assumed that opportunity exists to do so. Although this might not always be the case, it allows a community to easily find its gaps and determine if those gaps can translate into opportunities.

Weaknesses

Yes/No Format not always appropriate. Although the worksheet was designed to allow for the collection of information to support yes or no answers in the assessment, the format of the questions is not always appropriate. In many cases the answers could be conditional, meaning a community could respond with 'yes' if only meeting the criteria partially.

Assessment answers not weighted. The assessment questions are divided into thematic category and require yes or no answers however they do not lead to an overall evaluation of the community's activities in each theme. The format of the assessment could be improved by connecting the number of yes and/or no's to a rating which could be motivating for the community and better serve to identify gaps in their sustainable development activities.

Presents information with no course of action. Many small communities consistently participate in public meetings and workshop-type functions to support the resolution of issues in their communities. Many public participation activities fail to produce tangible results which can be discouraging to those who become involved seeking change. The assessment presented here could be perceived as simply a collection of information without a plan for action.

Answers can reflect bias. To effectively answer the worksheet questions so as to provide information that is reflective of the community's true reality, a diverse network of participants must take part. If this does not happen the worksheet answers and therefore the assessment can be biased and influenced by personal agendas and local politics. If the assessment is being completed with a predetermined outcome in mind, the answers can be easily manipulated to support an agenda. This is less likely to occur if the assessment is completed by different groups over a specified period of time.

Opportunities

Participation through focus groups. The assessment was completed by the researcher due to a limited timeframe and lack of resources. It would have been much better suited to be performed through the use of small groups of participants over the course of several months. This would facilitate a more holistic representation of the current situation being experienced in a community and would allow for many perspectives to be included in the information gathering phase. Using focus groups would allow for the inclusion of more community residents who might not otherwise participate in larger public meetings.

Plan for action first, assessment follows. To combat the assessment tool being seen as just a method of gathering information, it would be beneficial if the tool was applied once action had been guaranteed. For example, when funding for sustainable development is acquired by a community, they can then apply the assessment tool to see where the action should be concentrated.

Assessments gauging state/regional level activities. A regional level or, in some cases, state level assessment of sustainable development activities would allow the community level activities to be given clearer context. Comparing activities allows for motivation and the sharing and adaption of effective sustainable development practices.

Threats

Weak governance. If no mechanisms exist to implement sustainable development activities or changes at the local level then the assessment may have limited influence. Any local activities that require regional or state-level acceptance before implementation are less likely to be realized.

Although most successful sustainable development activities begin at the local level, support must come from the various levels of government for long term success to be achieved.

Prioritization of local issues. Sustainable development is often perceived as an activity to be completed when all the other issues in the local community have been abated. Sustainable development activities and plans can be pushed aside in times of crisis and resources can be diverted to areas where local politicians feel they are better suited.

The image of sustainable development. Sustainable development is seen as a goal and not a way of life therefore the implementation of a holistic framework that is presented by the assessment tool is difficult. Ideally, sustainable development would be implemented from every angle, bottom-up and top-down to ensure effective coverage of activities, policies, plans, and management. Because of the sector specific uses of sustainable development language and practice, the realization of the theory as a lifestyle is threatened.

Discussion & Conclusion

Chapter 7

7. Discussion and Conclusion

The discussion presented here aims to provide commentary on the results of this research. The section is separated into 5 sections, including a discussion pertaining to the results and case study; a theoretical discussion which provides commentary on sustainable development and rural coastal communities, thirdly a discussion of the academic and practical value of the research is presented, then strengths, weaknesses, and limitations of the research are presented, followed by the conclusions of the research.

7.1 Results

The primary goal of this research was to take the theories touted by academic researchers as pivotal to sustainable development and apply them to reality. This created a worksheet and assessment checklist that became obviously redundant. This has both positive and negative implications in reality and in theory. In reality, the redundancy in the questions allowed clearer insight into where the overlaps existed in community activities, simplifying the identification of the community's assets and liabilities. It also led to a feeling of repetition and in some respects monotony as the assessment was completed. With respect to theory, the repetition proved that many of the factors that can progress a community towards sustainability are related. What that also implies is that many of these pivotal theories are only separated by the language used to present them.

The application of the Sustainable Development Assessment Tool for Rural Coastal Communities to Isafjordur created an opportunity for new insights. Particularly interesting was the issue of disconnection and isolation from the capital district. Living in Isafjordur, you get the impression it is 'us against them' and the Icelandic Government is the reason this community has been put on the fringe. The application of the assessment tool led to the realization that Isafjordur could be viewed as the capital region of the Westfjords, with very similar relationship characteristics existing here as exists between the Westfjords and the Capital. Having Isafjordur in this position is jeopardizing the connections between the regions communities. The concentration of services and resources in Isafjordur forces the community into a central position. When projects and funding are awarded to the Westfjords they are commonly allocated to Isafjordur as it is the region's biggest town. The fact that Isafjordur is not receiving the state-level support needed to become the hub of the Westfjords just complicates the matter. This means that employment and economic opportunity are almost exclusively based in Isafjordur but social, and by proxy, human capital is still dispersed. This mirrors the situation between the capital region of Reykjavik and the rest of Iceland. Services and resources are concentrated in the capital but social and human capital remains dispersed throughout the country and results in damaged connections between the Capital and the other communities in Iceland

attempting to develop. What this implies for Isafjordur is a continued struggle to maintain social capital and capacity not to mention economic stability. Placing Isafjordur at the centre of the Westfjords is forcing the people of the region to choose between Isafjordur and Reykjavik. Those looking for opportunity and stability will choose Reykjavik and this allows the cycle of depopulation in the region to continue. Isafjordur needs to re-evaluate its competition and realize its best bet for survival is strengthening regional connections, using its central position to boost the entire region and not just its own interests.

