AGAINST THE ECONOMIC GRAIN: MORAL EXEMPLARS BUILD VISIBILITY AND MODEL THE VIABILITY OF LOW-CARBON LIVELIHOODS

by

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B.A., University of California, 1979
Ph.D., University of Massachusetts, 1985

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Abstract

The manner in which socioeconomic forces direct environmentally unsustainable behaviour is largely unseen and unappreciated. North American cultural beliefs, norms and values reinforce the economic system and constitute significant barriers to large-scale societal ecological behaviour change. Overlooked in the degrowth literature, even by researchers who have examined the importance of socioeconomic barriers (materialism and consumption), is the role occupation plays in dictating the ecological footprint and forming our socioeconomic identities. We have gained some understanding of the motivation of those individuals who have chosen to pursue a low-carbon lifestyle, but are lacking information about those who go one step further and adopt a low-carbon livelihood. Fifteen individuals who successfully adopted low-carbon livelihoods were interviewed to examine socioeconomic barriers they may have experienced and learn how those challenges were met. To assume a low-carbon livelihood at present is likely to require forming a new social status identity, adopting new metrics for judging oneself, and creating a new social network supportive of that identity and its values.

A four-quadrant framework was used to examine the systemic nature of emergent themes regarding socioeconomic barriers and how those were overcome. Themes that emerged revealed many similarities to individuals committed to a low-carbon lifestyle with some critical differences in terms of both inhibiting and enabling factors. A core finding was that motivational and personality characteristics of the low-carbon livelihood individuals mimic the attributes of moral exemplars that drive a deep sense of ethical obligation to create a pro-social occupation that can function in a low-carbon manner. Clear values, coupled with a strong sense of personal responsibility, overpowered the socioeconomic barriers participants encountered. Implications regarding interventions for fostering the adoption of low-carbon livelihoods and fortifying the Degrowth movement are examined.

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Territory Recognition and Acknowledgements

Firstly, I would like to show respect and give thanks to the Songhees, Esquimalt and WSÁNEĆ peoples on whose traditional territory the University of Victoria stands. I also would like to acknowledge their deeper spiritual connection to the natural world, their view of nature as kin which supports a relationship based on respect and reciprocity that historically underpinned thousands of years of sustainable livelihoods. I am just beginning to understand the important role of indigenous stories in preserving values that promote restraint, respect of, and connection to nature. For example, there is a story told in which the deer is created from a grandson and the grandfather is told 'you will hunt the deer forever, but you will be hunting your grandson'. This story actively discourages hunting for the sake of hunting, condones hunting only if one is hungry, and only if you treat a deer with respect and use every part of it. And there is the story of how the hardest working people have been transformed into salmon that reminds us that salmon are our relatives – therefore our equals and must not be "dehumanized". I am grateful to these indigenous Pacific Northwest cultures for a growing appreciation of my kinship with deer, salmon, trees and much more.

I am also grateful to the School of Environmental Studies for 'walking the walk' by accepting both students from other disciplines and older mature students into their program, because of the great opportunity this has given me to delve more deeply into the human side of transitioning toward a low-carbon future.

Drs. James Rowe and Ana Maria Peredo deserve an enormous amount of thanks for the task of reinventing the academic skills I needed for completing this project. Dr. Peredo deserves special thanks for her warm-hearted generosity, advice and words of encouragement, as well as her willingness to share her husband's friendship and allow him to teach me the craft of apple cider brewing. In addition, Dr. James Lawson's careful editing and thoughtful suggestions were crucial in the final stages of this project. Dr. Duncan Taylor reignited my excitement about systems thinking. He has updated and deepened my background in an area

that has always fascinated me since first delving into family systems theory and family therapy during my graduate training as a clinical psychologist.

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Most importantly, I want to share my enormous heart felt gratitude to the brave and courageous individuals who allowed me to interview them for this project. Each of these individuals was raised within the mainstream economic system, but each found it wanting and worse, destructive to nature and other cultures. Each of them exemplify for me what it means to have the strength of character and the integrity to live according to one's deepest moral values in spite of if it having taken them far enough outside the mainstream that they had to endure not being seen, well understood, or appreciated by some within their social networks. At times lonely, at times triumphant, they have continued to pioneer and make more visible ecological alternatives to 'making a living.' Perhaps as their numbers grow, we will reach a tipping point, at which time everyone will come to understand the rewards of living according to our universally shared values and in beautiful concert with nature. Hats off to these moral exemplars and to all the other brave and courageous vanguards that make low-carbon livelihoods visible as viable alternatives for others.

Chapter One INTRODUCTION:

1.1 Problem Statement.

Rees and Wackernagel developed the concept of 'carrying capacity' to denote an amount of resource use and waste production that is in equilibrium to Earth's capacity to renew those resources and safely absorb wastes sustainably over time (see Klitgaard & Krall, 2012). Their work has shown that the human ecological footprint[1] now well exceeds Earth's carrying capacity. In a world of nearly 7 billion people, over half of which live in poverty, at the consumption levels today in the U.S., the Earth could only ecologically support 1.4 billion people (Assadourian, 2010). We also know that a wide range of anthropogenic climate impacts are underway that are affecting food production, water supplies, contributing to scarcity of essential resources and feeding political instability (MEA, Millennium Ecosystem Assessment, 2004; Rockstrom, et al., 2009). In turn, these colliding problems are increasing strains on the international community related to disaster relief, intervention in conflicts, and responding to migration of refugees (MEA, 2004; Raworth, 2012) resulting in a global decline in human wellbeing.

Since the Massachusetts Institute of Technology publication *Limits to Growth* (Meadows et al., 1972) identified through computer modeling that both population and economic growth were ecologically unsustainable, a growing number of scholars point to endless compound growth compelled by the capitalist economic system as a primary driver of these interconnected problems (Costanza, et al., 2013; Daly & Cobb, 1989; Heinberg, 2015; Meadows et al., 1972, 1992 & 2004). These cumulative data have led many scholars to conclude that it is necessary to reduce growth by engaging in a period of population reduction[2] and downscaling of production and consumption until human resource use and waste production can be supported by the environment indefinitely, and fall within Earth's carrying capacity (Daly & Cobb, 1989; Demaria et al., 2013; Heinberg, 2011; Kallis, 2015; Latouche, 2003; Odum & Odum,

[1] Ecological footprint compares the land area use necessary to provide for human consumption and absorb its waste production to the biologically productive area available needed to regenerate that demand (carrying capacity). It can be measured at various levels to compare individual, regional (bioregional), national, or at a global scale to reveal the extent to which human demand may outstrip carrying capacity (Wackernagel & Rees, 1996). The extent that demand is outstripping carrying capacity is referred to as 'ecological overshoot.'

[2] Although it is true that elites historically have used the overpopulation argument to support bigoted agendas, it is also true that population reductions will either occur in an equitable and forethoughtful manner, or not. The population will decline whether we plan for it or not, as carrying capacity will inevitably be reduced. This issue is discussed further on pages 22-23.

2008).[3] With regard to the need to slow economic activity, the degrowth literature has offered numerous policy level pathways to enable a smooth deceleration of the economy on a broad societal level (Daly, 1996; Dietz & O'Neill, 2013; Odum & Odum, 2001; Seyfang, 2009).

The manner in which socioeconomic forces direct individuals into environmentally unsustainable careers and occupations is largely unseen and unappreciated in spite of the obvious link between livelihoods and the economy. North American cultural beliefs, norms and values regarding work and occupation reinforce the economic system and constitute significant barriers to large-scale societal ecological behaviour change (Jackson, 2009). Overlooked in the degrowth literature, even by researchers who have examined the importance of economically tied cultural barriers related to materialism and consumption, is the role occupation plays in dictating the ecological footprint of our lifestyles and how it forms an essential portion of our social identities.

A major focus in the field of psychology has been from an intention perspective, learning what affects intention, and in turn how that intention leads to behaviour change. This work has identified non-economic cognitive and motivational factors that foster or hinder pro-environmental lifestyle changes (Gifford & Nilsson, 2014). It has shown that values, empathy, and a sense of personal responsibility are important motivators for those people who do strive to create less ecologically harmful lifestyles (Gifford & Nilsson, 2014). This scholarship has given us understanding of the primary motivations of individuals who choose to pursue a low-carbon lifestyle, but we are still lacking information about those who go a further step and adopt a low-carbon livelihood[4] or occupation.

A recent focus on the actual impact of behavioural changes made in these lifestyle efforts has unfortunately revealed that intention, having an environmental identity, and even

[3] Carrying capacity refers to the number of individuals who can be supported in a given area within natural resource limits without degrading the natural social, cultural and economic environment for present and future generations. The carrying capacity for any given area is not fixed. It can be improved but the tendency is for it to worsen with the pressures that accompany a population increase. As the environment is degraded, carrying capacity shrinks, leaving the environment no longer able to support even the number of people who could formerly have lived in the area on a sustainable basis. No population can live beyond the environment's carrying capacity for very long.

[4] I refer to low-carbon livelihoods as occupations chosen specifically because they could be adapted to limit fossil fuel derived emissions in order to reduce one's negative contribution to global warming. A low-carbon livelihood provides adequately for a person's needs, but may not do so by generating an income or a salary. Here the term low-carbon livelihood differs from the more commonly understood term 'green jobs' such as those related to manufacture of solar panels or wind turbines that are typically available within larger corporate settings that operate for profit and therefore may not operate or produce in an ecological manner. The term low-carbon livelihood reflects a manner of engaging one's livelihood so that fossil fuel use is limited to the extent possible.

morally-driven motivation often fails to result in behaviours that have a significant environmental impact (Moser & Kleinhuckelkotten, 2018). Impact oriented studies have consistently pointed to people's income level as the most significant determinant of their impact. Consumers with higher incomes tend to have bigger ecological footprints, use more energy, and emit more greenhouse gases. In Canada, the highest income quintile has household carbon footprints 2.2 times greater than the lowest quintile (Kennedy, Krahn & Krogman, 2014). Several studies have shown that psychological variables such as environmental concern and a sense of moral obligation do in fact influence people's environmental impact, but not nearly to the degree that income does (Oxfam, 2015). Impact-oriented scholarship is bringing home the fact that an individual's income (and therefore their occupation) are playing an important role in limiting the behavioural changes that people are able or willing to make. In wealthy Northern countries individual choices at the household level are important, such as the size of one's home and traveling by air. But ironically, choices around high impact behaviors such as car use and vacation travel are not found to be significantly different in those attempting to behave more pro-environmentally than in those without that concern. The importance of socioeconomic factors such as income in determining one's carbon footprint points to the need to better understand barriers embedded in the economy (Moser & Kleinhuckelkotten, 2018).

Starting with differing levels of education, the career we have confers a certain social status and income level (SES); status and income in turn make up a significant part of our social and psychological identities and also determine our lifestyle and its contribution to pollution, resource loss and CO2 emissions. The need to maintain a certain "social status identity" creates an important barrier to more substantial and necessary radical behavioral change. Material possessions signal to others who we are in society and reinforce the value of materialism (Jackson, 2009). In addition, housing requirements can dictate the need for a job with a certain income, and in turn, the demand for a certain level of income determines our future financial goals. Future expectations and beliefs regarding things such as financial security act to reinforce values built around our current economic system and minimize deviations outside of it. Everyone needs to make a living and how that is done is largely predetermined by the dominant culturally available options that constitute mainstream careers and occupations

(Gibson-Graham, 2002). Because of these linkages, sociological research has begun to focus on barriers associated with the manner in which the economic system shapes and maintains behavior. Some scholars have begun to look specifically at SES in terms of how it has become the very basis of our social identities by determining the type of social metrics we use to measure who we are socially and the meanings we as individuals have for gauging our purpose, place in society, personal success, and sense of security (Moser & Kleinhuckelkotten, 2018).

In addition to income, industrial activity makes up over half of carbon emissions in the U.S. That activity indirectly reflects the impact of many livelihoods, jobs and occupations that will all need to be redirected in order to become sustainable. It is critical to build resilient, decentralized, and economically viable communities that incorporate commerce activities that end growth and advance in the direction of replacing the profit motive with activities that focus on mutual caretaking (Peredo et al., 2017). Fortunately, the structural forms that are necessary to end growth have been well described, but missing still is a discussion of livelihoods and solutions that support an individual's ability to transition away from growth-dependent occupations toward livelihoods that support mutual caretaking. And yet, currently transitioning into a very low-carbon livelihood means going against the economic grain and is likely to present significant social challenges. To enter a low-carbon occupation, or create low-carbon and ecologically sound work and business structures involves a major personal transformation in terms of one's values, goals, and forms of social support. My interest has been in looking at socioeconomic status and it's contribution to our identity as individuals, its role in our culture for defining who we are, how we measure ourselves and how we are measured by others and its role as a barrier to change.

There is a need to clarify the nature of socioeconomic barriers that inhibit adoption of low-carbon livelihoods in order to provide socially relevant scholarship that supports the design and implementation of community level transition strategies. We lack empirical accounts in the degrowth literature of how barriers to low-carbon livelihoods present at the individual level, how they are experienced, and overcome by individuals. Being able to define the nature of socioeconomic barriers that inhibit low-carbon career choices is essential to allowing degrowth scholars to continue developing language and metrics that socially redefine personal and economic progress and can guide community efforts to support livelihood and lifestyle change.

Developing and improving processes to support sustainable livelihood choices at the individual level is likely to be essential to building environmentally sound bioregional economies.[5]

1.2 Objectives, Research Questions and Anticipated Outcomes

This study is conducted at a time in history when growth-based economic imperatives are still dominant in most government sectors and continue to inhibit legislation and funding of programs designed to assist communities and individuals to significantly lower carbon emissions, slow economic activities, and shift societal focus to providing for the essential needs that underpin wellbeing. For these reasons, it has been assumed that the potential for change currently exists primarily at the individual and community level. The overarching aim of this project is to address the gap in the degrowth discourse regarding the personal transition to more fundamentally ecological livelihoods. I do so in three ways. The first objective is to broaden the current understanding of people striving for low-carbon lifestyles to include their livelihoods or occupations. The second objective is to add detailed descriptions of how those barriers are experienced, and the third is to describe the primary strategies participants use to overcome those challenges. Lastly, because an expanded holistic systems-oriented understanding of critical barriers is necessary to implement effective intervention strategies supportive of larger scale societal transitions (O'Brien, 2008; Riedy, 2009), a four-quadrant framework from Integral Systems Theory was chosen to understand the manner in which lifestyle and livelihood choices are directed by multi-dimensional dynamics and facilitate a systemic understanding of barriers and potential remedies. As an examination of North American socioeconomic barriers, this project was designed to identify those barriers that were experienced by individuals who had succeeded in adopting a low-carbon livelihood/occupation. The focus of this project was on answering the following questions:

1) What are the barriers at the individual level that create the greatest challenges for those who adopt a low-carbon livelihood?

I anticipated that similar to findings regarding individuals in the frugal lifestyle and anti-

[5] Bioregion refers to the watersheds, ecosystems, and eco-regions in which are located cities, towns, and the countryside. Instead of using politically determined boundaries for cities, states and nations, bioregion describes a geographical area in terms of its unique combination of flora, fauna, geology, climate and water features (Caradonna, 2014).

consumption movement literatures, those with low-carbon livelihoods that fell furthest away from mainstream occupations were likely to report the greatest amount of social challenges.

2) How are these barriers experienced at the individual level?

I expected that these individuals would have experienced some form of pressure to conform with mainstream occupational norms from family, friends, and others within their social networks in a manner similar to individuals discussed in the frugal lifestyle and anti-consumption movement literatures that are reviewed below.

3) What internal strategies and external sources of support were used to overcome those challenges?

Based on prior work regarding individuals with frugal lifestyles, I anticipated that a sense of moral obligation to act would be a primary internal motivator for these individuals. Younger individuals were expected to have had more supportive and a greater number of social networks than older individuals.

1.3 Methodological Approach and Methods

a. Methodological Approach: Interpretative Sociology, Societally Relevant and Systemic Perspectives

The methodology for this project is qualitative, e.g., one that draws data from the context in which events occur in order to describe them, those involved, and the perspectives of those involved. Probably the best known of the qualitative methods are various forms of content analysis and the 'Big Three': Grounded theory, ethnography, and phenomenology (Kahlke, 2014). Here the methodology is drawn primarily from the phenomenological tradition because of its ability to take advantage of non-quantitative, subjective views such as those derived from personal experience with a focus on subjective first-person accounts. It is a process of understanding an issue through direct experience, or in the manner that humans perceive and develop understanding of the world. In addition, there has been an attempt to incorporate some of the goals of Society Relevant and Movement Relevant research (Pohl, et al., 2017) that strive to produce research that is relevant to community based movements and efforts. Each of these methodological approaches is described in more detail below.

Phenomenological Approach as used by Interpretive Sociologists:

The term "phenomenology" is sometimes used as a paradigm and it is sometimes even viewed as synonymous with qualitative methods. As a result, the term "phenomenology" leads to conceptual confusions in qualitative research methods (Kahlke, 2014). The purpose of research from the interpretive view is to understand how some condition is perceived by an individual by describing and interpreting findings with the assumption that individuals experience multiple realities and that those differences are context driven (Merriam & Tisdell, 2016). Sociologists who share an interpretive philosophy developed the phenomenological approach and continue to employ it along with other qualitative research designs. In this project, because the exact nature of socioeconomic barriers is unknown, individuals could be expected to have very different experiences, issues might emerge that were unexpected, or questions that were not anticipated would need to be explored. The interpretive philosophical approach to research has evolved and been designed with exactly these needs in mind (Bernard, 2001).