This disconnection between Isafjordur and the communities in the region of the Westfjords bring the issue of collective action into focus. This could manifest in several ways but possibly the most interesting would be through regional governance. Iceland does not currently have a regional government structure in place and doles out tasks through their Ministry of Transport, Communications and Local Government. This Ministry blankets the communities of Iceland with uniform policies and tasks often built around what works in Reykjavik and surrounding areas. This leaves little room for adaptation to local circumstances and causes small rural communities to overuse their limited resources in performing ill-suited planning and management tasks. Installing a regional government structure in the Westfjords could alleviate some of the pressure on these small communities by giving them a natural incentive to use collective action to plan and manage their assets and issues. Furthermore, a regional government could strengthen the region's strained relationship with the Capital. It would, simply put, eliminate the Icelandic Government's task of trying to figure out how to divvy up resources to an area they know very little about. Although, likely viewed as just another bureaucratic step, regional governance is a viable option to solve many of the problems of the region while still allowing the communities to function in much the same way they do today.

Applying the Sustainable Development Assessment Tool for Rural Coastal Communities to Isafjordur was slightly discouraging. While the assessment brought to light many positive attributes and potential opportunities it was difficult to ignore the problems plaguing the community. In reality, Isafjordur is a coastal village dependent on its location for its economic livelihood, a livelihood that is not sustainable or consistent. Fisheries, in the traditional sense, can no longer facilitate economic growth in the community so aquaculture is slowly trying to take its place. That is when the issue turns from economic to environmental. Aquaculture is a very environmentally intensive industry and it is particularly suited for the fjords of the region. These fjords are often associated with sensitive coastal habitats easily damaged by the effluent emitted from aquaculture cages. The aquaculture issues is further complicated by the communities that line the coasts of the Westfjords and their sewage and industrial runoff that flows from pipes, untreated, into the waters of the fjords. The proximity of fish cages to these outflow pipes is not documented and as the number of cages increases, the likelihood of aquaculture being damaged by this waste increases. Communities do not have the resources to build

waste management facilities, the aquaculture industry is needed to keep Isafjordur and the Westfjords economically afloat, and permanently damaging coastal habitats affects both the communities and the industry. How could I be so bold as to say that sustainable development can fix this? In the immediate sense it cannot. That is a hard pill to swallow considering the motivations of this research. Issues like those associated with the aquaculture industry prove that implementing sustainable development as an overarching lifestyle model for a community is bound to be a slow and challenging process further complicated by a community's natural inclination to solve its 'big' problems. The implementation approach of sustainable development must, in the end, be adapted to the community and leave room for the issues that do not necessarily fit into the theoretical ideals. Only then will communities like Isafjordur be able to depend on fisheries while still moving towards sustainability.

7.2 Theoretical Discussion

Sustainable development is a concept used by all sectors, regardless of activity, as a goal. It is seen as a benchmark to be attained, beyond which there is a plateau where the work is finished and benefits may be reaped. The methods offered to achieve sustainable development promote these ideals, which beg the question: is it the process that is flawed and not the theory? The theory suggests it is a concept to be used by all sectors and by doing so society would progress towards long-term sustainability. The research does not suggest that sustainable development was created to be a sector specific solution to a negative environmental reputation. The research suggests, rather, that sustainable development should be seen as a way of life, a behavioural norm that acts on a continuum of values progressing society towards sustainable livelihoods. The glitch in the system is in the implementation which can be seen when comparing the volume and quality of literature available for sustainable development theory and comparing it to that available for its implementation. If research is limited on the implementation of sustainable development theory then it can be expected that its real world application is either inappropriate or ineffective, or both. Unfortunately, the reality is it is both, leading to the manipulation of the theory for sector specific application with sector specific goals.

Implementing sustainable development is a challenging concept, which likely contributes to the limited amount of academic material pertaining to the topic. One of the issues of implementation is how to spatially define the concept of sustainable development. In reality, sustainable development is simply a collection of theories made up of words and terms which have no tangible qualities on the ground. Applying sustainable development to coastal communities gives immediate boundaries for spatial definition. This is particularly relevant for bottom-up initiatives looking to define the parameters of their activities.

The rural element adds an interesting dynamic to a coastal community. In essence, rural coastal communities are a stand-in for the more common resource-based rural communities. The difference is the heightened vulnerability presented by reliance on and the proximity to the ocean. Ocean and coastal resources are migratory, seasonal, and not influenced by the introduction of technology. Land based resources are somewhat more predictable and are susceptible to more manipulation from technological advances than those associated with the ocean. Rural coastal communities have the added pressures of storm and wave action on their infrastructure including their harbour's wharves and dock facilities, not to mention increased susceptibility to erosion and coastline migration. Ultimately, rural coastal communities are built on unstable and unpredictable ground which is mirrored in their resource based economies.

Implementing sustainable development in a rural coastal community has its challenges. These communities are largely based on resource extraction which is very much a 'now' industry. When a community is struggling economically now, it is nearly impossible for them to think about the struggles of future generations. This is why resource based industries will continue to be the biggest challenge to implementing sustainable development as an overarching lifestyle framework. Like any other resource-based community, rural coastal communities would benefit from seeing immediate positive results, something sustainable development cannot always provide but in this case should seek to do so.

7.3 Value of Research

7.3.1 Academic Value of the Research

The research presented in this thesis is a culmination of a year's worth of class work at the master's level. It represents the multi-disciplinary nature of the Coastal and Marine Master's programme and is therefore a direct reflection of the diverse educational experience received in the programme. As a result, the academic value stems from the utilization of a multi-perspective, holistic approach. The collection of all dominant sustainable development theories for the use in one project is not common in the literature. Presenting these concepts together allows for a stronger understanding of where the major gaps and overlaps are within the research field of sustainable development.

7.3.2 Practical Value of the Research

The practical value of the research stems from the Sustainable Development Assessment Tool for Rural Coastal Communities. The tool is an effective starting point for analysing rural coastal communities and their methods of functioning. The assessment is applicable in any community and the results produced can be a good first step to creating a sustainable development framework.