Arising out of the tradition of interpretive sociology, conducting interviews was chosen for this project due to its ability to capture non-quantitative or more subjective phenomena that might include values, internal norms, beliefs and attitudes, as well as personal experiences tied to achieving low-carbon livelihoods (Bernard, 2001). In this study, a qualitative method of research was applied in which interviews were conducted, transcribed and then analyzed for recurring themes related to areas of interest. Semi-structured questions (Appendix A) were developed around key issues to provide a standardized prompt for participants that could be reliably compared and analyzed thematically (Bernard, 2001; Creswell, 2013; Merriam & Tisdell, 2016). Following this research tradition, the primary focus was on first person accounts of participant experiences with an emphasis on their thoughts, feelings and motivations (Merriam & Tisdell, 2016). A semi-structured interview method was used to allow participants to introduce new topics and allow for those new leads to be followed. Unstructured interviewing of new material that emerged led at times to deeper reflection and more thoughtful responses when one thought naturally led to another (Hiller & Diluzio, 2004). Respondent validity, or confidence in the findings, was established through participant check-ins accomplished during

interviews by restating participants' comments and asking if my understanding matched their experiences.

Societally Relevant and Movement Relevant Research:

This project also attempted to integrate some of the goals of the Societally Relevant Research perspective (Pohl, et al, 2017). Societally Relevant Research provides a systematic framework for the purpose of creating research relevant to solving a social problem (Pohl, et al., 2017). The socially relevant aspect of this research project is its goal of creating research relevant to slowing global warming, mitigating its negative impacts on society, and building ecologically sound community-based economies. Movement Relevant Research is an approach to methodology that values contributing to social movement theory and to social movements themselves (Bevington & Dixon, 2005). It assumes that activist produced theory is likely to be useful to social movements in a way that often has not been the case for traditional academic work. For the most part, one can safely assume that Movement Relevant Research also has the intent to solve social problems (Bevington & Dixon, 2005). Movement Relevant Research assumes that researchers who have been engaged in the movements that they study are likely to produce more relevant and useful information for other activists. Societally Relevant Research is similar to Movement Relevant Research, although it can have broader applications because of its intention to produce information directly relevant to solving social problems. Societally Relevant Research is unique in its emphasis on incorporating transdisciplinary experts, a notion based in systems theory that adding diversity will lead to more comprehensive and effective solutions to societal problems. This project did not involve diverse experts, but did draw together diverse literatures from degrowth, integral systems theory, ecological economics, psychology, social psychology, sociology, anthropology and neuroscience.

These approaches are applicable given my prior involvement with the Transition Town Movement (Hopkins, 2008) originating in the U.K. Ten years ago, I co-founded a local community-based Transition Town Initiative in which I participated as a volunteer. During that time, I collaborated with city staff, city council members, and local school district staff to assist their efforts to develop renewable energy projects and strengthen community networks. Those efforts fueled my interest in obtaining a deeper understanding of cultural impediments to

society-wide adoption of ecological behaviours, hoping to be able to apply that additional understanding at the community level in practical day-to-day activities.

Systemic: Four-Quadrant Framework:

All individuals are culture bound and impacted by intangible but critical broadly held values and beliefs associated with provisioning and economic systems, and by tangible cultural institutions and societal infrastructures. Family upbringing exposes an individual to more specific values, beliefs, and lifestyle habits, along with other formative life experiences that individuals encounter. Recent attempts to understand and promote ecological behaviours tend to have focused on the impacts of policy and infrastructure as a means of facilitating individual behaviour change. Using this type of approach has yielded limited results given the scale of changes needed (Moser & Dilling, 2010; Gifford, Kormos & McIntyre, 2011). A number of authors have suggested that an expanded holistic systems-oriented understanding of critical barriers is necessary to implement effective intervention strategies supportive of larger scale societal transitions (O'Brien, 2008; Riedy, 2009). Following these authors, a four-quadrant framework from Integral Systems Theory was chosen to facilitate a systemic understanding of interview themes related to barriers and potential remedies.

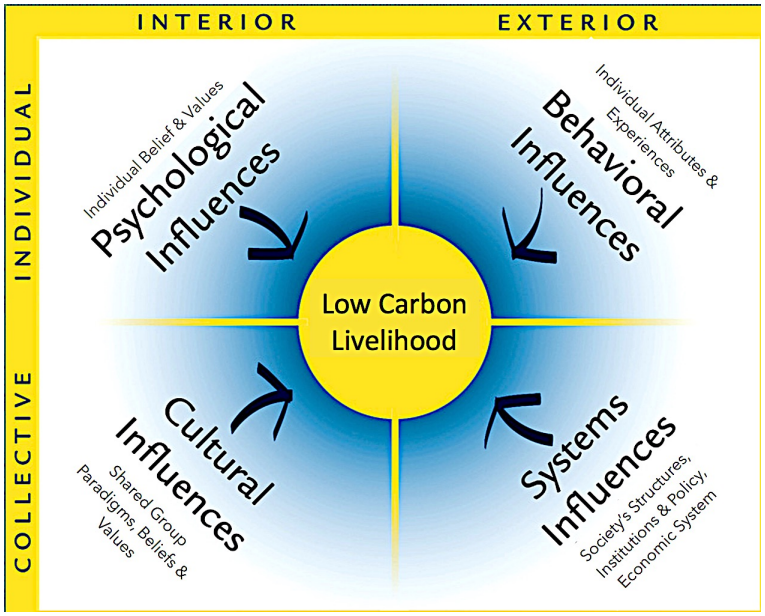

Figure 1. Four-Quadrant Overview. Adapted from Brown, 2007.

The four-quadrant framework has roots in systems theory and was originally developed by Ken Wilber (1995) as a way to map the interplay between psychology, behaviour, culture and larger societal systems (Esbjorn-Hargens, 2005; Brown, 2007). The framework shares much in common with the better known 'biopsychosocial model' introduced in 1977 by the psychiatrist George Engel (see Brown, 2007) to portray how social and psychological issues

interacted with physical health. The four-quadrant approach recognizes that there are interior (intangible) and exterior (tangible) qualities at both the level of the individual and the social group. Both individuals and groups have subjective and objective features. At the interior level are experiences of an individual, their state of mind, mental models and emptions. At the group level the focus is on cultural experiences of shared values, norms, customs, boundaries and worldviews. In addition, there are interactions between all four of these aspects of individuals and groups. The four-quadrant model improves our ability to visualize, map and analyze these dynamics. It can provide the basis for a richer narrative of the factors that influence an individual's beliefs and behaviors over time. For example, at the intangible or interior level, we can track how an individual's beliefs are affected by cultural values and norms. Exterior or objective, tangible features and behaviours focus at the level of the individual in terms of what an individual does and their attributes. At the objective, exterior group level the focus is on what we do, various social systems and visible societal structures such as economic systems, political and governmental procedures and structures, or how society manages natural resources (Brown, 2007). At the exterior level we can see how an individual's learning and behaviours are impacted by educational policies, a university's requirements for acquiring a degree, or the availability of practicum experiences and funding. Brown offers this simple example of quadrant organization:

"*As a simple practical example of the quadrants, consider at a woman engaged in recycling; let's look at her actions through the lens of each quadrant. The Upper Left reveals her interior reality while she recycles—her experience—such as what she feels about it (pride, resentment, a sense of duty, etc.). The Upper Right reveals her exterior reality—her behaviour— that includes the physical act of placing bottles in a recycling container. The Lower Left brings forth the reality of the collective interior—her culture—such as the shared values that encourage her to recycle (e.g., "we take responsibility for our waste and strive to protect natural resources"). Finally, the Lower Right unveils the exterior aspects of the collective—the systems created by her society—like the economic and transportation systems which enable recycling to be a financially viable option for a community*."

This model has become a practical tool for sustainability practitioners to organize information, diagnose problems, and prescribe customized solutions. For instance, Tim Winton (provided in Brown, 2007) has used this model to identify challenges to living within ecological limits. At the interior individual level he has identified challenges related to stigmas and status

associated with resource use, emotional challenges of living with less privacy and space, and knowledge and skills needed in order to lower resource use. At the interior level of the collective culture, he identifies challenges associated with norms, values, and worldviews associated with high resource use. At the exterior level of the individual, challenges may present that are related to limited heating or cooling, or behaviours elicited by reduced access to food or water resources. Finally, at the exterior collective level there are challenges related to establishing communal systems for effective use of resources, rules and guidelines that are needed for community systems, production systems for low input agricultural systems, systems for maintaining population within bioregional carrying capacities, and social systems for managing less available resources.

In the present project, this organization will be used to display the dynamics at play in each and between all four-quadrants that will help identify most of the major seen and unseen forces that are likely to have influenced an individual's ability to create and adopt a low-carbon livelihood. Because the framework is able to expose systemic interactions, it reduces the possibility of omitting consideration of systemically important sectors affecting an issue. The quadrant framework offers the opportunity to delve more deeply and broadly in each of these areas and adds consideration of larger social systems for understanding a problem and possible solutions. Here the framework has been used to understand the manner in which lifestyle and livelihood choices are directed by systemic multi-dimensional dynamics.

Summary:

The primary methodological approaches used in this research were drawn from the qualitative phenomenological approach developed by interpretive sociologists. The emphasis in this research was on identification of emergent themes reflected in interviews and personal narratives regarding barriers to adopting low-carbon livelihoods that participants might have experienced. In an effort to provide societally and movement relevant research that does not remain isolated or out of reach within the academic domain (Bevington & Dixon, 2005; Pohl, et al., 2017), useful information derived from this project will be shared at the community level with participants and local citizens through articles in a blog and community presentations. Relevant findings from this project will be shared more broadly through academic literature and the online open access Transition Research Network. Because of the useful nature of the

systemic multi-perspective view offered by the four-quadrant framework, it was used for organizing major themes that emerged from participant interviews and to discuss their implications.

b. Role of Researcher

I came to this research project with a doctorate in clinical psychology with its emphasis on providing training to be both a scientist and a practitioner. I have 30 years of experience conducting evaluations in both clinical and forensic contexts and providing psychotherapy in medical and private practice settings. Twelve years ago, as mentioned above, I co-founded a local Transition Town Initiative (Hopkins, 2008) in my community in which I participated as a volunteer. Those community-based efforts fueled my interest in obtaining a deeper understanding of cultural impediments to adopting society-wide ecological behaviours.

My own perspective is that of a North American descended from settlers; as a white, highly educated female, clinical psychologist, as a community activist, and as a researcher with a focus on socioeconomic barriers that apply to mainstream North American contemporary values and norms. I view those norms and values as largely embedded in and driven by a growth-based economic system. I am aware of having been indoctrinated in, and benefited materially from, the economic and cultural context that has dominated in the United States since the end of World War II. During this period and throughout my life, U.S. foreign policy has equated economic growth with prosperity and fostered growth of corporate interests internally and internationally through both overt and covert means. U.S. policy of international intervention to benefit corporate interests has been shown over time to directly and indirectly undermine democratic processes and result in accumulation of negative environmental and social impacts on other sovereign nations, their citizens, and the worldwide stability of essential life support ecosystems (Reich, 2007; Zuboff, 2019).

I have witnessed first-hand, within my own extended family, how heads of U.S. corporations exert direct influence at the highest levels of government to instigate foreign intervention in sovereign nations in order to preserve U.S. corporate resource extraction and profiteering from cheap labor conditions. Promulgated as being “in the interest of U.S. national security” when openly discussed, I could only ethically conclude that these interventions reflect

a culture of immorality. At the basis of that culture is the perception that economic growth is necessary and justifies pursuit of profit at any cost within a system without moral constraints. This belief has inexorably led to misuse of corporate power and influence in order to depose heads of state forcibly in which lives are lost, corruption follows, and citizens suffer. For example, my uncle Donald M. Kendall, CEO of PepsiCo during the Nixon administration and an important private policy advisor to Richard Nixon, advocated for the overthrow of democratically elected Chilean President Salvador Allende. The overthrow of Allende was ultimately authorized by President Nixon at the bequest of my uncle and other corporate heads to prevent the disruption of transfer of profits to foreign U.S. corporations that relied on the extraction of Chilean copper and use of cheap labor. At their basis, these covert activities are driven by an amoral economic system that requires growth fostered by relentless competition that allows for unjust and immoral activities to be condoned.

Ironically, I believe that my personal knowledge of this background in my extended family has added to the strength of my commitment to the goal of building a decentralized economic system that is dedicated to human equity and wellbeing, respectful of the dignity and wisdom of nature, and committed to regenerating our planet's natural systems.

c. Methods: Qualitative Semi-Structured Participant Interviews

Fifteen Caucasian individuals from within a North American mainstream culture that successfully adopted, or transitioned from traditional occupations into a low-carbon livelihood within the last 3 or more years were identified and recruited for a qualitative semi-structured interview using snowball sampling through referrals and publicly available contact information. Half of the participants were drawn from Victoria and half from Salt Spring Island, British Columbia. There was a diverse range of age, gender, household composition, home ownership, education and income among participants. Approximately half were female and half male. The aim was not to produce generalizable results but to explore each individual's views and experiences.

When an individual was interested in being considered for an interview and had given verbal consent, they were screened regarding their occupation and lifestyle. Background demographics were gathered at the time of first contact. In order to screen out individuals whose behaviours did not stand out socially from mainstream parameters, ahead of interviews

participants were asked to provide a description of their current occupation and how that occupation would be different if not low-carbon in nature. An hour and a half interview was scheduled in a location that was convenient for the participant. Place of interview varied based on the participant's preference.

Interview questions were designed to solicit information about the participant's cultural background, social values, and sources of motivation, such as modeling and socioeconomic barriers they may have confronted. Participants were asked whether they experienced negative feedback from any part of their social networks, types of support they did or did not receive, gaps in support they found challenging. In addition, they were asked to give as much detail as possible about their difficult social interactions. Part of the interview was open-ended to allow participants to reflect more deeply on issues and to add any thoughts that seem relevant or interesting.

Respondent validity was established during interviews by summarizing content and asking for clarification when the researcher's summary of their intended meaning did not match the meaning they intended to convey. An exploration of alternative explanations of emergent themes was conducted in order to mitigate the researcher's personal biases and expectations and therefore mitigate the potential impact of those expectations on the integrity of the overriding themes that emerged.

Interviews were recorded, transcribed, and coded using NVivo a web-based software package employed for content analysis of emergent themes regarding socioeconomic barriers, the nature of those challenges, and how participants overcame them. The emergent themes were then recoded based on the four-quadrant framework from Integral Systems Theory (see above discussion). This framework allowed for mapping motivators, challenges, assets and coping strategies in terms of whether they represented an individual's non-observable internal qualities, observable objective qualities of the individual, non-observable socioeconomic qualities, or larger visible societal systems and structures. Lastly, in order to depict how challenges at each level of the quadrant were overcome, a circle diagram was used to show where positive individual internal motivators combined with an individual's personal attributes and prior experiences, along with where assets within their social network and larger social

structures were reported to have played a role in their ability to adopt a lower-carbon livelihood and lifestyle.

1.4 Justification of participant selection.

The current research was conducted within a North American economic and cultural context. Participants were selected from Victoria and Salt Spring Island in British Columbia. Both communities are particularly environmentally progressive evidenced by fact that this area has both the only green MP and one of the four green MLAs in any jurisdiction within Canada. People historically have gravitated to this area due to its preponderance of like-minded citizens seeking to be part of an environmentally sustainable cultural shift. However, although Victoria and Salt Spring Island do have a larger percentage of like-minded citizens and supportive sub-communities exist, low-carbon livelihoods remain very few and far between, and the barriers faced by individuals seeking a low-carbon footprint still remain prominent. Therefore, what is learned from this context should have some generalizability to other predominantly progressive regions within a largely similar North American socioeconomic culture.

1.5 Justification of terms.

Previous research has defined low-carbon lifestyles as the adoption of strategies that are intended to lower fossil fuel use compared to past use and does not necessarily imply a lower than average carbon footprint had been obtained. Howell (2012: p. 281) labeled this type of intentional behaviour "environmentally responsible behaviour" and used the term to refer to seeking to reduce one's negative impact on the natural environment through reduction of home energy use, travel, and consumption of goods and services. Similarly, I refer to low-carbon livelihoods as occupations chosen specifically because they could be adapted to limit fossil fuel derived emissions in order to reduce one's negative contribution to global warming. A low-carbon livelihood provides adequately for a person's needs, but may not do so by generating an income or a salary. Here the term low-carbon livelihood differs from the more commonly understood term 'green jobs' such as those related to manufacture of solar panels or wind turbines that are typically available within larger corporate settings that operate for profit and therefore may not operate or produce in an ecological manner. The term low-carbon livelihood is used to reflect a manner of engaging one's livelihood so that fossil fuel use is limited to the extent possible. Finally, a low-carbon livelihood ideally emphasizes use of

resources that can primarily be obtained within the local region as another means of reducing fossil fuel dependence. Fossil fuel and extraction of natural resources are further reduced when an occupation does not rely on earning a profit above its operating expenses and provides for essential products and services. When providing essentials at the community level, a low-carbon livelihood is also contributing to the community's wellbeing and resiliency (Yunus, 2007). [6]

I use Howell's (2012) term environmentally responsible behaviour (ERB), but broaden it to include occupations or livelihoods. As psychosocial factors are discussed, their meaning will be further defined when appropriate. However, in general throughout this thesis, the terms "values, beliefs and norms" are understood to motivate behaviour based on some combination of a person's worldview, awareness of the consequences of negative ecological behaviours, knowledge of environmentally responsible alternatives (ERA), and the degree to which a person feels a sense of obligation to assume personal responsibility for their contribution. This sense of obligation is referred to as personal norms in the literature (Gifford & Nilsson, 2014). A sense of obligation is thought initially to be the result of one's empathy for nature, people, or other cultures negatively impacted by climate change and/or habitat degradation. In turn, empathy leads to feelings of guilt and regret (Markowitz, 2012; Shultz, 2002). Following Howell (2012), motives are defined as the reasons people give for their pro-environmental actions.