7.4 Strengths, Weaknesses, and Limitations of the Research

The strengths of the research are the multi-disciplinary approach and perspective. This created a more practical and applicable result, also a strength of this research. The research was heavily influenced by my time spent in Isafjordur and was bolstered by my intimate knowledge of the community and its citizens. This enhanced the research and the research experience and allowed for more personal investment in the results.

The weaknesses are the absence of community involvement. In reality the assessment tool should have been used by a local focus group to analyse its success and suitability in determining the community's utilization of sustainable development. Another weakness would be the limited number of interviews performed which is a result of the case study design. Interviews were carried out as a form of exploration and contextual introduction; the research would have been stronger if a second set of interviews were performed after the assessment tool was completed.

The limitations of the research included researcher inexperience, language barriers, and limited access to academic resources. Having never participated in a purely qualitative study, I found it challenging to define the scope and parameters of the study. Living in a community where I do not speak the native language was also a challenge, particularly as it related to policy and plan research. There were also limitations created by the absence of a university library system. Often academic journal were not accessible through online resources and therefore were omitted from the theoretical overview.

7.5 Conclusion

The research concluded that sustainable development is strong in theory but its strength is lost when, instead of using it as an overarching lifestyle framework, it is applied using a sector specific approach. This approach dilutes the concept and creates a definition that is puzzling and less valuable. The ambiguity of sustainable development combined with its implementation challenges, means that rural coastal communities like Isafjordur will likely continue to see a sector specific approach to sustainability in their community. This puts the community in danger of continuing the cycle of degradation and the continuation of issues plaguing the community. Sustainable development will continue to move down the ladder of priorities as communities work to solve their immediate problems before implementing something seen as complicated and unnecessary. Communities must, then, act collectively if sustainable development is to be achieved in a more realistic way. This means that community councils should be expected to work together with neighbouring communities to make the transition to sustainable development as a community framework less strenuous on local resources. The case study of Isafjordur proves without collective effort, rural coastal communities will be forced to continue the trend of sector-based approaches to sustainable development. The research

proves that the theories of sustainable development can be used to effectively assess sustainable development in a rural coastal community, however in doing so it creates many questions around the implementation of these theories beyond a sector specific approach. In conclusion, sustainable development could save the rural coastal community but it would require the communities to chose to implement its principles in their everyday life.

Recommendations

Chapter 8

8. Recommendations

The following recommendations are presented in two sections; recommendations for the community of Isafjordur and secondly, recommendations for future research are offered. Recommendations aimed at Isafjordur were created with other rural coastal communities in mind. All of the suggestions for Isafjordur could be easily applicable to any small coastal community suffering with the common trend of depopulation and a struggling economy. The recommendations for further research were derived from the opportunities discovered in the S.W.O.T. analysis presented in Chapter 6. These recommendations were created with the aim that they would present potential graduate level research opportunities in the future. Both sets of recommendations are explained below.

8.1 Recommendations for Isafjordur

Improve regional level connections. There are documented disconnections between Isafjordur and the other communities of the Westfjords. Despite common issues such as depopulations and economic specialization, the communities only come together officially during the annual general meeting of the Association of Municipalities of the Westfjords. These communities are not connected through reliable transportation networks and therefore are limited in their ability to gather at different times of the year. Effort needs to be made to connect these communities on a consistent basis in a meaningful way. Improving transportation between communities in the region is an important step in improving connections but should not be seen as the only step.

It is currently the job of one person, the only employee of the Association of Municipalities in the Westfjords to take an inventory of the common elements in the plans of the municipalities in the region. What is done with that inventory could improve the connections between communities in the region. Options include pooling resources, economic and human, to produce a unified bottom-up strategy to combat regional issues and support regional assets. Steps need to be taken to improve the opportunities communities have to work together on common goals. Because there is no regional level government, it is the responsibility of the local communities with the support of the Association of Municipalities in the Westfjords to find common ground.

Improve regional connections to state-level institutions. Currently there is little connection between the Capital Region of Iceland (Reykjavik) and the Westfjords. The Government of Iceland has been reluctant to follow through on projects and investment previously allocated to the Westfjords due to political pressure and financial constraints caused by the financial collapse of the country. This is perceived by the Westfjords as their Government turning their back on their fellow countrymen, a public disregard for the issues challenging their communities on a daily basis. It is true that there needs to be significant state-level top-down attention paid to the region both financial, socially, and

environmentally in the form of both planning and management. It is also true that the region's relationship with the Government might be improved with efforts from local communities to strengthen the damaged connections. This can be facilitated through changing the image or re-branding the Westfjords as a place to live, work, and stay permanently. As the image of the region changes from the inside out, the connection to the Government will improve simply because of perception. Allowing the current negative image of the Westfjords to dominant the minds of the state-level administrators does nothing to support the progress of regions communities and steps should be taken to supply the capital with a more positive, strong, and resilient image.

Diversify local economy to increase social and human capital. Incentives must be given to business start-ups or relocations to support the development of social and human capital in the community of Isafjordur. Institutions like the University of the Westfjords are an important step to building a diverse and place-based economy and work to help retain young professionals in the community. Institutions like this need to be supported by the local community and by the state. As so many local residents (so many that I have lost count) have told me over the last year; "there needs to be more here than fish". Development of a research centre around fisheries and aquaculture is a good first step, allowing Isafjordur and the Westfjords to become a knowledge hub for this sector. Projects need to evolve from that research into other research including coastal and marine research in order to facilitate diversity. The Government of Iceland must consider permanently locating state-level jobs in regions like the Westfjords to further facilitate the diversification of the local economy. This is done through placing agencies that have a direct relationship with the economic activities occurring in the community in the actual community or, at the very least, in the region. This can be said for the Ministry of Fisheries in particular as 80% of Iceland's aquaculture industry is occurring in the Westfjords without any state-level agency immediately present.

Use sustainable development theory and principles to solve community issues. Sustainable development was created with the notion that if used properly, a community can function economically, socially, and environmentally. Communities who prioritize their issues will likely find their problems fit into one of those categories. As a method to transition towards a holistic implementation of sustainable development, it would be logical to use the sustainable development practices that connect most with their specific issues. Communities like Isafjordur could benefit from the strengthening of social capital, instituting long term strategies to build and develop social capital would propel the community towards a realistic sustainable development strategy. Implementing sustainable development in this way would be time consuming however it would be more likely to become a way of life if slowly integrated into the community structure.

Integrate sustainable development as a way of life. Sustainable development can no longer be considered a community objective or sector specific goal if it is to have an impact on any scale. It

must be considered an overarching framework for community life as whole. Realistically, this is best implemented at the local level where there is less political resistance to citizen-driven change. Isafjordur needs to take the initiative to remove sustainable development from the goals and objectives section of its plans and integrate it into its action plans. This would require that both planning and management be suited to the specific needs of Isafjordur, meaning a rural coastal community could be planned as exactly that and not as a smaller version of Reykjavik.

8. 2 Opportunities for future research

Sustainable Development Action Plan for Isafjordur. Building on the information presented in the Sustainable Development Assessment Tool for Rural Coastal Communities, it is recommended that an action plan be designed to support the transition to sustainable development in Isafjordur. Ideally, this plan would facilitate the movement from sustainable development as a sector specific goal towards using it as a overarching community model or lifestyle framework.

Application of assessment using public participation. The Sustainable Development Assessment Tool for Rural Coastal Communities would be better performed using public participation. Considering this tool is designed to be used by small, rural communities it would be reasonable to seek participation for all demographics, including some school aged children in certain respects.

Assessment of Sustainable Development at a state – level. The creation of a similar assessment to be applied at a regional level, or in Iceland's case, a state level would provide the local assessment with some context. Both local and state governments could benefit from comparing assets and liabilities with regards to their use of sustainable development theory and practice.

Summary
Chapter 9

9. Summary

The research presented in the previous sections found that sustainable development, although theoretically coherent, is faulty in its application. A sector specific approach to the concept is often used weakening its academic value and causing confusion among those implementing its ideals. Although a participatory process is presented by the literature as being a solution, sustainable development maintains to be a challenge to implement on the ground. Ideally, sustainable development would be implemented as an overarching lifestyle framework, removed from a goal-based selectively strategic application. What this implies for a rural coastal community is a significant change in economic and social behaviour which insinuates that sustainable development will be a slower process in rural coastal communities that are primarily resource based.

In an attempt to link sustainable development theory with implementation using the context of rural coastal communities, an assessment checklist was created. The Sustainable Development Assessment Tool for Rural Coastal Communities represents a collection of the dominant sustainable development theories applied to a rural and coastal theme. The assessment tool was created in two parts, a worksheet which provides a template for structured brainstorming, and an assessment checklist which is made up of questions requiring yes or no answers and accompanied by context specific explanations.

The Sustainable Development Assessment Tool for Rural Coastal Communities was applied to the community of Isafjordur through a case study. The community was found to have strong internal connections but is challenged by a disconnection to the region of the Westfjords and furthermore by a strained relationship with the Icelandic Government. An economy specialized around fisheries and local as well as regional depopulation proved to be a barrier to sustainable development. Opportunities presented by the assessment tool included regional governance and improvements to local essential services and transportation.

Application of the Sustainable Development Assessment Tool for Rural Coastal Communities to Isafjordur was analysed to determine how the tool performed with respect to its design. The strengths included its presentation of a diverse amount of information while displaying a realistic picture of the community's dependence on various types of resources. The assessment tool was weak in terms of its checklist design which requested yes or no answers to questions that were not always appropriately answered as such. Opportunities to improve the effectiveness of the assessment tool included increased participation and alternative assessment which gauge state and/or regional level sustainable development activities. Factors that might impede the success of a tool like the one present in the results of this research include weak governance which would also become a barrier to action, the

prioritization of ‘big’ community issues over the implementation of sustainable development, and the image of sustainable development being that of planning and management trend.

The research concluded that sustainable development is strong in theory but weak in application. The concept is clouded by its use a sector specific approach and efforts need to be made to transition sustainable development into an overarching lifestyle framework. The challenges associated with implement such a framework mean that coastal communities like Isafjordur would see slow changes and a continued cycle of degradation while sustainable development becomes integrated into their culture. To combat the timely process, communities must act collectively to achieve sustainable development in a way which suites their individual circumstances. In summation, sustainable development theories can be used to effectively assess a rural coastal community’s sustainable development activities, however by doing so it creates questions of implementation and future action.

Derived from the results of the case study and the discussion, several recommendations for Isafjordur were suggested. It is recommended that Isafjordur improve regional level connections, help to build connections between the region and the state, and diversify its local economy. Recommendations not necessarily specific to Isafjordur but still applicable include using sustainable development theory and principles to solve local issues and integrating sustainable development as a way of life.

This research contributes the academic fields of sustainable development as well as coastal and rural community planning. Research like that presented here strengthens the need for a transition towards action on the community level and empowering communities to find solutions that impede their development and forward progress through the use of sustainable development. This research supports sustainable development as a holistic approach, an angle used less frequently in the literature, yet necessary for the concept to maintaining its academic and practical relevance.

It is my hope that the information provided in this document is beneficial to the communities of the Westfjords and will serve as a guideline for further research in sustainable development within the community and the region.

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Appendix 1

The 27 Principles of Sustainable Development as presented in the Rio Declaration

1. Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

2. States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

3. The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

4. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

5. All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

6. The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

7. States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

8. To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

9. States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

10. Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public

awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

11. States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

12. States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing trans-boundary or global environmental problems should, as far as possible, be based on an international consensus.

13. States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

14. States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause
severe environmental degradation or are found to be harmful to human health.

15. In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

16. National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

17. Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

18. States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

19. States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse trans-boundary environmental effect and shall consult with those States at an early stage and in good faith.

20. Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

21. The creativity, ideals and courage of the youth of the world should be mobilised to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

22. Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

23. The environment and natural resources of people under oppression, domination and occupation shall be protected.

24. Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

25. Peace, development and environmental protection are interdependent and indivisible.

26. States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

27. States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

Appendix 2

Icelandic Institutional Inventory

This inventory is presented according to the hierarchy of authority in the Icelandic political system and the associated roles in the coastal and marine environment. Institutions at the State level will be presented first, followed by municipal. Each institution will be profiled and their agencies, although possessing an independent role, will be described as an extension of the institution.

National Level Institutions (as presented by government.is, 2010)

Ministry of the Environment (Umhverfisraduneyti)

The Ministry of the Environment is responsible for nature, conservation and outdoor recreation, protection of animals, wild-life management, pollution prevention, hygiene, planning and building matters, fire prevention, weather forecasting and avalanche - protection, surveying and cartography, forestry and soil conservation, and environmental monitoring and surveillance.

Notable Agencies under the Ministry of the Environment include:

- The Environmental Agency of Iceland (ust.is) – Serves the role of promoting the protection and sustainable use of natural resources along with public welfare through ensuring a healthy environment and safe consumer goods. Notable operational activities include information dissemination; monitoring of environmental quality; evaluation of Environmental Impact Assessment and development plans; assessment and registration of unique sites; risk analysis; eco-labelling; and health and safety in public places.

- Icelandic Institute of Natural History (ni.is) – A public institution whose primary objective is to conduct basic and applied research and monitoring of nature. Emphasis is placed on botany, ecology, taxonomy, geology and zoology. The Institute is responsible for maintaining scientific specimen collections and databases, assembling literature on the natural history of Iceland, advising on sustainable use of natural resources and land development and the conservation status of species, habitats and ecosystems.

- National Land Survey of Iceland (lmi.is) – A government institution responsible for advising the Ministry on matters of land surveying and official basic mapping. The institute develops and maintains datums and accessible coordinate and height reference systems for all of Iceland while providing initiative for the creation and use of guidelines in the field of geographical information. This includes the creation, maintenance and dissemination of topographic data on a 1:50 000 scale. Because of their primary responsibilities, it is expected

that the institution have professional cooperation with universities, international organizations and other institutes.

- National Planning Agency (skipulagsstofnun.is) – A state authority responsible for the administration, implementation and monitoring of the Planning and Building Act, the Environmental Impact Assessment (EIA) Act and the Strategic Environmental Assessment (SEA) Act. The role of the Agency includes advising on planning and building issues, assisting local authorities in preparing and reviewing spatial plans. The Agency determines if a project should be subject to an EIA and is therefore responsible for disseminating information regarding these projects to the public for comment and provision of information.

- Stefanson Arctic Institute (svs.is) – A state run institute whose role is to be a forum for multi-disciplinary research and to promote sustainable development in northern areas. Through the facilitation of Arctic research in Iceland, the Institute aims to strengthen Icelandic participation in international endeavours in this field. An advisory role to the State regarding Arctic issues has been developed.

Other agencies found under the Ministry include the Icelandic Fire Authority; Lake Myvatn Research Station; the Meteorological Office of Iceland; the Recycling Fund of Iceland; Soil Conservation Service of Iceland; and Iceland Forest Service.

Role in Coastal and Marine Activities:

Ocean issues are generally prioritized by the Ministry of the Environment because of its mandated responsibility of nature conservation and ecosystem protection. The Ministry fulfills its responsibilities in the coastal and marine environment through two institutes; the Environment and Food Agency, and the Icelandic Institute of Natural History. The Environment and Food Agency is responsible for the supervision, in coordination with several other agencies, the prevention of pollution on both land and sea, nature conservancy, animal protection, hunting, toxic substances and food safety. They are also the coordinator of operating licenses issued by municipal health surveillance authorities which includes the farming of fish for the purposes of human consumption. The Icelandic Institute of Natural History is responsible for research on the zoological, botanical and geological fields of study and by doing so, maintains a data collection on nature in Iceland. Using the data collection, the institute is responsible for publishing maps on Iceland's natural environment, providing assistance with research assessing conservation values of ecosystems, identifying sites of natural interest, and providing information about the impact from land use on the natural environment.

Ministry of Fisheries and Agriculture

The Ministry of Fisheries and Agriculture is divided into several offices of differing responsibility and focus. These include; the General Office, International Office, Natural Resources Office, Finance and Operations Office, Productivity and Marketing Office, Agricultural Land Registry Office, Food and Development Office, Legal and Specialist Department. The role of each of these offices and departments is explained below:

- General Office – Responsible for the dissemination of information internally and externally through various media. The Office also oversees the Ministry's document and data management as well as matters relating to information technology.

- International Office - In coordination with other specialised offices, the Office supervises matters related to international cooperation in the fields of fisheries and agriculture. This includes the CITES agreement, matters that concern Iceland's affiliation to international institutions, international law, the law of the sea, Nordic cooperation and the Ministry's involvement in development cooperation.

- Natural Resources Office – Responsible for the administration of matters related to the use of natural resources both in the sea and on land. The Office works with the Marine Research Institute regarding proposals for the exploitation of marine stocks and prepares policy, regulations and advice regarding the use of resources. Relations with the Directorate of Fisheries and the Icelandic Coastguard Authority regarding the enforcement of rules and regulations are the responsibility of the Office, as is the implementation of the fisheries agreement and the foreign relations associated.

- Finance and Operations Office – Responsible for the general financial management of the Ministry and it institutions. The Office prepares an advisory cost report on Minister bills, regional quotas, fishing fees, pricing in fisheries, profitability and statistics. It also reports on agreements and tariffs relating to fisheries in cooperation with the Productivity and Marketing Office. The Office is responsible for cooperation with the OECD Fisheries Committee as well as the WTO on fisheries.

- Productivity and Marketing Office – Responsible for implementing the laws governing agricultural produce, agreements, pricing, tariffs and importing, including licenses to import. The Office is in charge of matters related to free trade agreements and bilateral commercial agreements as well as relations with OECD and WTO in the context of agriculture. This office also handles agricultural statistics for Iceland.