Throughout this thesis, unless otherwise stated, socioeconomics is used here to refer to how economic activity affects and is shaped by social processes such as the social impacts of a regional economy that is embedded within a global economic system. Socioeconomics is intended here to include consideration of behavioural interactions of individuals and groups through social capital (material goods & consumerism) and the effect of economic activity on the formation of social norms, values, and social status (Becker, 1974; Durlauf & Young, 2001). The term socioeconomic status (SES) is used as a measure that reflects social norms, values and

[6]Good examples of low-carbon, more deeply green livelihoods in Victoria, B.C. are "Top Soil" a business that grows food on urban roof tops and delivers those supplies to local restaurants by bicycle, the "Bicycle Plumber" who delivers his services by bicycle, "Eco-Sense" a permaculture homestead that also sells food producing perennials, fruit and nut trees and "Pedal to Petal" a business that collects food waste to compost within the local neighborhood by bicycle. Another example in Portland, Oregon is "SoupCycle" a business that makes soup and delivers it within a local area by bicycle in order to minimize its carbon emissions.

beliefs that underpin how status is attributed to a person's occupation, economic position (income/wealth) and educational attainment relative to others. Socioeconomic barrier refers to social pressure that results when an individual anticipates negative reactions from others, or when others overtly express discomfort toward an individual when their efforts to create a low carbon lifestyle and/or livelihood move too far outside existing social practices associated with one's SES and social status identity. The impact of socioeconomic status on social identity as discussed here refers to North America unless specified otherwise. Socioeconomic factors may vary somewhat within geographic regions, as well as between socioeconomic strata. However, the overriding important symbolic nature of education, occupation, income and consumption is assumed to be fairly consistent across industrialized societies as well as many less industrialized societies.

The term lifestyle is intended to represent patterns of consumption related to one's SES, income, home, transportation, travel and vacation choices, peer group and social interactions, and the varieties of materialism embedded in those patterns outside of one's work or occupation.

For the purposes of this research, the terms prosperity, wellbeing and human wellbeing are used interchangeably. Wellbeing is defined here as having met one's basic physical needs for food, water and shelter within a stable ecosystem, having a certain amount of physical security with access to healthcare and education, along with having a sense of belonging, a role and a voice in one's community. Prosperity, according to Jackson (2009), refers primarily to the social component of wellbeing, to the capacity to flourish socially. Prosperity relies on meeting fundamental psychosocial needs that include having the opportunity to participate meaningfully in the life of society, to give and receive love, to be respected by peers, to have a sense of belonging, and be able to contribute useful or meaningful work.

The term degrowth scholarship is used to differentiate between the work of academics and the Degrowth movement which has interacted with that scholarship and has become an active political movement in itself (Demaria et al., 2002). Finally, bioregion is used to refer to the watersheds, ecosystems, and eco-regions in which are located cities, towns, and the countryside. Instead of using politically determined boundaries for cities, states and nations,

bioregion describes a geographical area in terms of its unique combination of flora, fauna, geology, climate and water features (Caradonna, 2014). The intention is for the term to reinforce an understanding of one's location as part of a larger habitat (or region) with important life sustaining attributes such as a watershed (in fact, watersheds are often used to define bioregion boundaries). Here I also use the term to imply a sense of stewardship or responsibility for caring well for the land.

Finally, following Walker and Frimer (2015), I use the term moral exemplars to refer to individuals who have developed a level of maturity that has allowed them to integrate the often otherwise opposed universal motives of agency (goal to individuate and advance the self) and communion (the goal to relate to others and contribute to social cohesion). Participants that were interviewed in this research project were similar to those described in Walker and Frimer's (2005) study of individuals who had received national awards for outstanding volunteerism. Walker and Frimer found that moral exemplars were motivated by higher levels of both agency and communion. They pointed out that agency and communion may function dualistically for most people, but exemplars have overcome the tension by integrating their personal ambitions with their moral concerns. Walker (2014) concluded that when agency, or goals for oneself become intertwined with communal goals, identity is partially at stake in the outcome, thus providing stronger motivational impetus and greater persistence. I use the term moral exemplarity here to illustrate the way in which individuals that pursue low carbon livelihoods and lifestyles do so as a result of having similarly high levels of motivation and commitment resulting from a strong sense of personal obligation and responsibility. When combined, these motivational factors facilitate their ability to override contemporary socioeconomic barriers.

Chapter Two LITERATURE REVIEW:

2.1 Overview.

This chapter is divided into three sections: 2.2, 2.3 and 2.4. In section 2.2, I present findings regarding the limits to economic and population growth described by systems scientists. I summarize the major insights of systems scientists who affirm the need to end economic growth. I argue that systems science has provided a firm foundation for those who advocate that the solution to anthropogenic ecological damage is to scale back economic activity (and reduce population growth) as a way of reducing income inequality and social inequities. Not only does systems science support the need to reduce economic production, it locates the critical leverage points, and gives direction to the changes needed. It is noted that scholarship in the degrowth area has its foundation in systems science within its attempts to elaborate problems associated with economic growth and within the types of alternatives it offers to improve human wellbeing outside of a growth-based economy. I have highlighted the degrowth scholarship regarding deteriorating overall wellbeing, including the movement's proposals for a planned slow contraction of growth.

Section 2.3 focuses on those socioeconomic factors that constrain behaviour change related to materialism and consumption embedded in the broader economic system brought forth in the degrowth critique. The importance of the Degrowth movement's advocacy for a paradigm shift in cultural beliefs regarding the purpose of economic activity is explained, along with its promotion of the use of social learning and role modeling as a means of facilitating a cultural shift in economic goals and values. Degrowth authors have been, and continue to articulate alternatives including new sets of future worldviews, new norms and values that are supportive of a healthy society with reduced economic activity. This new set of worldviews, norms and values articulated by Degrowth scholars has provided a foundation that has enabled a strong Degrowth movement to emerge in Europe, Spain, Italy and Quebec Canada (Demaria et al., 2013), and to spread internationally. Indeed, as will be discussed, these alternative worldviews and values are among those that propel and maintain the motivation of people who have adopted low-carbon livelihoods.

In Section 2.4, insights gained from qualitative studies regarding the motivations of individuals involved in anti-consumption and low-carbon lifestyles are reviewed. We will see that the greatest challenges to behaviour change experienced by individuals pursuing low-carbon and anti-consumption lifestyles emerge from cultural values, norms and beliefs embedded in the economic system. Given that socioeconomic factors are the most challenging for those seeking lighter-impact lifestyles, I argue that the enormous power of cultural meanings embedded in one's occupation or livelihood, e.g., socioeconomic status and social status identity, has been greatly overlooked in this area of research. The importance of broadening this line of work to examine cultural challenges related to adopting a low-carbon livelihood and its implications for socioeconomic status and social status identity is presented, noting the gaps in our knowledge that this project sought to fill.

2.2 Cultural and socially relevant concerns with unlimited economic growth identified in degrowth scholarship.

a. Systems science supports the call for a degrowth process.

As fossil fuels enabled greater levels of industrialization, a number of authors dating back to 1798, pointed out that physical limitations exist for the use of this resource. In 1798 Thomas Robert Malthus (Brown, Gardner & Halwell, 1998) predicted that short-term gains in living standards would eventually be undermined as exponential human population growth would inevitably outstrip arithmetical growth of food production. Based on the Laws of Thermodynamics, Soddy warned that fossil fuels once burned could never be used again (Soddy, 1926). The economist Nicholas Georgescu-Roegen, considered the founder of ecological economics and one of the original degrowth scholars, in 1971 published *The Entropy Law and the Economic Process,* in which he made the broader argument that *all natural resources* are irreversibly degraded when put to use in economic activity. He noted that unlike other biological organisms that feed on solar energy (an infinite low entropy source), humans were depleting terrestrial stocks such as fossil fuels and mineral resources and were doing so at a rate of flow that could not be sustained. He was important in introducing the idea that the rate of resource use (flow) and the regeneration time of natural living processes were both the enabling and limiting factors of economic production. In Georgescu-Roegen's view

economic scarcity was a reflection of the physical limits of natural resources (stocks). He understood that the carrying capacity of Earth, its ability to provide enough rare resources to sustain population and consumption levels would decrease at some point in the future, resulting in economic collapse and he feared, the loss of human civilization.

Amazingly, for more than two centuries people have fought these ideas and argued that the combination of land and the advancement of human knowledge would allow food production to keep up with population growth and until very recently this has indeed been the case. But that growth in food production will be short-term because of its reliance on the use of dwindling fossil fuel resources to power machinery, produce pesticides and fertilizers (see Figure 3 below). These "modern" agricultural practices are now understood for the ironic manner in which they have drawn down and degraded future food production capacity of soil and ancient aquifer stores of water (Montgomery, 2012).

Shortly after the publication of *The Entropy Law and the Economic Process,* system scientists at Massachusetts Institute of Technology (MIT) were responding to other scholars who had similar concerns about the potential impacts of population growth and increased pollution from growing industrial output on human wellbeing. In 1972, Donella Meadows and her team at MIT published *Limits to Growth: A Report to the Club of Rome Project on the Predicament of Mankind.* This publication described the results of their simplified computer simulation model. It broadly confirmed Georgescu-Roegen's prediction that collapse would occur when Earth's capacity to provide energy and material resources is exceeded by the rate of economic growth.

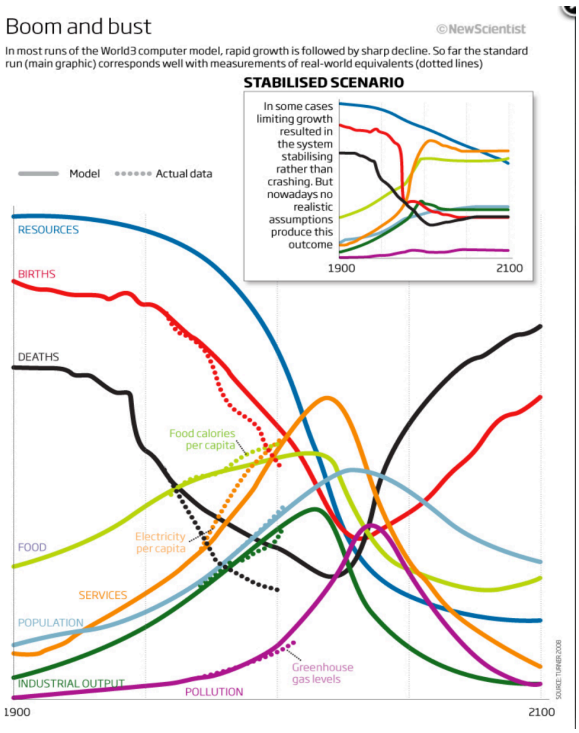

Figure 2. Replication of Limits to Growth scenarios simulation. From Turner, 2008.

The MIT model showed that if rates of economic and population growth continued uninterrupted, a collapse in population and the economy would occur around the middle of the 21st century. The model showed that collapse was avoided only in the scenario in which industrial output and population growth were voluntarily restrained in conjunction with technological fixes that optimized efficiencies. These findings (see Figure 2) have now been replicated, reconfirmed, and indeed, have predicted subsequent economic and population growth rates, resource use patterns, and the pattern of a widening gap between the rich and poor as originally forecasted (Meadows et al., 2004; Turner, 2008).

The MIT team was the first modern scientific team to show convincingly that *population growth and natural resource use for industrial output interact* to impose *limits on industrial growth*. In addition, they showed that the two critical factors at the base of most major global problems such as poverty and pollution were linked with exponential growth. They warned that for the future to be viable, both economic and population growth would have to be slowed and ended. Although it is true that elites historically have used the overpopulation argument to support bigoted agendas, it is also true that population reductions will either occur in an equitable and forethoughtful manner, or not. The population will decline whether we plan for it or not, as carrying capacity will inevitably be reduced (Heinberg, 2011). Clearly, population reductions will occur in a very inequitable manner if left unaddressed. In fact, forethoughtful planning is the best means of enabling the capacity for self-restraint and assuring equitability in that process. For instance, it is well known that child birth rates decline when women are allowed access to education and to family planning measures. Policies that strengthen education for disadvantaged women increase equitability and should be a compliment to universal family planning access (Kim, 2016).

Correctly, many have been concerned that the issue of population growth has been misused to shift blame away from the destructive nature of the capitalist economic structure that puts profit before people and the planet onto poorer less developed countries. Angus and Butler (2011) argued that attempts to cut immigration and birth rates were incompatible with social justice. Certainly, it is correct to apply this conclusion to immigration (often fuelled by climate change and the unjust contributions made by overly developed countries). On the other hand, to generalize this assumption regarding attempts to “cut birth rates” to attempts

to reduce population growth is unfair and overly simplistic. Ironically, although Angus and Butler (2011) argued that capitalism was the real problem compared to over-population, they nevertheless agreed that a more respectful direction to take [including toward population control] would be to cease all military operations, phase in renewable energy sources, and *ensure that women everywhere have access to birth control and abortion*. That perspective is precisely the point: having access to birth control and abortion has substantially different implications than "cutting birth rates." The former is driven by personal choice, by social agreement, the latter potentially imposed.

In addition, their argument against restraining population growth hinges on the notion that food production has substantially increased. But the argument that we have fed a growing population in the past ignores two important issues. One issue is that increases in population lead inevitably to natural resource depletion due to increased pollution, deforestation, and habitat loss (see Wackernagel and Rees on ecological overshoot, when carrying capacity is exceeded by the ecological footprint demands of a given population). It is now well documented that the limits of Earth's capacity to absorb or adequately recycle all forms of human pollution have been surpassed. At the same time, as already mentioned, innovations that increased food production in the past have peaked. Grain production was greatest in 1984, followed by a clear decline in per capita food production (orange graph line) now attributed to those same "modern" agricultural practices, to CO2 pollution and subsequent global warming impacts (Grant, 2001; MEA, Millennium Ecosystem Assessment, 2004; Rockstrom, et al., 2009; Soil Atlas 2015).

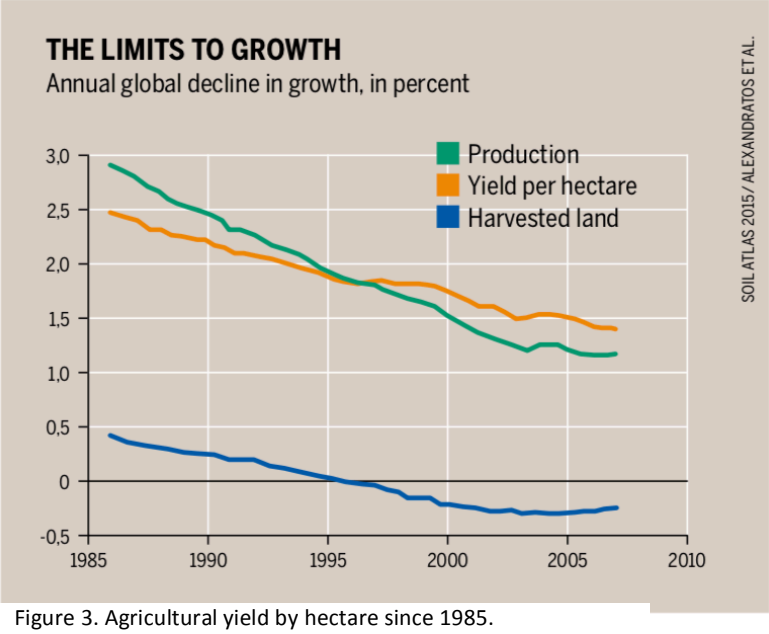

Figure 3. Agricultural yield by hectare since 1985.

The MIT team's conclusions were that *both* the growth-based capitalist economy and population growth needed to be addressed. This MIT work provided strong evidence that

both population and capital (energy and material resources) are the engines of growth in the industrialised world (Meadows, 1972). Having the capacity to reproduce themselves, both capital and population contain a positive feedback loops that create exponential growth unless "restrained" through regulatory policies, or until limited by lack of essential inputs. Collapse inevitably occurs if that exponential growth is not purposely constrained at a time when the essential inputs no longer are available. In the MIT simulations, it was only in the event that *both* population and capital production processes were "voluntarily restrained" that collapse could be avoided (Meadows et al., 1972).

Put simply, exponential growth can only be held in check by either an outside limiting factor or by self-restraint. In the case of industrialized nations, Meadows et al. concluded that *a process of negative growth*[7] based on restraint imposed by effective regulatory policies would be required, in addition to "drastically" increasing the efficiency with which materials and energy were used. Meadows (1992) later argued counter-intuitively, that technology would not be the solution, as it typically accelerates resource depletion. Turner authored a paper in 2008 that confirmed the problem of pinning hopes on technology and refuted again the idea that further economic growth would avoid collapse.

The MIT publication in 1972 was quickly followed by degrowth scholarship that focused, among other things, on describing the negative effects of economic growth and articulating policy proposals for economic contraction. These two areas are discussed below followed with a brief return to systems theory, because of the succinct explanation it offers for why it is difficult to redirect the economy, where systems science directs us to look for leverage points, and how the degrowth scholarship has successfully promoted new language and meanings that apply pressure targeted at those leverage points.

b. Perpetual growth's association with increasing rates of income inequality and compromised wellbeing.

Polanyi (1947) and others have described the historical shift from pre-modern indigenous economies where the exchange of goods resided inside a sociocultural sphere in

[7] 'Negative growth' refers to a contraction in a country's economy that is reflected in a decrease in its gross domestic product (GDP). In this case, it implies shrinking economic activity well below zero or no-growth, until a sustainable level of activity is reached. In this manner degrowth goes further than zero-growth or steady state economics imply (Muraca, 2013).

which norms, values and tradition guided those transactions and had ensured reasonably fair levels of reciprocity and trust. In that context, in addition to what a person produced, their labor had social value. However, particularly after the advent of industrialization, the social value of the product of one's labor was translated into a commodity to be bought and sold. When it became possible to purchase the use of a person's labor, and the necessity of earning a wage grew, livelihoods were no longer assured by community ties, and the previous reciprocal sociocultural obligations that had guided provisioning became less and less relevant. Similarly, the economic sociologist Cangiani (2011) has discussed the manner in which economic systems with the primary goal of profit will disregard the long-term human need for a sense of fairness, reciprocity and equity to maintain social cohesion and trust. Polanyi (1947) warned that with the new market society having no social restraints as before and guided only by the goals of gain and profit, it would eventually lead to destruction of the environment and of society.

Others have elaborated on the negative effects of economic growth and development and the parasitic manner in which they rely on continuous displacement of environmental impacts to other places, onto other social groups (e.g., Global South) and on to future generations (Roldan, et al., 2002). Scholars like Aries (2005) have continued to explore the way in which growth over time leads to the deterioration of human wellbeing as a result of creating unjust access to goods and wealth. Privatization has become a way of appropriating access to commonly held and managed (public) land, in order to export the land's natural resources for profit, resulting in destruction of the land and displacement of local communities whose livelihoods and cultures were supported within that habitat. Importantly, Avaredo et al. (2013) showed that growth has increased income inequality and that the top 1%'s share of annual income had more than doubled between 1960 and 2009. Degrowth authors like Aires emphasize the importance of understanding that by definition, inequity is the result of a type of "robbing Peter to pay Paul" and it cannot ever be ecologically sustainable or morally justified (Aries, 2005).

In addition to the manner in which resource extraction destroys the environment and habitat for humans and nature, growth also undermines democratic processes as a result of power that grows when a small percentage of people have control over disproportionate

levels of wealth and use that wealth to influence political favor (Ferguson, 2005; Reich, 2007). Governments and state institutions become more dependent on business interests and increasingly support those interests, resulting in political pressures that divert money from pro-social governing functions (Wallerstein, 1974). Similar pressures are caused by the fact that when natural resources are extracted and their availability is reduced, extraction is more difficult, therefore extraction costs increase, and profits shrink. Taxable income that could go toward expenditures on education, health and social services and other essential social infrastructures is diverted to meet those growing extraction costs (Meadows et al., 1992). In addition, there is a general tendency built into the competitive nature of capitalism that leads to a declining rate of profit (Roberts, 2016). Anything that reduces the rate of profit leads to a diminished tax base and increases political pressure on governments to reduce social spending. Needless to say, as democratic influence is weakened, so is human wellbeing (Mitchell, 2005).

A substantial body of social science research shows that in spite of the popular argument that economic growth improves wellbeing, the growth of personal income only improves wellbeing up to a certain point, after which wellbeing begins to taper off or even declines (Anielski, 2007; Easterlin, 1973; Jackson, 2009; Layard, 2005). Mitchell (2005) in fact, claims that economic growth is the main underlying cause for increased income disparities and for a decline in global levels of wellbeing. Given the negative social and human impacts of growth, not to mention a myriad of other problems associated with a growth-based economy, the need to decrease economic activity in a thoughtful planned manner has been crucial.

Whether economy shapes culture or vice versa is probably a moot question given that they constantly interact and affect one another and that question is not explored in this thesis. Nevertheless, from a systems perspective, one always looks to the next larger system for what is determining the goal or function of subsystems. It seems hard to debate at this time in history the observation that internationally, many cultures have been subsumed within a global profit-based economic system that now acts to maintain its profit function and is not guided by social values of equitability, reciprocity, or provision of some form of income redistribution. The important point is that social restraints could be used to maintain sustainable levels of population and economic activity, but because capitalism is only designed

to pursue growth of profit, it is not responsive to any wellbeing needs and therefore has been able to avoid being impacted by human value-derived social and political restraint mechanisms. North American culture has profoundly conformed to capitalism in terms of having adopted a culture of political and social structures, norms, beliefs and economic values that reinforce its function. Even so, systems theory (Meadows based on Thomas Kuhn, 2009) suggests that if the failures of the system are repetitively brought forward and into social consciousness along with awareness of healthier alternatives, a new set of pro-social values can gather momentum and strength to reach a turning point, with movement of economic activities beyond that point able to promote wellbeing, guided by universal human values.

c. Degrowth Movement's focus on local economies and their proposals for a slow planned contraction.

The overriding goal of degrowth proposals has been to reduce and stabilize consumption in a manner that is equitable and socially acceptable (socially sustainable) by promoting quality over quantity and cooperation over competition (Kallis, 2015). Degrowth scholars have attempted to address some of the concerns caused by an economy based on expansion of profit by proposing instead an economy based on a new set of goals such as sufficiency, equitability, justice and community-based democratic decision making in order to facilitate a transition to a smaller economy with far less production and consumption (Demaria et al., 2013). There has been an effort to revive values of frugality and simplicity as a way of supporting a reduction in consumption, in addition to self-sufficiency at the community level in order to eliminate dependency on global supply chains that depend on fossil fuels for transportation (Lewis & Conaty, 2009; Schumacher, 1973). As a whole, the focus of the Degrowth movement has been on developing localized, regionally self-sufficient economies based on norms and values that support the goals of justice, equity, and general wellbeing in place of the goal of growth.

Proposals focussed at the level of government policy that would allow for a planned and orderly downsizing of economic activity have been enumerated in significant detail (Daly, 1996; Dietz & O'Neill, 2013; Heinberg, 2011; Jackson, 2009; Latouche, 2010; Odum & Odum, 2001). Designed to preserve human wellbeing throughout an extended period of economic contraction, perhaps the most important socioeconomic policy proposals have been the

following: 1) Measuring human wellbeing and economic progress by implementing a Genuine Progress Indicator (GPI)[8] and eliminating use of GDP, 2) controlling population growth through provision of accessible family planning services, 3) implementing working-time policies that protect jobs and maintain job availability, such as job sharing, reduced workweeks, guaranteed minimum incomes that confront poverty directly, progressive taxes that in effect create a maximum wage, converting to worker cooperatives and smaller, locally owned businesses that provide essential products and services, 4) insuring the provision of universal healthcare, 5) moving resources that support human welfare into open access domains versus being privately held and therefore exclusionary (e.g., medical and academic journals), and 6) removing business lobbies from politics, among many other important strategies that would protect wellbeing and stabilize living standards while reducing work hours and slowing economic activity in a humane and thoughtful manner (Alexander, 2012; Constanza et al., 2013).

d. Summary.

Although many viable policy pathways away from growth have been developed, are available and achievable, change has not been forthcoming. Because systems generally to act to maintain their core function, changing the direction of a globalized economy and initiating large-scale societal change through policy implementation has proven very difficult. Any pressure to change is met with systemic counter moves designed for self-stabilization and maintenance of systemic goals. There are many systemic barriers to societal change, not least of which is that all of the major structural features of industrialized societies are now embedded in a larger fossil fuel dependent economic system. It can seem overwhelming, even without having to consider political resistance, to contemplate the vast changes that will eventually be needed to remove fossil fuels dependencies from society's current education, banking, healthcare, retirement, agriculture, communication and transportation systems. However, the Degrowth movement serves as a persistent reminder that answers to sustainability also lie in every neighbourhood and community. Within degrowth scholarship and the Degrowth activist movement we are provided with a set of viable, and therefore

[8] Gross Domestic Product (GDP) can be a misleading figure in that it places value on all profit from production and services regardless of their human value. It therefore is a poor reflection of a country's social welfare as it does not adjust for things like income inequality or environmental damages that result from economic activity. The Genuine Progress Indicator (GPI) was designed to provide a more holistic picture of human wellbeing by looking at a combination of economic, environmental, and social indicators to create a picture of the overall progress of a country or state.

hopeful opportunities for developing localized, regionally self-sufficient economies based on the universal human values of justice, equity, and general wellbeing. This work has spread to many community level movements such as the Transition Network, Slow Food, Voluntary Simplicity, One Planet movements, Permaculture Design, and related organized efforts to put these principles in place through education and community support initiatives.

Although a collapse of our current economic system would certainly mandate the adoption of new social behaviours, at this point in time, economic change depends on social change. In turn, social change depends on individual behaviours that reflect new understandings of what purpose an economic system should serve, who we are, what we value, and define what we culturally understand to be responsible and sensible behaviours (Howell, 2003). What follows is a discussion of the manner in which the systemic property of self-maintenance inhibits this type of social change and why the Degrowth movement is calling for a social movement that endorses a shift in the goals of economic activity.

2.3 Socioeconomic factors that constrain ecological behaviour change: Degrowth's policy proposals to facilitate social change.

a. Systemic properties inhibit social change.

System dynamics make it difficult to live outside the mainstream economy because every Complex Adaptive System (CAS) operates to maintain itself. This self-regulation feature of complex systems is known as Adaptive Self-Stabilization. It allows for compensation in response to changing conditions in the environment. Any perturbation to the system is met with resistance. In fact, a good sign that one is having an impact on a larger system are signs of resistance, e.g., police intervention in demonstrations, arrests of activists, withdrawal of electric cars from the automobile market, among other examples (Meadows, 2008; Walker et al., 2004). The economic system that North Americans are embedded in is a growth-based economy with the goal of profit. Currently humans are embedded in the culture of a growth-based economic system, and like the system of a biological cell, our economic system is more than the sum of its parts. When a system is formed, qualitatively distinctive properties emerge. It has properties that do not exist at the level of its parts, such as a cell's ability to

reproduce itself, and the North American economic system's ability to sustain exponential growth and with it, natural resource depletion (Meadows, 2008).

A CAS can be influenced by creating the right conditions, changing the rules of the game, or changing its goal. The resilience of a system describes its ability to persist, for its parts to reorganize, to increase its complexity, to find the best fit with the environment and maintain its core function in spite of stress or other changes within its environment. For instance in the U.S. the New Deal of the 1930's created an abundance of jobs and a social safety net for the unemployed as a way of adapting to an economic depression. However, although these new policies redirected the flow of some of the money in the system, they did not change the core function of system, and it remained to grow capital output and profit.

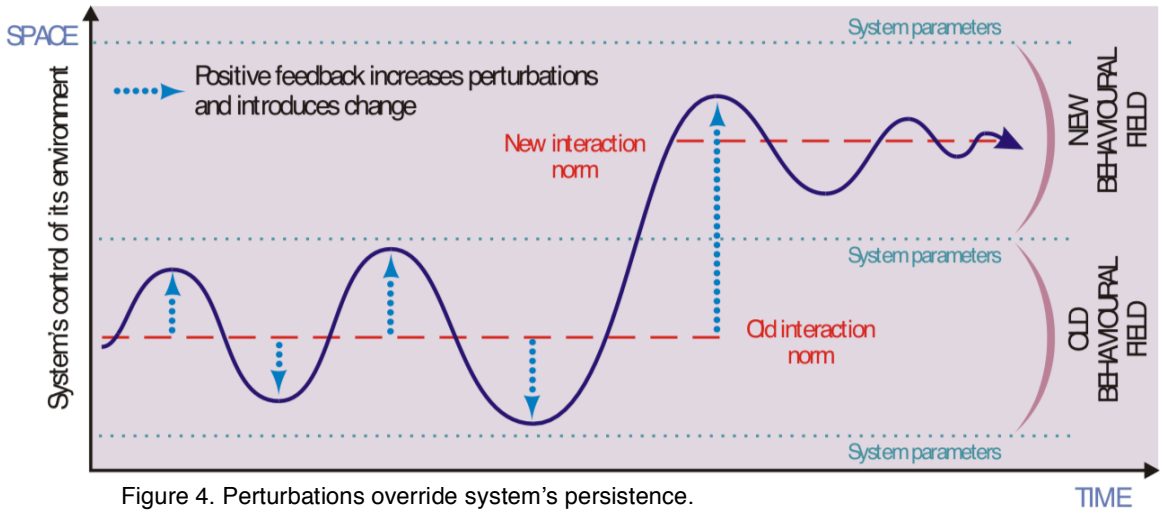

Figure 4. Perturbations override system's persistence.

But there are limits to resilience, usually when there is a loss of a critical stock of available resources. As the system's underlying core function begins to falter, resilience is weakened. At this point, a tipping point, or a transition from one phase to another can occur suddenly and unexpectedly when a goal is no longer considered attainable or socially acceptable. Examples of positive tipping points include when certain civil rights were achieved, such as the end of slavery, the end of child labour, the right of women to vote and to have access to education. Following extended civil efforts that resulted in broad change in the social acceptability of these practices, the previous system faltered and a new paradigm emerged and prevailed.

Currently, our North American economic system is supported by a set of beliefs, norms, and values (e.g., the value of materialism, the belief in growth as a solution to poverty and the

belief that technology can sustain growth) that have evolved in a manner that supports the economy and have come to represent mainstream thinking about how the world works (Jackson, 2017; O'Brien, 2008). Our culture is composed of these beliefs, norms, expectations, values and traditions that are embedded within the economy. Because of how culture defines the meaning of our behaviour, our social interactions, our role and place in society, human

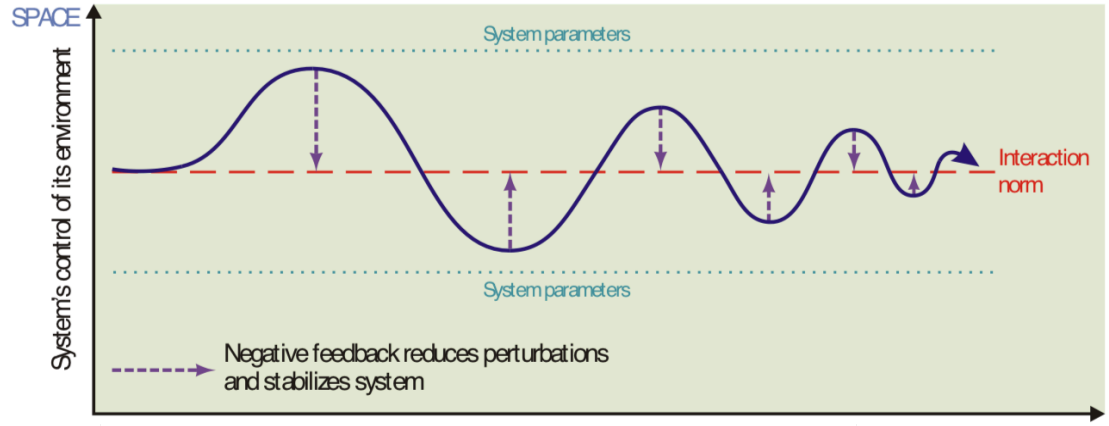

Figure 5. System Persistence

behaviour is systemically shaped and narrowed within certain boundaries (Moser & Dilling, 2010). In this manner, social norms act as negative feedback loops that support system persistence when humans move too far beyond acceptable social patterns. Numerous social scientists (Gifford, et al, 2011; Moser & Dilling, 2010) point to an example of system persistence when they refer to barriers created when mainstream beliefs and norms conflict with the desire to avoid harming the environment.

Social scientists have provided us with a more nuanced understanding of how social norms and expectations act as society's positive and negative feedback loops by encouraging or constraining choices and maintaining the system's ability to function. In a large cultural context social norms can be thought of as predominant behaviour patterns within a group that are supported by a shared understanding of what is acceptable, or patterns that are perceived as the right way of doing things (Nyborg et al., 2016). Social norms are implicit rules and standards within a culture that guide or constrain behaviour. Similarly, sociologists speak of 'emotion norms' that prescribe the appropriate range of emotions, intensity, duration, targets of feelings in situations and set the standard for how an individual ought to feel in a given context (Jasper, 1998). Guilt can be a result of violating a personal internal value, but in social

settings violation of a group norm can result in criticism, social judgment, or even ostracism (Cialdini & Trost, 1998; Norgaard, 2011). Neuroscientists have discovered that social rejection is experienced in the same region of the brain as pain, a finding that helps explain the powerful influence of social norms on behaviour and why people are very sensitive to any threat of ostracism or social rejection (Power & Mont, 2010).

Below is a review of the underlying cultural variables that constrain pro-environmental behaviour and impact the personal goals and values specifically related to materialism and consumption identified by degrowth scholars. This review is followed with a discussion of the link between systems theory and the Degrowth movement's call to move away from growth by promoting a paradigm shift toward a values-oriented caretaking economy.

b. Challenges created by existing cultural beliefs, values and norms embedded in the economic system related to consumption and materialism.

Wackernagel and Rees' (1997) discussion of cultural beliefs that inhibit investment in replenishing natural resources was providing examples of beliefs that promote economic growth. Among the beliefs they noted were the ideas that industrialization benefits all parts of society; that the goal should be maximizing utility (more is better) versus minimizing future regrets and suffering; that competition is necessary, along with globalization; that technology can overcome any barrier; and that property rights are sacrosanct. Such beliefs reinforce the mainstream economic model.

Latouche (2003) and Howell (2003) have described how the economic system is strengthened when values that support economic growth are promoted and those that slow growth are discouraged. Jackson (2009) has elaborated a good example of Howell's notion of growth reinforcement in the manner that advertising leverages our social identities and need for social acceptance by marketing the idea that consumerism is necessary for social success, status and happiness. Jackson (2009) described these socioeconomic barriers as "unseen" cultural forces that underlie our personal values, beliefs, norms and how our identities have been associated with material goods and novelty. Economic pressures and cultural imperatives, enhanced by advertising and media, are seen as two powerful social forces that embrace the economic system and shape ecological behaviours (Douglas & Widavsky, 1982; Jackson, 2009; Moser & Dilling, 2007). Social exclusion or reprimands are examples of norm

enforcement that can punish behaviours that indirectly slow growth, an issue addressed further below. Based on the concept of unseen social forces, degrowth scholars such as Seyfang & Haxeltine (2012) and Levett (2003) have argued that our lifestyle consumption choices are constrained and we are "shoved" by an "invisible elbow" that is directed by pressures intrinsic to the economy.

Jackson (2009 & 2015) is well known for his discussion regarding the important manner in which materialism (and a love of novelty) have evolved into a means of participating in social life by providing a vehicle for establishing belonging, attracting partners, symbolizing belonging to a social group based on our purchases, and demonstrating attachment in relationships through gift giving. Because materialism and novelty are highly rewarded in our culture, they have gained more importance over time and have assumed these and other important social functions, even to a large extent coming to represent what constitutes happiness. Owing to materialism's promotion of consumption and therefore the system's goal of growth, materialism has been promoted aggressively through the media and other cultural channels, and with great success has increased consumption over time (Zavestoski, 2002). Marketers induce false needs by promoting product dissatisfaction through creating a perception of obsolescence, or by creating false beliefs in commodities as solutions to problems. For instance, by artificially linking a security system as capable of filling the social need for personal security, the much more effective long-term strategy of building social and community relationships is overlooked (Douglas & Widavsky, 1982; Max-Neef et al., 1989). Advertising and media repeatedly redefine what one "needs" in order to be seen as a normal member of society and fulfill one's need for belonging. In pursuit of growth and profits, marketers have purposely elevated insecurity and social anxiety by defining and redefining social stigma in order to sell products that we are told will relieve our social insecurities and fill our needs for belonging and love (Jackson, 2009).