- Agricultural Land Registry Office – The Office is responsible for the supervision and management of state owned farms. This includes the buying and selling of farms, tenancy and rent, mortgaging, farm boundaries, endorsement of division of land, communal farms, release of land from agricultural use, registration of new farms, and laws governing farms.

- Food and Development Office – Responsible for food safety and consumer matters, the health of plants, fish, animals and their produce. The Office is dedicated to research and innovation in the field of fish farming, issues related to salmon and trout fishing, and matters related to the laws on agricultural produce. The Office is also responsible for soil conservation and forestry. The Office maintains professional relations with HAFRO (the Marine Research Institute), MATIS (Food Research Laboratories), The Icelandic Food and Veterinary Authority and The Institute of Freshwater Fisheries.

- Legal and Specialist Department – The Department is responsible for the general legal issues and legal interpretation, charges, rulings, statements, bills, government directives and various other tasks. It also oversees relations with ESB and EFTA in regards to the EEA agreement and is responsible for the implementation of actions set out in the agreement.

Role in Coastal and Marine Activities:

The Ministry is responsible for all fisheries matters, including research on fish stocks and the conservation and utilization of these stocks, other living marine and seabed resources as well as the management of the areas where they are utilisable. Research and supervision of production and imports of marine products, including the farming of commercial marine stocks (aquaculture) as well as fisheries innovation and development is organized under the Ministry. There work is ultimately intended to ensure the long-term health of the ocean while providing maximum yields from the sustainable use of living marine resources. These responsibilities are carried out by several institutions within the ministry; the Directorate of Fisheries, the Icelandic Marine Research Institute, and the Icelandic Fisheries Laboratories. The Directorate of Fisheries who is responsible for the implementation of the Fisheries Management Act and other Acts related to the licensing of aquaculture and other marine activities. The Directorate regulates and enforces compliance with laws and regulations related to fisheries as well as the handling, processing and distribution of marine products. This includes the collection and dissemination of information regarding fishing and processing of catches. The Icelandic Marine Research Institute has three primary roles including conducting research on the ocean and marine life, advising the government on sustainable uses of marine resources, and the provision of information to authorities, fisheries interest groups and the general public. The Icelandic Fisheries Laboratories conducts research and provides advice and information regarding the processing and consumption of marine products.

Ministry of Industry, Energy and Tourism

The Ministry of Industry, Energy and Tourism's main activities include industrial and power intensive industry matters including innovation and technological development; legalization of professional titles in technology and fields of design; energy matters including utilization of energy, heating and electricity; ground resources on land, sea bed and subsoil; regional matters and employment development; standardizing; and the travel industry. There are several organizations and institutions working under the Ministry which are listed below:

Organizations:

- Innovation Centre Iceland
- The National Energy Authority
- The New Business Venture Fund
- Iceland GeoSurvey
- The Icelandic Regional Development Institute
- The Icelandic Tourist Board

Institutions:

- The National Power Company
- Electrical Station at Reykjanes
- Reykjavik Energy
- Vestfjord Power Company
- Husavik Energy
- Akureyri Municipal Water and Power Company
- ENEX
- The Federation of Icelandic Industries
- Invest in Iceland Agency
- Film in Iceland

Role in Coastal and Marine Activities:

The Ministry is responsible for geological resources on the seabed. The National Energy Authority, an organization under the Ministry, has an increasing role in coastal and marine areas as interest in tidal energy increases. The Ministry is also home to the Icelandic Tourist Board which supervises the travel industry in Iceland, including cruise ship travel and fisheries related tourism.

Ministry of Justice and Human Rights

The Ministry of Justice and Human Rights' primary role is to oversee the justice system, maintain law and order, and defend citizens' fundamental rights and freedoms. The Ministry is divided into the Minister's Office, Civil and Consumer Affairs, Family Law and Immigration, Finance and Administration, Legal Affairs and Human Rights, and Policy and Judicial Affairs. Under the auspices of the Ministry there are several notable institutions, including;

- The Consumer Agency
- The Consumer Spokesman
- The Director of Public Prosecutions
- The Emergency Alert 112 in Iceland
- The Evangelical Lutheran Church of Iceland Bishop's Office
- The Icelandic Coast Guard
- The Icelandic Data Protection Authority
- The Icelandic Directorate of Immigration
- The Icelandic National Police College
- The Icelandic Property Registry
- The State Prison and Probation Administration
- The Special Prosecutor

Role in Coastal and Marine Activities:

The Ministry is responsible for the policing of Iceland's territorial waters, fishing jurisdiction, and maritime cartography. This is facilitated through the Icelandic Coast Guard, an institute under the

Ministry, given the task of law enforcement and surveillance of Icelandic waters along with the direction of search and rescue operations.

Ministry of Transport, Communications and Local Government

The Ministry of Transport, Communications and Local Government is responsible for roads and road construction, surface transportation and vehicle monitoring, aviation and airports, navigation on sea, the registration of seamen and their occupational rights, lighthouses, harbours, breakwaters, transportation safety and accident investigation, telecommunications, postal services, and municipal affairs. The Ministry is divided into four departments; the Department of Administrative and Financial Affairs, the Department of Communications, the Department of Municipalities and Equalization Fund, and the Department of Transportation. Notable institutions found under the Ministry include:

- Icelandic Maritime Administration
- Icelandic Road Administration
- Road Traffic Directorate
- Post and Telecom Administration
- Marine Accident Investigation Committee

Role in Coastal and Marine Activities:

The Ministry is responsible for the organization of transportation as it relates to the sea. This includes shipping, harbours, lighthouses and breakwaters. This also constitutes the responsibility for transport safety and accident investigations at sea. These tasks are the responsibility of the Icelandic Maritime Administration, an agency of the Ministry who ensures the safety of ships while maintaining a cost-effective and secure environment for navigation and fishing in Icelandic waters.