Each marketing strategy is designed to leverage some foundational psychosocial element that contributes to self-identity and human social wellbeing, especially those universal needs to be valued in our relationships (self-esteem) and valued in our community (self-efficacy). Selling the false notion that these human needs will be met through consumerism has become very big business. In this unfortunate manner, the economy's

empty goal of growth, which is not concerned with human moral standards, supersedes other more meaningful and enduring pro-social pathways to wellbeing. The more authentic and enduring pathways to building a sense of wellbeing such as sharing, engagement in caretaking, and community enhancement activities are marginalized, shut out, and kept hidden (Dietz & O'Neill, 2013).

c. Degrowth movement's call for a paradigm shift away from growth to a values-oriented caretaking economy.

The systems theorists Walker, Holling, Carpenter and Kinzig (2004) state that there is always tension between trying to maintain the stability of current systems, while simultaneously building capacity for radical social transformation. This tension arises from the fact that it is the nature of systems to adapt in ways that preserve their core functions (their primary goal) and this makes them difficult to change. However, these authors also point out that all systems are permeable and have the capacity for adaptive self-transcendence to occur at the point at which conditions make the old system and its paradigm untenable. As a system nears a tipping point with an increasing level of instability, even small perturbations can cause rapid large-scale events. At these points, a system is capable of moving to a new level of integration (see Figure 4 above). Transformative economic change involves creating and introducing new components and ways of making a living that redefine a system's goal, its scale and functions (Walker et al., 2004). Donella Meadows (1999) further explained that leveraging change (self-transcendence) is best accomplished by redefining a system's core function (its goal) and the culturally shared assumptions about how the world works that underpin that function (its paradigm). Transformation depends on repeated challenges to the existing equilibrium, while that change is usually bitterly contested, until a tipping point occurs and an abrupt shift to a new level of equilibrium is reached. In 1993 Meadows wrote about places to intervene in a system (2008), and there she briefly summarized what Thomas Kuhn[9] observed about how scientific paradigms are changed:

> "*You keep pointing at the anomalies and failures in the old worldview; you keep coming yourself, loudly, and with assurance from the new worldview; and you insert people with the new worldview in places of public visibility and power…You don't waste time*

[9] Kuhn, T.S. (1962). *The Structure of Scientific Revolutions*. (1st ed.). University of Chicago Press, Chicago, IL.

> *with reactionaries; rather you work with active change agents and with the vast middle ground of people who are open-minded."* (Meadows, 2009; pg 14).

The degrowth discourse clearly can be seen as revolving around just this project of system transformation. Despite being bitterly contested, it is pointing out the worldview fallacies and negative effects of growth, while promoting and reinserting the new 'caring economy' worldview with assurance. Through degrowth scholarship and the Degrowth Movement this new 'caring economy' vision is being spread and it appears that people who share this view are now just beginning to reach positions of power. Ben Isitt, for example, has now been elected twice to Victoria's city council. He helped found the Social Environmental Alliance (SEA), which promotes degrowth arguments and perspectives. New representatives also include Antonia Ignazio-Cortez in the U.S. House of Representatives, Seattle City Council socialist Kshama Sawant, along with a number of others. The core goal of economic activity according to this new paradigm is to foster human and ecological wellbeing within a caring orientation and move away from consumerism and a reliance on profit generation and competition. The position also holds that we not only need to change our ideas about the function and purpose of the economy, but also about ourselves, our place in nature, our identity, and means of self-expression. At the core of these new understandings is a broadened sense of responsibility for others, including assuming a deeper role as stewards of Earth, all of which acts to rebuild the fabric of connection and community between people (Norberg-Hodge, 2002). Creating economic activity that fosters social cohesion, equity, and human wellbeing is achieved by culturally shifting the way people view the meaning of money, sharing, reciprocity, expectations in social interactions, the importance of communal ties, and understanding the unique ability of these activities to meet deeper authentic needs by providing a superior replacement for materialism and consumption (Gibson-Graham, 2013; Norberg-Hodge, 2002). Klitgaard and Krall (2012) put it more bluntly, noting that this [degrowth] project is about fundamentally changing the rules of the game. The ideas of simplicity, frugality, having enough, or what is sufficient, are repeatedly introduced in the degrowth scholarship with the emphasis on quality not quantity, cooperation not competition and are echoed in degrowth-oriented activism (Alexander, 2011; Buchs et al., 2015; Latouche, 2003).

In addition to reorienting our views of ourselves within community, and away from materialism and novelty, a main tenet of degrowth scholarship is that transitioning to an economy with a caring orientation is accomplished by moving economic activities back into smaller scale local communities where human values regarding equity and fairness can guide those exchanges.

Another fundamental degrowth proposition is that in order to successfully promote the goal of wellbeing, it is crucial to measure progress on the basis of a new set of humanized socioeconomic values: social equity, wellbeing, cooperation or solidarity, and ecological resiliency. This shift in values involves more than a plea to change individual attitudes: it requires new metrics that reflect those values in everyday activity. As mentioned earlier, replacing the GNP and the GDP is mandatory because of the way these measures confuse our notions of progress by not accounting for the loss of natural resources and social wellbeing that accompanies industrial production and pollution (Meadows, et al., 1992). Meadows and others have pointed out that using new metrics such as a Genuine Progress Indicator (GPI) [10] to measure social progress and wellbeing is critical for redirecting the goals of the economy and improving signals about where changes are needed in the system. New measurement indicators also provide the psychological basis for revising our social identities by reinforcing new definitions of wealth, adding social value to a wide variety of forms of unpaid labor, and very importantly, giving us new metrics for personal and social success that can replace the traditional meaning of material goods and novelty (Gibson-Graham, 2013).

The degrowth discourse also argues that decentralized, deeper, localized participatory decision-making assemblies can better allocate resources on the basis of need versus at the national, state or provincial level (Trainer, 2014). Their notion is that democracy can be magnified by moving decision-making to smaller regional scales that enhance justice and equity through greater local participation (Schumacher, 1973).

d. Summary.

In summary, degrowth proposals regarding the economy are designed to facilitate an economic and cultural paradigm shift away from growth by focusing on the goal of maximizing

[10] A GPI is also able to reflect the value of unpaid labor, such as household work, care of children and the elderly, sharing, other non-monetary forms of exchange, indigenous values and cultural heritage, and reflect levels of wellbeing and life satisfaction based on a variety of measurable variables.

human wellbeing and resilience by fostering a new set of cultural beliefs, social norms and societal values. Based on systems theory and economic models that include consideration of limited natural resources, an ecologically sound value-driven economy will share principles that support the use of smaller scale, localized, regionally-based projects that later can be scaled-up if needed to meet local requirements (Heinberg, 2015). In addition, when kept at the local level and smaller scale, tangible activities that promote community self-sufficiency lead more easily to making direct, smaller scale but practical differences (Hopkins, 2008).

In a similar vein, degrowth scholars emphasize that a slow planned contraction should initially focus efforts on enlarging the scale of alternative local economic activities that contribute to wellbeing by providing essential services such as food production, clean water access, clean energy, public transportation, family planning and housing. Providing for those essentials more equitably and without the need for growth means promoting community-based social entrepreneurship, in particular cooperatives, and other pro-social organizations that foster and enlarge common property (Peredo, et al., 2017; Hopkins, 2011; Yunus, 2007). This process can be supported by creation of public banking and savings structures that allow wealth to be reinvested in regional and local community-based activities (Brown, 2007; Shuman, 2000). Together these imperatives constitute the important ingredients of the degrowth narrative (a new economic paradigm) for slowing economic growth and reducing greenhouse gas emissions in a healthy equitable manner (Hopkins, 2008; Odum & Odum, 2001; Seyfang, 2009).

Degrowth scholars and activists are still struggling to articulate how socioeconomic beliefs can be best shifted to facilitate a shift in the economy away from growth to fostering resilience and wellbeing such that structural change can be accelerated. Having a deeper understanding of motivators that are capable or propelling individual behavioural change is likely to help clarify critical beliefs and values that can then be further promoted. In the following section an overview is presented of work that has been done to understand the motivations of individuals who have elected to live in a very frugal manner, or who have actively pursued more ecological lifestyles. Following an overview of what we know about those who have pursued low-carbon or low-impact lifestyles is a discussion of the importance of broadening that knowledge into the realm of occupation by extending this work regarding

lifestyles and applying it to livelihoods. I will propose that embedded in the economic system are additional, perhaps more powerful socioeconomic factors related to occupation and socioeconomic status that create barriers and inhibit ecological behaviour change and therefore require deeper understanding through further exploration. That there is an absence of empirical evidence regarding socioeconomic barriers related to work and occupation in the degrowth scholarship is highlighted as having motivated the core objectives of this project.

2.4 Role of livelihoods and lifestyles: Unseen barriers to adopting a low-carbon livelihood.

Degrowth scholars have been successful at raising awareness regarding cultural and social barriers to behaviour change. Cultural barriers are understood to be embedded within the larger economic system and act in combination with political and structural barriers to keep societal behavioural change from developing the scale necessary to inhibit resource depletion and other negative anthropogenic trends (Burgess, et al., 2003; Jackson, 2009; Milbrath, 1995; Seyfang & Haxeltine, 2012). Within this discourse Jackson (2011) has highlighted the fact that consumption and meanings we have attached to novelty and materialism have become central to our social interactions and our lifestyles are now integral to our identities. Jackson's work importantly points to powerful socioeconomic forces that create barriers to collective behavioural change. Within the degrowth conversation, his work has elevated the importance of understanding the contribution of the psychosocial domain and the means by which these 'unseen' variables can impact human behaviour.

Related to degrowth scholarship is a body of research looking at the lifestyles of individuals within the frugality and anti-materialism movements from which has emerged evidence of similar psychosocial barriers. In addition, study of these individuals has provided further understanding of external and internal factors that lead to their desire to reduce activities that harm the natural world and the facets that contributed to their motivation to make pro-environmental behaviour changes.

a. Important themes have emerged from research on the lifestyles of individuals in the anti-consumption and low-carbon lifestyle movements.

Research focused on reducing carbon emissions has focused considerable attention on lifestyles, due to the fact that in the U.S. and U.K., a full 75% of greenhouse emissions are

directly or indirectly related to household activities: approximately 25% from direct use of energy, 15% from transportation, and another 35% related to food, goods and services (Brower & Leon, 1999 cited in Roy, 2002). Unfortunately, even when people are able to significantly decrease residential energy use, those savings are largely over-shadowed by use of transportation, in particular air travel (Roy, 2002).

This body of work emphasizes the lifestyles of individuals. Here lifestyles are defined as including those behavioural choices that are made in our personal lives outside of the work domain that reflect pro-environmental concerns. Examples of behaviours in the lifestyle domain include recycling; commuting by bicycle or public transportation; avoiding consumerism and novelty (new clothing, purchases due to market changes in style, shopping for quality and long lasting products when needed, etc.); avoiding meat and dairy products; vegetable gardening; household efforts to reduce energy use such as turning down the heat, installing additional insulation for one's home, installing solar PV or solar thermal systems, and use of other energy saving strategies such as heat pumps; and include personal choices with larger impacts related to air and vacation travel.

Gifford (2011) and others have pointed out that even though most people believe it is important to adopt more ecological behaviours such as those described above, behaviour change has been relatively modest and remains insufficient. This "attitude/intention-behaviour," or more recently called "value – behaviour gap" between ecological values and behaviour continues to be explored. Gifford and other psychologists initially approached this gap by examining non-economic factors that enable or create barriers to ecological behavioural change at the level of individual internal mechanisms such as knowledge, attitudes, self-efficacy, perceived control, habit and effort. He and others have described a wide range of psychologically related issues that interfere with an individual's ability to match their attitudes with their actual behaviours. Related work in social psychology, sociology, anthropology and in the degrowth literature assumes that at the individual level, larger but intangible social pressures related to cultural factors embedded in the economy that have to do with materialism and novelty are significant factors that contribute to the disconnection between our pro-environmental values and our actual behaviour (Moser & Dilling, 2007; Douglas & Widavsky, 1982; Jackson, 2009; Throsby, 2001). Moser's (2006) work in the realm

of social impacts on personal attitudes and values also alludes to the importance of occupation when she discusses gaps created between various roles individuals must meet, e.g., of a parent, income earner, employee, versus how one is able to act on their pro-environmental concerns and values.

Many non-economically oriented attempts have been made to target various pro-environmental behaviours using a variety of approaches aimed at individuals and groups; they include education, taxation (deterrents), price incentives, social marketing, and social competition. In general, these approaches have not facilitated significant levels of behaviour change. More recently, psychologists and sociologists have begun to look beyond internal mechanisms such as knowledge, attitudes, self-efficacy, perceived control, habit and effort to understand a wider range of factors that affect people's attitudes regarding the environment and restrain behaviour change. A consensus has developed that taking the individual approach cannot adequately incorporate external socioeconomic forces in a comprehensive systemic fashion and that there is a need to acknowledge the manner in which the balance of behaviour in society depends on how that society is structured and the behaviours it requires and rewards (Axelrod, 1984 in Jackson, 2017; O'Brien, 2008). As Jackson (2017) points out, if growth is promoted by rewarding consumerism and novelty, these values will prevail over altruistic pro-social values in shaping our identities, values, goals and behaviours.

The need for further exploration into the manner in which culture and social interactions shape and mold important aspects of our identities, values, and life goals with regard to consumption and altruism has produced another body of interesting work. Based on studies of individuals who have intentionally engaged in reducing their consumption, findings coming out of the fields of psychology, sociology, and anthropology are pointing to the power of deeper moral foundations and human values associated with the need for an authentic sense of self and personal meaning as powerful motivators that allow people to be capable of overriding the 'value-behaviour gap.' An overview of this research is presented here. It is divided into two sections, one regarding individuals involved in anti-consumption movements and the other regarding individuals who have strived to simplify their lifestyles due to ethical and environmental concerns. This division allows for a clear distinction to be made regarding their motivations and the primary goals cited for their efforts.

Anti-consumption movements:

Zavestoski (2002) did a content analysis of books on the subject of voluntary simplicity and found a big shift in emphasis during the 90's. Before 1995 spiritual virtues of simplicity were emphasized, but after 1995 there was a dramatic increase in the books with a shift toward appealing to people's feelings of overwhelming stress and a desire to find meaning in their hectic, consumption-driven lives. In interviews he conducted of voluntary simplifiers (2002), individuals reported wanting to build a sense of self-worth outside of material consumption due to feeling a general dissatisfaction with their lives, feeling spiritual emptiness, and thinking that there must be a better way of living. These concerns were reported in spite of the fact that his sample had a great deal of education, higher than normal income, and tended to be in management or in other leadership positions. It appeared that income, status and prestige alone were insufficient for these individuals. Zavestoski noted that according to Maslow's Hierarchy of Needs Model (Maslow, 1970 cited in Zavestoski, 2002) there are three motivational bases of the self: Esteem, efficacy, and authenticity (self-actualization). By authenticity, Maslow referred to the experience of having a sense of meaning, when one's ideal self is congruent with one's actual behaviour. Zavestoski argued that even though consumption could satisfy a need for esteem and efficacy, it could not satisfy the need to become one's best self and therefore could not meet the need for self-actualization or authenticity. Victor Frankl (1959) famously described a similar need to find meaning regardless of one's circumstances, to know one's purpose in life in *Man's Search for Meaning.* The meaning that is derived from living according to one's ideal self is a theme that I return to below.

Degrowth scholars have similarly noted a shift to placing more value on non-materialistic sources of wellbeing particularly since the mid-90's, albeit ignored by the mainstream media (Druckman & Jackson, 2012). Consumption has required people to devote more time and energy to wage earning to support consumerism in order to meet perceived and real economic demands resulting in a stressful and time-consuming process. People have started to see the high cost of consumerism to their mental and physical health and to their overall wellbeing (Jackson, 2011). In fact, in 2003, 25% of people in the UK between the ages of 30-59 had voluntarily moved in a non-material direction in their lifestyles and had accepted

on average a 40% reduction in their income as part of that transition. In Australia, 83% felt that Australians were too materialistic and 23% reported having downshifted in the prior five years. Very similar numbers have been seen in the U.S. and in Europe in terms of the numbers of people that report they have taken comparable steps in their lives, with fairly equal numbers of people coming from skilled manual workers as from management and professional occupations (Druckman & Jackson, 2012).

Anti-consumption has been at the heart of the downshifting movement, simplicity movement, movements related to co-housing, sustainable neighborhoods, eco-villages, transition networks, zero-carbon villages, and recently, the tiny house movement. For the downshifting and simplicity movements which became popular by the mid-90's the original goals were to improve quality of life by cutting back hours of work, changing careers, living less expensively, or stopping paid work altogether (Schor, 1998). Their objectives included a range of needs that included wanting to spend more time with their families, live a healthier lifestyle, experience less stress, and free up time for other interests by consuming less and living less materialistically. Indeed, after downshifting they were able to spend more time caring for their families, volunteering, studying, exploring other interests, moving at a slower pace, and feeling more relaxed (Gibson-Graham et al., 2013; Schor, 1998).

Unsurprisingly, there have been challenges to adopting values in opposition to consumerism that are reflected in qualitative studies of people who work less in order to prioritize pace of life and pursue other valued activities. On average, people find their new lifestyles more rewarding; however, even for highly aware groups, the most difficult aspect of their frugal lifestyles are related to socioeconomic barriers having to do with consumption of material goods. These barriers are described as fear of social stigma, feeling pressure to conform to existing social norms and practices, either for themselves, their children, or their family members in order to fit in and be accepted.

Several studies have provided examples of social junctures at which individuals can feel pressure to conform (Insenhour, 2010; Scheurs et al., 2013). In each example, this pressure has caused individuals to believe they need to consume goods in a certain manner in order to be well thought of, valued and included, and avoid being marginalized by the group. One woman described her concerns for her daughter fitting in and feeling pressure to provide

certain clothing items for that purpose. A young man described receiving verbal criticism from his peers for not having a cell phone and being difficult to contact. These two individuals provide fuller examples of the manner in which material goods can become symbolic markers of identity that can be difficult thresholds to overcome, especially in terms of how they signal belonging, mutual understanding, and shared social norms (Isenhour, 2010). Individuals in Isenhour's Swedish study reported confronting pressure to consume in order to live like others and to keep up with the latest trends. Although detailed content of these interactions was not provided, the psychosocial impacts they reported included being afraid that others would not understand them, would consider them self-righteous missionaries, judge them as poorly educated, unsuccessful, or simply think they had poor taste. Dutch downshifters in a study by Schreurs et al. (2013) reported twice as many positive experiences related to downshifting than negative and reported a significant increase in their level of life satisfaction and sense of wellbeing compared to others. Nevertheless, their most negative experiences were related to incomprehension and/or criticism and negative judgments expressed by others in their social environment. Detailed content regarding these social interactions and their psychosocial impacts were not provided.

Ethical and environmentally concerned simplifiers:

Shaw and Newholm (2002) studied a group of "ethical simplifiers" who reduced consumption for altruistic reasons driven by ethical concerns about animal welfare, unfair food distribution, or the environment. Participants in their study worried that if they took their consumption cutbacks further it would significantly affect their family relationships or friendships. These individuals reported that the bulk of their friends would not understand, and up to that point had not understood their ethical concerns. They reported that this lack of understanding created social barriers and caused them to avoid these topics with their friends. Many expressed concerns about feeling forced to make money, consume in certain ways, or face being punished if they did not want to do similar things related to consumption, illustrating a range in negative psychosocial impacts. The content of these social interactions, or information about whether actual behaviours had been affected, was not included.

In *Living in Denial: Climate Change, Emotions and Everyday Life,* Norgaard (2011) has provided a more detailed discussion of how the content of conversation is socially controlled

such that concerns about climate change are avoided in common everyday social interactions. She makes a convincing argument that such avoidance is related to a wish to 'live a normal life' pointing out that this general avoidance is also a means of preserving social privilege in wealthier nations. Rowe (2016) connects avoidance, as in the above wish to live a 'normal life', with fear of death and insignificance. He notes in particular the manner in which capitalism embodies a drive for 'more' likely as a means in western cultures to mitigate [deny] our anxieties about death, weakness, impotence and loss.

Another examination of the lifestyles of people attempting to live more sustainably (like the ethical simplifiers above) was done in the South East of England. Evans and Abrahamse (2009) found that their participants focused mainly on reducing energy use at home, eating local organic foods and transportation by avoiding air travel. Themes emerged regarding participants having had an earlier interest in frugality, reporting that they felt a personal responsibility to try to make a difference, and that they had longer-standing ethical concerns about human and animal rights prior to their worries about damage to the environment. For these people compared to other groups, sustainable practices appear to have fit better with their earlier social interests and activities related to healthy living, social justice and frugality such that within their pre-existing social networks inhibiting social interactions were not reported. However, they did report difficulties around having to forego things they saw others allowing themselves and at times giving in to consuming certain types of commodities such as clothes, gadgets, etc. (Evans & Abrahamse, 2009). They found it difficult when they gave in to consuming in a manner that fell below their personal anti-consumption standards. An even larger area of internal conflict for these individuals arose around the idea of "forfeiting air travel" due to either a belief that it seemed important to maintain cultural exchanges, or that it was necessary in order to stay in touch with family. An interesting pattern reported was the manner in which over time one practice led to another, such that people came to see their process of behaviour change as a "lifetime project." Isenhour (2010) found the same pattern among the individuals she studied and noted that making pro-environmental behavioural change is a gradual iterative and cumulative process.

Howell (2013) studied individuals who focused heavily on adopting low-carbon emission lifestyles to understand what values and motivations related to their actions. Her

interviewees reported concerns of a social justice origin that led them to feel they had a responsibility to make environmental changes. Most of them had frugal practices that pre-dated their climate change concerns. They did not experience frugality as difficult or sacrificial in nature. They were more often concerned about people and fair share issues with regard to the disproportionate negative impacts on southern regions due to northern lifestyles than the environment per say. They believed that consumerism did not lead to happiness and that it was harmful to people directly and indirectly in the way it created environmental problems.

Her participants reported a sense of community and connection to others and felt responsible toward others to be helpful. They also reported feeling that they gained something psychologically by doing what they believed in. Intrinsic rewards provided by engaging in altruistic actions were reflected in their reports of having gained a sense of personal wellbeing when they did something they believed in. In fact, it was an overarching desire of her interviewees to 'live the way it feels right,' to have personal integrity, which to them meant being able to behave according to their values, and to do so whether they believed that their actions would lead to the change they wanted to see. The contentment her participants reported when living according to their values is consistent with Zavestoski's contention that there is a need for self-actualization that cannot be met by consumption. Howell labeled this kind of motivation as 'virtue ethics.' Her conclusion was that environmental concerns per se were not what motivated the climate mitigation actions of these individuals, but that humanitarian concerns related to ecological problems drove the 'virtue ethics' that led to their commitment to make behavioural changes. Howell's conclusion suggests that there is an important role for empathy, moral motivation, and emotion in the decision-making process that motivated her participants to act.

Howell (2013) reviewed other studies that showed very similar findings in terms of the value of frugality, pre-dating climate concerns (Hards, 2011; Fujii, 2006 cited in Howell, 2013), the desire for integrity (Chawla, 1999; cited in Howell), and living up to personal identity values being an important source of motivation for pro-environmental behaviour change (Wolf et al., 2009). Miller and Bentley (2012) found a similar emphasis on moral responsibility, both to act, and to provide leadership to the wider community in their interviews of eco-village and suburban residents in South-East Queensland, Australia. The eco-village participants in their

study reported that sustainability was their calling and, 'like a religion', propelled by a sense of moral responsibility. These individuals identified barriers related to cost and the complicated nature of installation and operation of renewable technologies, but also reported that the worst barriers were related to 'societal values' and narrow thinking. The content of negative social interactions related to the latter, their impacts, and how participants coped with those interactions were not examined in their study.

To date, research regarding individuals who have undertaken lifestyle changes to mitigate global warming or ecological issues at the root of inequity and other social problems indicates that they are primarily motivated by a sense of responsibility to others, by a personal responsibility to act to lessen their contribution to negative social and environmental impacts, and by a need to live in alignment with their highest values. For those primarily motivated to simplify their lifestyles due to work-related stress, lack of time, and dissatisfaction with materialism, research indicates that their motivation appears driven by the need for authentic, deeper sources of meaning for personal wellbeing. Whether one is motivated to pursue a deeper quest for meaning or by the need to act according to one's highest values, it appears that the benefits of such endeavors have been strong enough for some individuals to overcome socioeconomic challenges they encounter. This finding is consistent with the social psychologists Susanne Moser and Lisa Dilling (2006). They concluded that when our intrinsic values and our identity, or sense of selves are in alignment, and negative ecological behaviours are contradictory to our identity and how we want to be seen by others, this combination of deeper intrinsic personal goals can provide persistent motivation for engaging in ecologically responsible behaviours.

b. Challenges embedded in cultural meanings associated with occupation, socioeconomic status and social-status identity.

Reviewed above are some of the socioeconomic forces with regard to materialism and novelty that impact individuals who attempt to avoid consumption and live frugally along with internal processes such as 'virtue ethics' that may help people override those barriers. Another related group of socioeconomic barriers for consideration are those that have to do with occupations (or livelihoods) and socioeconomic status (SES) as a result of their cultural meanings and psychosocial functions. The role of SES and identity has only recently been the

focus of social psychologists (Destin et al., 2017). Discussion of occupation or livelihoods is strikingly absent from the degrowth literature, except for brief general descriptions of status conferred through income and meanings attached to consumption and novelty (Jackson, 2011). This neglect is surprising since occupational class is known to predict certain consumption and lifestyle patterns (Power & Mont, 2010) and the ecological impacts of those patterns. Occupation determines income, and income predicts consumption patterns that reflect lifestyle, and these in turn signal one's socioeconomic status. But separate from actual income and consumption patterns are the fundamental ways in which a livelihood and one's SES become core aspects of one's social identity. The domain of occupation-embedded socioeconomic meanings may constitute a much deeper foundation for social status, self-esteem, self-efficacy and self-identity than the symbolic meanings of consumption patterns. Consumption unrelated to status involves everyone to some extent, but status-related consumption involves those with the highest negative impacts with regard to energy use, transportation patterns and food consumption (Power & Mont, 2010). Our self-identity is more likely to be impacted heavily by transitioning into a low-carbon livelihood than by adopting highly frugal lifestyles. In fact, unless one's reduction in consumption is radical enough to be visible to others, no social stigma or change in social status at all may result from frugality or downshifting efforts limited to one's lifestyle.

Many people choose to change their lifestyle by consuming less, being more frugal, lowering emissions, energy use, etc., albeit not enough people and not significantly enough, but we know very little about the experience of those that make livelihood shifts out of humanitarian or environmental concerns. The young man noted above in Isenhour's Swedish sample reported concerns related to SES when he voiced fears of being seen as poorly educated, unsuccessful, or having poor taste based on his frugal lifestyle. With regard to lifestyle consumption reductions Cherrier et al. (2012) used the analogy of a 'glass floor' to describe a social threshold, a minimum of socially required greenhouse gas emissions below which one risks social exclusion and marginalization. In the case of transitioning to a low-carbon livelihood, one is likely to risk loss of social status, loss of access to one's previous social network, and one's status within it. Inevitably, one may have to reconfigure all aspects of their identity that have been based on socioeconomic status (Destin et al., 2017).

Livelihoods are visible, they are what we tell others we do "for a living" and they are among the first things people want to know about us in Western societies (Gibson-Graham, 2013). What barriers do people encounter by shifting to a low-carbon livelihood that relate to socioeconomic status? Choosing this type of occupation may present much greater socioeconomic challenges than lifestyle changes alone. Periods of low self-concept clarity, when people's self-views are conflicting, poorly defined or susceptible to change are known to be uncomfortable, disconcerting and even to create stress that can interfere with the pursuit of goals. Status-based identity (SES-based) when unclear is similar to having a lack of clarity about one's self-concept in the way it can disrupt affect and cognition. It is also presumed to cause people to be less able to pursue a path or objective with conviction (Destin et al., 2017).

Another potential barrier to transitioning into a low-carbon livelihood is described by sociologists who write of how a job choice might lead to a role conflict. Moser and Dilling (2006) describe situations in which ecological values lead to role conflicts, e.g., when family income needs would not be met if one made a fundamentally transformative shift to a low-carbon livelihood due to the demands of raising children and providing housing that may require a certain income level to meet those requirements. A role conflict of this nature would constrain occupational choices to remain among those that reinforce the economic system versus rest outside of it. Similarly, friends might consider one's job plans unrealistic or impractical; parents might voice the concern that one needs a traditional career for job security or retirement benefits. According to Identity Process Theory, comments of this nature can constitute identity threats and create fear of loss and belonging (Breakwell, 1986; Moser & Dilling, 2006).

To make a shift into a low-carbon livelihood in many cases requires a fundamental shift in one's identity, a shift in assumptions about reliance on money for wealth, status, efficacy and self-esteem, and for other sources of security. An occupational transformation requires locating and identifying with new sources of social status, self-esteem, self-efficacy and new ways of fulfilling a sense of meaning. The 'new person' may seem unacceptable, or less belonging, and may be required to make significant changes in their social network. In the field of addiction, failing to form new social networks is considered a large barrier to abstinence for many people (DiClemente, 2003). One can readily see that any one of the

marked changes in one's livelihood -- whether eliciting social network critiques of livelihood choice, changing one's socioeconomic status, creating role conflicts, or resulting in the need to form a new social network – any one of these factors could pose a significant barrier.

c. Gap in the degrowth literature regarding individuals who voluntarily choose a low-carbon livelihood.

Social psychologists have shown that the structure of identity and the nature of threats to identity are determined by the larger social context, dominant social beliefs and cultural expectations that are embedded within a larger set of economic demands and expectations (Breakwell, 1986). In the low-carbon lifestyle studies reviewed above, those who had in place social identities and networks that came out of humanitarian activism before acting on environmental concerns did not complain about the social barriers identified by downshifters and others seeking low-carbon lifestyles. The activists already resided within an understanding social network. The main concerns of the activism group were not about social rejection, but about staying within their own standards for anti-materialism and low-carbon emissions (Howell, 2013). It is likely that the sources of motivation to change are similar between those who downshift and seek to reduce lifestyle carbon emissions, and those who adopt a low-carbon livelihood. However, it may be that for most people the primary challenge of entering a low-carbon livelihood resides in how one's identity and social network must be re-evaluated, redefined, and reconstructed in order to make a lasting transition.

With regard to adoption of a low-carbon livelihood, studies similar to those reviewed above examining the experience of individuals striving for low-carbon lifestyles are missing. The degrowth literature lacks an empirical basis for understanding the psychosocial challenges that are involved in adopting an alternative livelihood (Jackson, 2005 & 2009; Howell, 2013; Power & Mont, 2010; Moser & Dilling, 2010; Gifford & Nilsson, 2014). The lifestyle studies of downshifters, frugalists, and other types of people pursuing low-carbon lifestyles have helpfully described motivators such as value ethics, personal norms, having more free time and identified the significance of social barriers related to patterns of consumption. However, no reports are offered regarding the nature of how those interactions unfold and are played out on a day-to-day basis, or of what coping strategies have been used to overcome them. Making socioeconomic barriers visible is necessary to understand how they can be overcome,

and eventually replaced with new beliefs, norms, values and social identity metrics capable of supporting low-carbon livelihoods. There is an important role to be played by individuals who adopt low-carbon livelihoods by making those occupations visible and viable ecological economic activities. This project focused on filling a gap in the degrowth scholarship by providing an empirical exploration of barriers experienced by those who had adopted a low-carbon livelihood at the individual level, delineating how those barriers played out on a day-to-day basis, the impacts they had on individuals, and how those impacts were overcome.

Chapter Three FINDINGS:

This project was designed to identify those barriers that were experienced by individuals who had succeeded in adopting a low-carbon livelihood/occupation. The focus of this project was on answering the following questions:

1) What are the barriers at the individual level that create the greatest challenges for adopting a low-carbon livelihood?

   It was anticipated that similar to findings regarding individuals in the frugal lifestyle and anti-consumption movement literatures, those with low-carbon livelihoods that fell furthest away from mainstream occupations were likely to report the greatest amount of social challenges.

2) *How are these barriers experienced at the individual level?*

   It was expected that these individuals would have experienced some form of socioeconomic pressure to conform with mainstream occupational norms from family, friends, and others within their social networks in a manner similar to individuals discussed in the frugal lifestyle and anti-consumption movement literatures.

3) What internal strategies and external sources of support were used to overcome challenges?

   Based on prior work regarding individuals with frugal lifestyles, it was anticipated that a sense of moral obligation to act would be a primary internal motivator for these individuals.

In previous qualitative studies of those with low-carbon lifestyles, study participants made changes in their lifestyle intentionally in an attempt to reduce fossil fuel use as much as possible (Howell, 2012). They lowered lifestyle emissions either by adopting new technologies and/or changing their behaviour with regard to transportation, air travel, food and other consumption choices. In this study, the lifestyle definition has been broadened beyond taking similar lifestyle measures, to include adoption of a low-carbon livelihood. The desire to reduce one's carbon footprint led participants in this study to pursue intentionally a livelihood that allowed them to avoid use of fossil fuels, in addition to striving to have a lifestyle that minimized negative ecological impacts. Furthermore, in the case of each individual, a low-carbon livelihood was chosen that would provide direct pro-social benefit. The majority of participants had low-carbon livelihoods that operated with the primary goal of improving community wellbeing and resilience, were non-growth-based (with one exception), relied on

local sources for production of goods and services (three exceptions), and were able to provide adequately for the individual's basic needs, but not necessarily through generation of an income or regular salary.

These efforts do not necessarily imply that a lower-than-average carbon footprint was obtained. However, based on prior studies, those who make a concerted effort to reduce lifestyle-based carbon emissions have been able to do so on average by 36% (Howell, 2009; Latouche, 2005). Therefore, a focus on both one's occupation and lifestyle emissions would likely result in significantly greater emission reductions.

Below is an overview of the findings to help orient the reader, followed by a description of the participants in this study – one that reviews their demographics and offers a general overview of their various low-carbon occupations. The introduction is followed with a comparison of motivations and characteristics shared by those pursuing low-carbon lifestyles and those interviewed here who have also adopted a low-carbon livelihood. Differences that emerged from the low-carbon livelihood participant interviews are then provided with an emphasis on socioeconomic barriers and enablers embedded in the current North American economy associated with one's choice of occupation. In addition, details are provided of how social barriers were encountered and experienced by participants. The four-quadrant model introduced earlier is used to illustrate interactions between various levels of the individual, the culture and society's institutional structures that combined to both inhibit, but importantly also enabled participants to choose a low-carbon livelihood and lifestyle.

3.1 Summary of findings.

To orient the reader to what follows, an overview of the main findings from this study follows regarding: 1) barriers to adopting a fundamentally ecological livelihoods, 2) how individuals experience those barriers , and 3) how they overcome those barriers.

1) What were the barriers at the individual level that create the greatest challenges for adopting a low-carbon livelihood?

> As anticipated, findings were similar to individuals in the frugal lifestyle and anti-consumption movement literatures. The most difficult challenges were socioeconomic in nature, and those with low-carbon livelihoods that fell furthest away from mainstream occupations reported the greatest amount of social challenges either internally (questioning self-worth or value of accomplishments), externally (dealing with social disapproval or

questioning), or both, and feeling less able to relate to those without similar values and priorities.

2) How did individuals experience these barriers?

Similar to individuals discussed in the frugal lifestyle and anti-consumption movement literatures, the low-carbon livelihood individuals experienced various forms of socioeconomic pressure from family and friends within their social networks. In addition, those who left mainstream occupations to pursue a low-carbon occupation experienced socioeconomic pressure from prior colleagues rooted in cultural economic beliefs about future security afforded by having retirement income and a stable position (within the government sector). This pressure or backlash came primarily in the form of overt verbal criticisms; overt questioning of decision making regarding occupational choices or sarcasm; and micro-aggressions intended to marginalize their livelihood goals, values and concerns. Some individuals were demeaned on a personal or group level, made to feel their values were out of sync, or a reflection of having a psychological problem. In particular, these latter interactions were intended to threaten the individual's social status identity or experiential reality, by implying they no longer belonged to their social group, apparently in hopes of relegating them to inferior socioeconomic status as a means of self-justification and self-identity protection.