Ministry of Foreign Affairs

The Ministry of Foreign Affairs main tasks include the cooperation with international organizations including those specific to Nordic countries, the application for European Union membership, the oversight of external trade and development aid, the implementation of security policies, culture and public diplomacy, and the oversight of issues regarding the Arctic region and associated natural resources. The Ministry carries out these roles through several Directorates; the Directorate of Administration and Consular Affairs, Directorate of External Trade and Economic Affairs, Directorate of International and Security Affairs, and Directorate of International Development

Cooperation. As part of its responsibilities associated with foreign policy, the Ministry is responsible for regional cooperation with regards to the sustainable use of marine resources; this includes fisheries management organizations and their role in the conservation and sustainable use of straddling and highly migratory fish stocks. This includes cooperation with such organizations as the Northwest Atlantic Fisheries Organization (NAFO), the North East Atlantic Fisheries Commission (NEAFC), the North Atlantic Salmon Conservation Organization (NASCO), the North Atlantic Marine Mammal Commission (NAMMCO), and the International Council for the Exploration of the Sea (ICES).

Role in Coastal and Marine Activities:

The Ministry of Foreign Affairs plays a role in coastal and marine activities due to their involvement in international organizations and multi-lateral agreements. The Ministry has a separate department of natural resources and environmental affairs which is responsible for representing Iceland's resource and environmental interests on the international platform. This, in large part, consists of matter relating to the Law of the Sea and other marine issues.

Other Ministries

There are several State-level ministries that have no defined role in coastal and marine areas however may have incidental involvement in certain projects and initiatives in the area. These ministries and a brief explanation of their responsibilities are described below:

Ministry of Finance

The Ministry of Finance oversees Iceland's finances and is the centre for innovation with respect to government operations. Staff of the Ministry is responsible for providing advice to the State in its policy areas and the execution of this advice through providing services and information to the general public. Within its goals, the Ministry defines operational targets such as a stable economy and good standard of living; a long-term treasury equilibrium; transparency in government operations; as well as employment of staff of the highest quality. The Ministry's vision is to increase the competitiveness of the Icelandic community while working towards improving the nation's standard of living. The Ministry aspires to be an arena for new ideas and methods in governmental operations.

The Ministry is divided into eight departments; Political Advisory to the Minister, Permanent Secretary, Administration, Budget, Financial Management, Legal, Personnel, and Revenue and Taxation.

Ministry of Economic Affairs

The Ministry of Economic Affairs is divided into 4 departments; Economic Affairs, Business Affairs; Financial Markets; Finance and Administration. The primary responsibilities of each department are outlined below:

- Department of Economic Affairs – The Department supervises the economic programme of the government and the International Monetary Fund (IMF) and in doing so enforces the State's economic policy. Cross-border investments, foreign currency, interest rate and indexation issues are the responsibility of the Department, as is public relations concerning economic affairs in Iceland and abroad. Statistical information for all of Iceland is held by Statistics Iceland which is operated under the Department of Economic Affairs.

- Department of Business Affairs – The primary responsibilities of the Department include commercial and contract law; law of debt collection and guarantors; trade in services, electronic trade and signatures; industrial intellectual property rights; affairs relating to administrative, information and other general issues of law; general implementation of the EEA agreement; patents and the Competition Authority.

- Department of Financial Markets – The Department is primarily responsible for credit institutions and other financial undertakings including securities trading; insurance contracts; consumer loans; deposit guarantees and investor compensation schemes. The Savings Bank Reserve Fund and the Financial Supervisory Authority are operated under this department.

- Department of Finance and Administration – The Department is responsible for the general operation and finances of the Ministry and its institutions.

Ministry of Health

The Ministry of Health is responsible for public health; patient rights; operation of hospitals, health centres and other health services; promotion of information technology in health services in Iceland; pharmaceutical affairs; and health insurance. These responsibilities are divided between several institutions, all of which are listed below:

- Hospitals and Health Care Centres

- Directorate of Health

- Icelandic Medicines Agency

- Icelandic Health Insurance

- Icelandic Radiation Safety Authority
- The Public Health Institute of Iceland
- The National Hearing and Speech Institute of Iceland

Ministry of Education, Science and Culture

The Ministry of Education, Science and Culture is divided into 3 departments and 4 offices; the Department of Education, the Department of Science and Higher Education, the Department of Cultural Affairs, the Office of Information and Service, the Office Financial Affairs, the Office of Legal Affairs, and the Office of Evaluation and Analysis. The responsibilities of this ministry include implementation and evaluation of the educational system including higher education, the development of policy related to cultural affairs including arts, heritage, mass media, sports, and youth affairs, as well as the administration in the fields of science, research and innovation.

The Prime Minister's Office (PMO)

The PMO is the head of government and provides political, operational, and administrative services. This is facilitated through the coordination of government policies on diverse and convergent issue-areas. Activities of the PMO are carried out at Althingy, the General Assembly which is designated as a National Park. The other institution under the Office is the Ombudsman for Children.

Municipalities

The role of the municipality in Iceland is stipulated in Article 78 of the Constitution which states:

"Local authorities shall govern their own affairs themselves as provided by law. The revenue sources of local authorities shall be determined by law, as shall their right to decide whether, and to what extent, to exploit them."

(SOURCE: Structure and Operation of Local and Regional Democracy in Iceland, 2005)

In 2005, the Council of Europe completed a report detailing Iceland's political structure, primarily the responsibility of the local government and its relationship to the State. The report explains that Icelandic municipalities are given their authority through the Local Government Act which is implemented by the Ministry of Transport, Communication and Local Government. The key points in this report; Structure and Operation of Local and Regional Democracy in Iceland are summarized here:

- Overview

There are two levels of administration in Iceland; national and municipal. There is no regional level government however there are regional committees which act on a voluntary basis and hold a supervisory role in projects that involve several municipalities. These committees have no official authority and are not considered units of administration but their existence is encouraged. The Local Government Act states that matters concerning municipalities are the responsibility of the Ministry of Social Affairs. It is this Ministry's responsibility to ensure that no decision is taken on any issue that affects the interests of an authority, national or local, without consultation of that authority. Despite this provision, Parliament can make decisions which have the ability to affect all municipalities in general. In this case it is expected that the Government consult the Association of Icelandic Local Authorities, although is it not legally necessary.