3) What external sources of support and internal strategies were used to overcome challenges?

***External sources of support**:*

1. *Those related to social validation and recognition* - There was evidence that as an individual's actions accumulated a new social status identity emerged for them that led to the evolution of new social networks with overlapping values. Social networks provided reinforcement for their values and behaviours. With this type of external reinforcement, self-appraisal metrics went through a transition that reflected a revised social status identity independent of socioeconomic status, income and material goods. For those whose accomplishments had accumulated over time, social recognition provided by the larger community in recognition of their positive contributions further strengthened social status identity.

2. *Those related to emotional support* - Regarding maintenance of motivation, an important theme arose regarding the importance these individuals placed on having the opportunity to express, share with, and be supported by others in regard to their fears and deep grief regarding the ongoing harm occurring to others and to nature.

3. *Those related to education and hands-on experiences* – A theme emerged regarding the importance of prior educational exposure to ecological and social problems along with potential solutions. In addition, the opportunity to have hands-on experience with sustainable livelihoods provided a unique opportunity to visualize the viability of similar alternatives for oneself.

***Internal strategies**:*

1. Those related to personal attitudes: An enhanced level of awareness of dependency on nature and a deeper spiritual level of connection to nature were common motivational themes, along with a sense of being grateful for the opportunity to realign their values and priorities in life, and for having been privileged to acquire their awareness of environmental problems and potential solutions.

2. Those related to moral concerns at the core of self-identity: Like those described in the literature on moral exemplars, the participants with low-carbon livelihoods had moral concerns at the core of their self-identity. They shared an aggregate of attributes consistent with moral exemplarity. Participants fit the description of moral exemplars in their high level of integrity, their self-esteem and a self-identity strongly linked to a sense of ethical obligation to act in a personally responsible manner in all aspects of their lives which led them to be engaged in a wide variety of pro-social activities.

3.2 Demographics, occupational history and current livelihood.

a. Demographics, education, and occupational history.

Table 1.

Characteristics of interviewees	No.
Gender	
Female	7
Male	8
Age	
18-34	6
35-54	6
55+	3
Household composition	
Sole occupant	5
Couple living without children	3
Family including children/ extended family	2/2
Sharing with unrelated adults	3
Location	
Salt Spring Island, B.C.	6
Victoria, B.C.	8
Sooke, B.C.	1

This study interviewed fifteen Caucasian individuals from within the North American mainstream culture who came from a middle- to upper-middle class background and had successfully adopted low-carbon livelihoods within the last 3 or more years. The aim was not to produce generalizable results but to explore each individual's views and experiences. What follows is a description of the interview participants' demographics, their low-carbon livelihoods, and the ecological features shared by their livelihoods. Eight of the participants were drawn from Victoria, six from Salt Spring Island, and one from Sooke, British Columbia. There was a diverse range of age, gender, household composition, home ownership, education, occupational backgrounds, and prior income among participants. Seven were female and eight male. Two thirds (eleven) of participants had completed four-year college degrees. These degrees were in biology, business, psychology, political science/international political economy, Canadian studies, art and environmental studies. Two of the ten had graduate degrees, one in zoology and one in marine science. One person was in a master's degree program related to health and food security while working for a non-profit

part-time. Past work histories included owning a financial management firm, working as an artist/photographer, plumber, masseuse, graphic designer, and in computer programing. Two participants previously worked within Canadian governmental agencies and had experience working in non-profit agencies. Another participant had previously co-founded a bicycle repair cooperative after obtaining a certificate in green building and renewable energy technologies.

b. Participant livelihoods and their low-carbon features.

Seven participants were involved in agriculture directly or indirectly, in either a rural or an urban setting. Three of these seven participants were involved part- or full-time on a homestead whose activities rested on permaculture design principles. These homestead sites were designed to function as self-reliantly as possible, in that most water and energy were collected on site, food primarily grown or raised onsite, and all waste, including human waste, was recycled organically on the property. In two of these cases, income was supplemented with part-time work in town, sale of crops at a farm stand, sale of food-bearing perennials and trees, and by a variety of other part-time paid services. One participant co-authored a book on composting toilets and also worked as a member of the local municipal council. Her husband consulted for others on technical matters related to renewable energy, solar/biogas home and hot water heating, as well as on-site human waste processing and its use for soil enrichment. Two participants in Victoria worked in non-profit organizations involved in promoting urban food production and creating greater availability and access to healthy food within the community. Another participant grew organic produce on downtown building rooftops that was then delivered to local restaurants on foot or by bicycle. Finally, within the agriculturally focused participants, another individual operated a nature/farm preschool in which children learned basic organic gardening principles that they applied in their own

Table 2.

Education & Job History	No.
Post-secondary Education	
Trade certification	4
Professional certification	1
Permaculture Design Certificate	4
Four year college degree	10
Post-graduate degree	1
Job History	
Mainstream Trade Work	2
Non-Profit sector	3
Government sector	2
Self-Employed/Business Owner	2
Student and/or other	6
Current Occupation	
Urban Agriculture/Permaculture	4
Service Provision	4
Education/Community building	5
Activism & Education	1
Activism & Service Provision	1
Average Age by Job Category	
Urban Agriculture/Permaculture	33
Service & Education	51

garden plots at the preschool. The school provided lunch primarily using food that was grown, prepared on site and eaten in season.

Low wages were not raised as a common theme by these participants, except in terms of a decreased sense of successfulness that one individual (who had previously earned a higher income) encountered when monetary resources were not available for dental care needs. The lack of mention of income (or wage) is notable given that several in this group earned very little outside income. Frugality seemed to offer a buffer for these individuals in terms of reducing the need for a monetary resource, along with having strong community ties.

All of the participants working outside of an agriculture orientation had created livelihoods that allowed them to commute almost entirely by bicycle. In Victoria, bicycling was supplemented with public transportation, or by sporadic hourly, or by-day rental of a car when necessary. Everyone's work clearly focussed on providing a needed service in their community or region, with as light a carbon footprint as possible. The occupations of the urban participants varied widely from providing plumbing services by bicycle, working as a masseuse out of one's home, recycling bicycles through restoration and sales, writing on climate change and culturally related social problems as an investigative journalist, to making custom fittings to adapt wheelchairs to their owner's needs. Other activities involved repairing and recycling sewing machines, increasing awareness of anti-consumption strategies and local food production through 'locavore' promotional art work, making bread and yogurt for nearby customers, conducting marine science in a university setting, and working as a political activist (with a peace and non-violent communication emphasis). One individual in this group acknowledged at times envying others with higher incomes and feeling frustrated about not having enough income to own property and allow for retrofitting property to be more sustainable.

When participants were asked how their livelihoods were low-carbon, the non-agricultural group focussed mainly on their mode of working (and living). This focus included the following: Working from home to avoid driving, avoiding air travel for work and pleasure, using public transportation, and bicycling. They also described other lifestyle behaviours as part of their efforts. The majority avoided meat consumption, were vegetarian or vegan. Several of those working in urban settings reduced their consumption of market goods by

growing some of their own food at home, making bread and yogurt with local organic ingredients, keeping chickens for eggs, gleaning local fruit trees, collecting edible 'wild' plants, nearby berries, nettle bushes, or by "dumpster diving" for discarded food behind local markets to limit food wastage. Participants purchased used clothing and equipment, bought in bulk to avoid packaging, restricted food purchases to food produced within 35 km, used a clothes line instead of a dryer, repaired their own bicycles, avoided single-use or disposable items at work and at home, up-cycled discarded home furnishings, and when they did purchase new, attempted to purchase long-lasting products. Everyone included these efforts both in how they worked and in their personal lives with the intent of lowering their overall ecological footprint by minimizing indirect carbon emissions and other pollutants, resource extraction, and negative social externalities associated with production and transport of food and other commodities.

In summary, eleven of the participants had chosen livelihoods that directly focused on activities, or promotion of activities, intended to impact sustainability. The remainder adopted livelihoods that contributed directly to the wellbeing of the community or bioregion, in addition to allowing them to do so in a manner that limited carbon emissions and lightened their overall ecological footprint. Another interesting finding was how many individuals were providing some form of education as part of their livelihood. Eight participants had work that included an educational component, either formally by providing workshops and guided tours, or informally, through conversation, or distribution of written materials and artwork. In a variety of ways, the majority actively shared their knowledge and values with others. Moreover, four participants had received significant social recognition for their accomplishments and expertise, their educational efforts, and for having initiated local political policy innovations. All of the study's participants had a reputation in the community for their frugality, for bicycling, and/or for their green livelihood efforts.

Examination of the prominent themes that emerged from this study indicates that many similarities in motivational factors link those who pursue low-carbon lifestyles and low-carbon livelihoods, with a few noticeable differences that might help explain why they were driven to also align their occupations with their ecological concerns. Those similarities and differences in terms of benefits and challenges are discussed below, followed by a more in-

depth examination of the unique socioeconomic challenges experienced by participants in this study as a result of their efforts to create a low-carbon livelihood.

3.3 Integration of lifestyle literature and livelihood findings.

Many of the efforts reported by participants in this study are consistent with the findings of Cherrier et al. (2012) and others who found that those with the aim of reducing carbon emissions in their lifestyle activities emphasized avoiding the use of cars, air travel, reducing home heating and hot water use, in addition to avoiding meat consumption. In interviews Lorenzen (2012) conducted of people defined as having a green lifestyles, the focus was similar, although with more emphasis on simplicity and frugality. Her interviewees were more likely to be growing their own food, collecting rainwater, reusing grey water, buying used clothing and making use of discarded furnishings when needed. Lorenzen (2012) pointed out that many of these practices were cumulative: one change led to another over time.

Cherrier's study participants reported similar lifestyle behaviour changes. However, they also reported periods of great tension that occurred when an accumulation of 'green practices' required them to make a social transition, to redefine their self-identity, their social network, social class or social status identity. This requirement to undergo a personal transformation process with regard to socioeconomic status will be discussed further below. Cherrier and her colleagues concluded that the social pressure challenges of maintaining a low impact lifestyle were more difficult than actual behavioural change, with social acceptance by close relatives and friends being the most challenging. Pressure from close relatives and friends sometimes forced people to give up in order to live in peace and not be made to feel the villain who is not happy when everyone is supposed to be happy. The worst tensions for these individuals pursuing low-carbon lifestyles revolved around pressure to drive, to fly, and to give up vegetarianism.

<u>Differences</u>:

One obvious difference between participants in this study and those pursuing lifestyle carbon reductions is that those who purposely create or enter low-carbon ways of making a living have done so as an attempt to align all aspects of their lives around their core values with the primary goal of reducing carbon emissions. The adoption of a low-carbon livelihood

offered the majority of participants the ability to provide a beneficial service or product to the local community in a more devoted and sustained manner than might be possible with voluntary activities limited to lifestyle parameters. Furthermore, the increased reduction in one's carbon and ecological footprints from a shift in livelihood should significantly improve on the estimated 38% achieved through lifestyle reduction efforts (Howell, 2012).

Participants in this study were similar to downshifters in mentioning the benefit of having free time (Scheurs, Martens & Kok, 2013).

> *" If you look at the gross income I make, I choose to make around $25,000 a year. For a lot of people, that's poverty, but I do just fine, I don't want for more money. I'm living the life, I have all the things that I need, and I choose to work four days a week."*

> *"There's also a selfish aspect to my lifestyle, because I rather like having to do only eight hours of work a week. That's all I have to do. I do two hours a day, four days a week. So personal balance between you know time off and unscheduled time, physical energy, I've never really needed to work that much."*

In spite of the fact that many participants in this study reported accepting lower incomes provided by their work, they also reported a strong sense of contentment and wellbeing that they attributed to being able to live and work in alignment with their values. Research on happiness and income has shown that beyond a certain low level of income, there is only a small benefit to wellbeing (Dietz & O'Neill, 2013). The level of wellbeing participants reported is consistent with prior research regarding low-carbon lifestyle efforts and other forms of altruism that indicate significant wellbeing benefits in the form of contentment, sense of purpose and meaning. These wellbeing benefits were coupled with an increased sense of security and belonging from the deeper connection to community that arises when one is able to align one's values with one's actions on a local day-to-day basis (Dietz & O'Neill, 2013; Jackson, 2009).

High levels of contentment are also consistent with Baumeister et al.'s work (2007) on the role of emotions in shaping behaviour. This work suggests that positive moral emotions (such as pride) act to reinforce one's behaviour and are associated with the experience of contentment. Other scholars have related the benefits of wellbeing and contentment to feelings of attachment and the rewarding effects of the "warm-glow" associated with pro-environmental activities and living in alignment with one's values (Antonetti & Maklan, 2014;

Dobernig & Stagl, 2015; Hartmann et al., 2017). In fact, this intrinsic pleasure, or 'warm-glow', from altruistic behaviours has been linked to improved physical and mental health and is associated with the release of neurotransmitters associated with feeling good (van der Linden, 2015).

Livelihood participants often reported a purposeful focus on their relationship to nature. They mentioned an awareness of a spiritual level of connection to nature and an outlook of gratitude that this sense of connection helped them maintain.

> "*Three things Jon Young[11] found that were absolutely essential; a deep connection to nature, a deep connection to self… Gratitude is the big one, just having gratitude for all the things that we have in this life."*

Another prominent theme that emerged was a sense of security for interviewees derived from feelings of attachment to their communities. Attachment to community was greatly enhanced when participants had experienced the opportunity to share their grief and fears about the future.

> *"I trust that I'll have community around me and close enough friends that will support me in times of need, that things will be okay should I get sick, that I'll have support from my community family."*

> *"I had a hip replacement last year and I was really well looked after. It was amazing. Other people on the block, four others on this block, and others like that just tightened that web around me. One member of this group just died a couple weeks ago and …we had a potluck and said his praises. We were there for his wife and so it's community, it's a sense of community that gives me the security that maybe others look to from having more money so that they can buy these kinds of services."*

A theme that appeared to be unique to participants in this study was their common reference to feeling grateful. They were grateful that they had understood earlier in life that there is more to life than working hard for money; that they had adopted their lifestyle early enough in life to have avoided some of the stressors related to debt that others their age were

[11] Young completed a bachelor's degree in Environmental Science from Cook College Rutgers University. He focused on natural history and anthropology and how native cultures provide their children with an understanding of the natural world. In 1983, after this study, he received indigenous mentoring as a tracker, naturalist and cultural specialist from African Akamba elder M. Norman Powell (Ingwe). Young has since developed a nature-based intergenerational mentoring model to support community efforts to increase harmony with the natural world (8shields.org, accessed 12-16-18).

experiencing; and that they had been in a position that allowed them to be able to consider deeper ecological issues, gain knowledge about mitigation strategies, and develop a viable alternative livelihood for themselves:

> *"I'm privileged to be able to have these be my problems of worrying about the state of the world in the future, whereas there's so many people who are just trying to get by on a day-to-day basis… others may have crazy issues going on in their life, they're not even thinking about this thing. Unfortunately, being environmental and ecologically conscious is kind of a privileged thing, it's only a few who are able to think about it, the way the culture is and so forth."*

> *"There's more to life than working hard, that's not the way to happiness, and so I guess I'm grateful that I was able to make those realizations early on, and can check in more with the values of life and, you know, recognizing what feels right, good for me, and where I feel connection the most. That is worth way more than money and stuff."*

> *"…in terms of the lifestyle choices I've made, quite often I look back and think, wow, I'm so glad it is this way for me. I see other people who are in debt and it wasn't really an option for me. It's not my lifestyle, it's not something I'd be comfortable with and I'm very grateful for the freedom that my lifestyle affords me. It also gives me freedom to think the way I do."*

Given that those in this study with low-carbon livelihoods reported additional advantages to their livelihood transition, it is possible once accomplished, transitioning to a low-carbon livelihood may offer a larger psychological advantage for mental and physical health, wellbeing, and resiliency over and above the benefits reported by those pursuing low-carbon lifestyles. Those advantages included having a deeper level of attachment to community that provided them with a sense of security, having feelings of contentment, feelings of being privileged to have what was required to pursue their values, and being grateful for freedom offered by their livelihoods.

<u>Similarities</u>:

Similar comparisons can be made between those who have focused on lifestyle and livelihood carbon emission reductions in terms of routes to engagement and motivating factors (e.g., beliefs, norms, altruistic characteristics, guilt, values, ethics, and biocentric values). Many of the pre-existing experiences, interests and personality characteristics of participants in this study were strongly consistent with studies of those pursuing low-carbon

lifestyles (Howell, 2012; see also her review of Chawla, 1999 and Wolf, 2011). Those interviewed here reported similar meaningful early experiences in nature and/or observations of damage to nature, prior interests in social justice concerns, and/or having had a pre-existing preference for frugal practices. The two groups appear to share an overriding value in frugality and aversion to waste, either derived from one's family of origin experiences or based on personality. Several livelihood participants reported having an interest in recycling from an early age after being exposed to the process in primary school. The biospheric values of fitting into nature without being harmful and being aware of one's connection to the natural world were often mentioned as very important in this study. A majority of participants discussed their objection to the social disconnection fostered by western lifestyle habits and did not agree with mainstream beliefs about having opportunities for promotion, a pension and increased income levels made one more happy or secure or justified the damaging effects of natural resource extraction. Without exception, participants reported being acutely aware of their dependency and that of the human species on having a reciprocal relationship with a healthy and thriving natural world.