- Distribution of Power

The legislation on the organization of public functions determines whether the national or municipal authorities will be responsible for an activity. Legislation determines principles to guide the management of the activity, the allocation of duties between the two levels of government and how this relates to the rights of citizens. This refers to the principle activities of the municipal authority which include infant and primary schools, fire prevention, water utilities, sewage, etc. Commonly, the appropriate ministry or institution is given a supervisory role in the administration of the activity in question. The freedom a municipality has to manage their activities is variable and depends on the field of activity. If no statutes exist to govern the field of activity, then municipal authorities generally free to carry out their tasks as they see suitable, subject only to limitations set by general laws on administrative practices and competition.

- Local Authorities' Participation in National Economic and Spatial Planning

The Government of Iceland is legally obligated to consult municipalities on matters directly concerning them, such as the division of responsibilities between national and local authorities. This is facilitated through such legislation as the Planning and Building Act which ensures that the development of settlements and land use is in keeping with development plans. The Act also attempts to ensure rational and efficient management of natural resources, development activity and environmental protection. Overall, this is the responsibility of the Ministry of the Environment who receives advice from the National Planning Agency. The National Planning Agency is the lead institution in the implementation and monitoring of the Act and is responsible for assisting municipal authorities when necessary. It is the municipal authority that examines applications, issue building permits and carry out building inspection, abiding by the guidelines set forth in the Planning and Building Act.

- Taxes

There are two types of income tax in Iceland; one paid to the state and one to the municipalities, both of which are collected by the national government. Municipal authorities collect tax through real estate and local income taxes. Real estate taxes are mandatory and based on a rate determined by the local council within a given framework determined by law.

- Financial Equalisation

Due to the variety of municipality size and population, the Government of Iceland has established a system of equalisation facilitated through the Local Authorities' Equalisation Fund. This assists small municipalities in carrying out activities legislated as mandatory through such legislation as the Planning and Building Act.

Role in Coastal and Marine Activities:

Municipalities have spatial planning jurisdiction from the lowest water mark at the coast to 1 nautical mile seaward. This is true for municipally owned land only and does not apply to privately owned land.

Appendix 3 *Interview Structure and Questions*

Theme #1 – Sustainable Development

What is your/your organization's role in Sustainable Development?

- What is your view of Sustainable Development?
- How do you see Sustainable Development?

What does Sustainable development mean for Iceland?

- What does Sustainable Development mean for the Westfjords?

Who is working on Sustainable Development in Iceland?

- Who is working on Sustainable Development in the Westfjords?
- Are there groups and organizations working on Sustainable Development in coastal and/or marine areas in particular?
- Are there some examples of Sustainable Development successes or failures that come to mind?

Why? Where do you think all this talk about Sustainable Development is coming from?

- Who is in charge of the discussion?
- Who is in charge of the progress?

Theme #2 – Coastal and Marine Integration and Cooperation

What is the relationship between those in charge on land and those in charge at sea?

- What is the difference between those working on land and those working at sea?
- Do they work together? When/where?
- Is there conflict between land-based groups and sea-based groups? When/where?

Who has more power in decision making; land or sea?

- Which is the priority?
- Are they both treated as equals in terms of political attention, funding, etc?

Theme #3 – The Coastal and Marine Environment and Sustainable Development

Are there Sustainable Development plans that consider the land and the sea one area?

- Where are the Sustainable Development plans being focused?
- Who is talking about Sustainable Development?

FINAL QUESTION:

Where do you see all this talk about Sustainable Development leading? What is its future in Iceland?

Appendix 4

Additional Questions for Interview Subject IB

Theme # 1 – Sustainable Development

Do you have experience with sustainable development? In theory or practice, etc.

- What is you view?
- What impact do you see it having? – in Iceland; in the Westfjords?
- Who would you say is talking about sustainable development? Where does it come up most often?

Theme # 2 – Government and Social Structure

Is there a difference between how the government functions in Reykjavik and how it functions everywhere else?

- What are the differences?
- What is the urban – rural connection?

Is there a difference in social services?

- What are they?
- What are the consequences of this?

Can communities outside of Reykjavik develop (or maintain) with a lack of social services?

What are the consequences of concentrating services in Reykjavik?

Theme #3 – Coastal and Marine

Do you see a connection or disconnection between those in charge of the sea and those in charge on land?

Is there a division in government and/or social services between what is available for ocean based activities and what is offered for land based activities?

- Does one have more power than the other?
- Is one given priority over the other?

Appendix 5

Interview Handout

University of the Westfjords
Master's of Coastal and Marine Management
Isafjordur, Iceland

Thank you for allowing me to interview you for my Master's thesis project. I am currently conducting my research under the supervision of Helga Ögmundardóttir on Iceland's capacity for Sustainable Development in coastal and marine environments.

Project Overview:

My research aims to explore the institutions responsible for sustainable development in Iceland's coastal and marine areas. Through the identification of state, municipal, and non-governmental organizations and their mandate responsibilities, it is my goal to determine Iceland's institutional capacity for sustainable development. Special focus will be placed on the Westfjords through a case study analysis.

Your Involvement:

You have been selected as a person of special knowledge and your participation is therefore vital to the success of my research. Our interview should not take more than 1 hour and will be digitally recorded for accuracy. You will be identified by affiliation or role within an organization but will not be cited by name. If you prefer to remain anonymous or have special requests with regards to your identification please contact me at the address provided. A copy of the transcript of our interview will be made available to you upon request.

Thank you once again for your time and cooperation. If you have any questions, please do not hesitate to contact me at brown.jennifer.erin@gmail.com.

Best Regards,

Jennifer Brown
Master's Candidate