> *"…What we are sitting with now is a total dissociated disconnection in societies that don't understand what they are doing to themselves. Because we are Earth, you know, we are water. It's not even an esoteric idea, we actually eat stuff that comes out of the ground that grows from the sun and rain, we don't eat or drink money."*

Participants in this study agreed with others in the lifestyle literature that contended materialism promotes a false sense of security:

> *"I don't believe in security really, I mean I think we have a semblance of security in how we live, but it's pretty thin. Like in an earthquake, in that scenario, or a nuclear bomb, we're really close to Washington State's nuclear facilities, so you know, I think we're always on the head of a pin or something, a super fragile situation. We are vulnerable and I don't think that gets a lot of press. So I think consumerism wants to shield us…we're definitely told that income is a source of security, having stuff and durable goods, and then owning a home will make us less vulnerable."*

Interview themes reflected a shared belief that nothing can justify damaging nature in order to foster materialism, or promote excessive consumption for a false sense of security. In fact, these concerns about the damaging aspects of consumerism, our materialistic lifestyles, and disconnection from nature led the majority of the participants in this study to re-orient their view of themselves consciously in relationship to nature (as mentioned above).

Understanding the critical need for self-restraint was another major theme that emerged from their shared minimalist habits and frugality, although rarely described as a Burdensome:

> *"I was thinking simultaneously about the cost of things, the ecological costs, the human costs, social costs, and how everything you buy is loaded with all of these things. Nothing can be thought about separately anymore. The externalities really started to hit home with me."*
>
> "*Very early, I had a mantra, that anything that we consume new comes from the Earth, the earth (Gaia) takes a toll."*
>
> *"It feels right for me to live and work in this way that's respecting and in reverence to the magic that is mature in the environment. It just feels like what is needed."*
>
> *"I think one of the revolutionary actions would be if people stopped doing what they didn't think was valuable. Imagine if everybody, if nobody in the world was willing to do something they didn't think was truly valuable for society. Do we really need another lollipop, or do we need another… Let's do an inventory of all the stuff we already have, how we could make that last, we have so much, we don't need more stuff."*

In terms of altruistic values, similar to the lifestyle literature, personal integrity was paramount for those adopting a low-carbon livelihood. Livelihood interviewees stood out from those focused solely on lifestyle carbon reduction efforts on the basis of needing their life's work, or the manner in which they worked, to foster ecological sustainability based on their personal values and to feel a sense. Almost without exception, each person in this study identified the importance of having their work and lifestyle line up with their highest values in the areas of social justice, ecological stewardship (honouring and restoring nature), and doing meaningful things in their life's work:

> *"There was a point at which I realized that there shouldn't be a distinction between how I make a living and how I live"*
>
> *"I was thinking simultaneously about the cost of things, the ecological costs, the human costs, social costs, and how everything you buy is loaded with all of these things. Nothing can be thought about separately anymore. The externalities really started to hit home with me."*

Bamberg & Moser (2007) concluded on the basis of a meta-analysis they conducted that a central psychosocial motivator for pro-environmental behaviour was the important role of moral emotions like empathetic distress, guilt and shame in forming and activating moral norms. Having an empathetic perspective toward the environment has been found to have a

dramatic effect on behaviour (Schultz, 2002). Correspondingly, Berenguer (2007) found that higher levels of empathy predicted higher motivation and subsequent pro-environmental behaviours. In fact, Carmi, Arnon & Orion (2015) found that knowledge about the environment did not directly affect behaviour and that *the effect of knowledge was fully mediated by 'environmental emotions.'* Other scholars have linked these 'environmental emotions' to distress caused by environmental damage (Kollmuss & Agyeman, 2002). Many participants in this study reported feeling uncomfortable (guilty) and 'unable to live with themselves' if not doing what they could to improve or mitigate interrelated ecological and social problems regardless of whether their actions actually made a significant difference:

> "*…This is the right thing to do, especially as an incredibly rich person in [an over-developed country]. It's beholden on me to do this. How can I sleep at night, in my privileged position if I don't do this? That is what motivates me."*
>
> *"It's basically the main driver of my life, to live as close to my values as I possibly can."*

Fatalism and shifting blame were not options considered by these participants. Like the lifestyle participants in Howell's study and those in similar work by other scholars, people here reported being aware of the connection between global ecological and social problems, including the manner in which northern industrialized economies have been the most significant driver of these problems. Participants in this study reported similar motivation derived out of empathy and guilt and shared a willingness to accept responsibility for their own contribution to those negative effects.

In the social psychology literature, guilt and pro-social behaviour are both closely linked to empathy that is understood to reflect the ability to understand and feel another person's emotions. Guilt prompts a person to reflect on their behaviour, to re-evaluate their actions in light of social and personal norms, and draw conclusions about alternatives. Baumeister (2007) has suggested that the main purpose of guilt is to stimulate cognitive reflection that in turn produces conclusions regarding how to behave. 'Guilt proneness' is characterized by feeling a greater personal responsibility to act (Schaumberg & Flynn, 2012 in Torstveit et al., 2016). In fact, guilt proneness has been shown to predict trustworthiness due to this greater felt sense of personal responsibility to others (Levine, et al., 2018). In this case, that personal sense of responsibility applies equally to distant others impacted by

environmental degradation and to the natural world. It is possible that both individuals seeking low-carbon lifestyles and adopting low-carbon livelihoods may have a predisposition to react in a more ethical manner, either because of experiencing a higher level of empathy, and/or having a lower threshold for experiencing guilt (Cohen et al., 2012 in Torstveit et al., 2016).

Personal integrity is closely related to the ability to accept responsibility for one's contribution to negative ecological outcomes. Personal integrity and the willingness to accept responsibility for contributing to negative outcomes as seen here in the livelihood participants has also been identified in the individuals who pursue low-carbon lifestyles. Integrity is usually understood as being true to one's values, acting in a manner that is in line with those values. It requires being honest with oneself and others on a consistent basis and to be morally accountable. In the area of social psychology, integrity is understood to reflect a strongly held commitment to a moral ideology that has been internalized and become a core part of one's sense of self, or one's moral identity (Schlenker, Miller & Johnson, 2009). Personal integrity, the courage to face the truth about one's own actions and do what is right based on an internal assessment of moral legitimacy, is thought to be a characteristic that is activated by empathy and/or guilt and results in the morally driven, deeper source of motivation that Moser and Dilling (2007) view as critical to enabling longer-term behaviour change.

Another critical aspect of the integrity seen in livelihood participants, as well as in their lifestyle cohort was that their sense of obligation to act remained, even when they believed their efforts probably would not make a significant difference. In those making low-carbon lifestyle efforts, Bulkeley (2000) found that lifestyle actions were seen as worthwhile based on people's internal assessment that those actions had moral legitimacy, despite seeming to lack efficacy. Notably, the individuals who pursue low-carbon efforts in their lifestyles and/or their livelihoods are decidedly set apart from others whom studies consistently find to be less likely to make behavioural changes if they believe their efforts will not be effective (Gifford, Kormos & McIntyre, 2011). Both those pursuing low-carbon livelihoods and low-carbon lifestyles share a characteristic of integrity and a value of personal responsibility that drives a deep-seated psychological need to align their values with their behaviour, "to live and work the way it feels right" in order to feel comfortable with themselves:

> *"Living and working like this is workable and it suits my passions and lifestyle and feels good in my bones to work at a place like this and live within my means. I don't need more than what I make here."*

Despite these many similarities, those who had adopted low-carbon livelihoods differed from the lifestyle groups in the theme of grief as a primary motivator. Grief is understood to be an empathy-derived emotion. The grief they expressed reflected a recurrent theme concerning other negative impacts: a feeling of sadness for damage witnessed to natural systems, for loss of beauty, diversity, loss of certainty about the future for themselves, for their children, and humanity. Joanna Macy (interviewed by Nurriestearns, 1999) refers to this type of grief as 'suffering on behalf of the world' or 'pain for the world', and sees it as a form of compassion and empathy. She importantly pointed out that despair is a complex of strong feelings that includes fear about the future and some combination of guilt and grief over the condition of the world. Out of sharing this grief and mutual support comes a type of strength of courage and deeper connection to others:

> *"If you are not in a grieving process right now, you are not paying attention."*

> "*What is the world gonna be like when my nephew is 20, 30, 40? I've seen in my lifetime ecological damage with the oceans, with the orcas, there are just 76 orcas left. It's horrifying to really get into that. But we need to grieve, we need to grieve what we are losing, because then we will actually feel the impetus to save it as opposed to numbing ourselves to it."*

> *"We had a home group as part of our Transition Town [community sustainability efforts] that was like a personal support group where we could get together and actually talk about our despair. We have kept meeting ever since that time."*

The experience of the participant in the Transition Town support group who reported having established deep and long-lasting connections with others lends support to Macy's contention. Other authors have observed similar affects from sharing despair. Andre (2011) notes that creating social forums specifically for expressing grief, guilt, feelings of hopelessness free people up from the usual restrictive social norms (see Andre, 2011 in Cunsolo & Landman, 2017). She also found that through the act of sharing these emotions, in contrast to isolated mourning, a new source of strength and acceptance could emerge. Consistent with Ashlee Cunsolo's perspective, participants discussed the role that grief had played for them, and continued to play in motivating and sustaining their low-carbon livelihood efforts:

> "*And so I kept going motivated by grief. My grief almost became my happiness, my motivation. No longer debilitated but inspired by the mourning process, I could keep going forward, and do so in a way that respects, remembers and pays homage to it*." - Ashlee Cunsolo (in Cunsolo & Landman, 2017).

Participants in this study referred frequently to the value of past formal and informal educational experiences that included exposure to information about ecological damage and sustainable alternatives in their primary, secondary and post-secondary education. Several individuals had pursued certification classes in permaculture design principles, organic gardening, green building, bicycle repair, and other sustainability related workshops or programs. A majority of the livelihood participants reported they had sought out hands-on opportunities sponsored by non-profit organizations that included building community around food, being involved in local urban and rural agricultural activities, living sustainably while touring by bicycle, and volunteering on organic farms. Participant reports regarding their educational background and other formative hands-on experiences support the importance of providing exposure to alternative livelihoods in order to appreciate their viability and visualize one's self as capable of doing something similar.

> *"And so I came back and realized if I can do this, if I can cycle from Vancouver to Port Hardy and to Victoria, I can go anywhere. If this is what I want to do, I can live car free and just ride my bike. Then I wanted to learn how to fix bikes - So then I took a bike mechanic course and learned how to fix bikes. That's what happened."*

> *"This [non-profit educational] program performed a physical theater piece at lots of schools that encourages young people to feel empowered with the knowledge that they can make sustainable choices in their daily life and make positive change in their communities. So I did a two-month cycling tour from Calgary to Vancouver and it was a pretty formative experience and really empowering."*

Summary:

Overall, those seeking low-carbon lifestyles are similar in many ways to those who have created low-carbon livelihoods. They share similar motivating experiences, values, beliefs, personal norms and integrity, and have in common the characteristics of frugality and distain for waste along with the benefits of free time, connection to community, and contentment or sense of wellbeing. However, some noticeable differences between the two groups emerged as well. A unique theme reported by those with low-carbon livelihoods was the benefit of

feeling grateful, privileged, and appeared to be more intimately aware of and motivated by their connection to nature. As noted above, feelings of grief were more readily experienced and shared by the livelihood participants and in some cases led to a deeper level of attachment and sense of security within their community. Grief, in addition to guilt, appeared to provide a strong emotional source of motivation for them. Those who adopted low-carbon livelihoods may also be unique in having an educational background that exposed them to interconnected environmental and social problems, led to their decision to seek out information regarding sustainable alternatives, and gave them the initiative to pursue hands-on experiences that became formative by allowing them to visualize the viability of similar alternatives for themselves. Those seeking low-carbon livelihoods may feel empathy more strongly and readily and/or may be more guilt prone. It is also possible that they have a greater capacity for personal integrity and moral identity that compels them to need to align all parts of their lives with their highest values.

Below is an overview of the social challenges shared by those pursuing low-carbon lifestyles and livelihoods followed by an in-depth discussion of the unique challenges related to occupation and socioeconomic status experienced by the participants in this study.

3.4 Social challenges associated with adopting a low-carbon livelihood.

Analysts such as Cherrier (2012) and Moser and Dilling (2007) have recommended that social interactions and cultural factors will offer a more productive focus for understanding what inhibits pro-environmental behaviours at the individual level than the attitude-behaviour approaches that have often set the individual apart from their socioeconomic context; the latter dictates many lifestyle aspects (Jackson, 2005). Accordingly, the primary focus of this study was to identify the nature of socioeconomic challenges to adoption of a low-carbon livelihood.

The following section provides a review of the major themes that emerged during interviews about challenges experienced in transitioning into a low carbon livelihood and/or as part of engaging in one, how those challenges were experienced, and what general strategies participants appear to have engaged to cope with those challenges. A notation is made when challenges to adopting low-carbon livelihoods overlap with those experienced by individuals

with low-carbon lifestyles (see Appendix B). Lastly, a display format based on the four-quadrant model is provided that is designed to reveal systemic interactions. The diagram is used to provide an overview of a range of internal motivations, personal attributes, cultural and external societal supports that combined to allow participants to visualize and overcome challenges to adoption of a low-carbon livelihood.

Some of the challenges faced by participants in this study overlapped with those pursuing low-carbon lifestyles. Both encountered a 'glass floor' when social complaints were evoked regarding practices related to veganism or vegetarianism; avoidance of communication technology, cars, and air travel; and a preference for local vacation destinations. In these cases, both groups share the challenge of negative judgement from others, and feeling pressured to give up their values and personal efforts in order to remain close to their families, remain a valued member of social groups, or at least not become a marginalized member of those groups:

> *"In the midst of a dissolving marriage, you are thinking 'what am I doing to myself and those around me by trying to make these decisions? Is it really worth it? If I can't lead a happy life because my choices are gonna make people around me miserable, then what am I doing? …There was a time when I said to hell with being ethically consistent, it's ruined my life and I should give it all up."*

> *"It challenges my sense of myself and my confidence in terms of being able to keep standing up and saying no."*

When there is a need to maintain relationships with family and friends, the feelings elicited by these difficult social interactions are complex. They require significant personal integrity and strength of character to negotiate judiciously the responses of others who perceive aspects of low-carbon livelihoods as socioeconomic transgressions.

These challenges are significant and similar to the common experience of those choosing to stop using alcohol when most of their friends continue to do so. It is common to be discounted and marginalized by the old set of friends, or to find it impossible to create common ground for shared activities that are outside those organized around alcohol. In most cases, entirely new social networks eventually must be negotiated in order to avoid 'relapsing' or being faced with the choice of sacrificing one's personal health for inclusion and social acceptance (DiClemente, 2003).

"I pretty much walked away from my prior life. I made new friends and new connections and I specifically sought out people that were more in line with my own values and that was huge!"

Below is an overview of the unique challenges faced by those adopting low-carbon livelihoods when others perceived their choice of occupation as falling too far outside the economic mainstream.

a. Challenges embedded in cultural meanings associated with occupation, socioeconomic status and social-status identity.

Social psychologists have only very recently begun to look at the impacts of socioeconomic status (SES) on self-identity, and in doing so have found, perhaps not surprisingly, that people put at least as much importance to their status-based identities as their gender (Manstead, 2018). Future-identity or one's sense of who one is becoming, is considered a component of status-based identity. As noted earlier, when one's status-based identity (SES determined) is in transition or uncertain, it creates a lack of clarity about one's self-concept in a manner that lessens wellbeing and has the potential to limit a person's ability to pursue a path or objective with conviction (Destin et al., 2017). Uncertainty about future-based status identity (and income) is likely to play a significant role inhibiting transition into a low-carbon occupation. More generally, if someone is in a higher SES, it is likely they will be more reluctant to sacrifice the perceived benefits associated with that status (and income) in exchange for uncertainty about their future identity and future-status in comparison to others.

Themes that emerged from interviews with participants confirmed that by adopting a low-carbon occupation, they were presented with either personal psychological, socioeconomic, or systemic societal challenges rooted in SES. The following is an overview of those challenges.

Individuals most affected by internally generated psychological challenges appeared to be those who had a previous mainstream occupation with higher socioeconomic status, or who had been in a sector with the opportunity for attaining it. These individuals experienced difficulty with internalized cultural beliefs and values about education, professional attainment, and SES that presented as self-doubts or threats to their social status identity when they were not employed in a traditional sector. Their experiences were rooted in the 'ideology of meritocracy' reflected in standard measures of success associated with inequality

and social rank (Manstead, 2018). Without status embedded in mainstream credentials or an income stream from a paycheque, such individuals reported problems with sense of achievement and security. Without income from traditional sources (paycheques), it was also difficult at times to avoid feeling less secure in spite of being able to meet one's needs:

> *"There is this cultural pressure to do something and judge yourself by how much money you make or how successful you are. So you try to reprogram yourself, that your success and value as a person is not connected to how big your paycheque is, or even the letters behind your name. Managing that pressure in this culture to have more, to always be more; it's never enough to just be where you are at."*

> *"It's hard to shake that feeling when you don't always have the money to go to the dentist or buy something."*

A familiar comparison for feeling of less value without a paycheque would be internalized sexism, in which a woman raised in a culture that puts less value on women's work, learns to devalue her own contributions in comparison to those of men. Perhaps it is not surprising then that among others it would be the feminist economic geographer Gibson-Graham (2002) who has very helpfully pointed out the manner in which unpaid work is not seen or acknowledged as valuable due to its marginalization within a growth-based economic culture.

Socioeconomic challenges were also typical for younger individuals who either moved from an occupation in a traditionally thought of 'secure' sector to one that paid less and had fewer benefits, or moved into self-employment. In these cases, the challenges originated externally in the form of 'well-meaning' negative comments from prior colleagues and family members who questioned the 'wisdom' of 'giving up' a higher wage (higher status) position with retirement and healthcare benefits:

> *"A lot of my colleagues kind of called me crazy at first for stepping away from such an opportunity. It was hard to step away from that government role, because it paid a lot of money and came with a lot of respect. It came with status."*

When questioning or criticism comes from one's family, the threat to one's sense of belonging and importance can be intense and difficult to manage in a constructive manner:

> *"My family thought it was a phase I would grow out of and once I learned 'how to make money' I would leave the non-profit job; they did not understand that I find more meaning there."*

> *"My sister questioned my decision making, 'do you realize the implications of your decisions? You are not going to have a pension. What are you going to do if you get sick, whose going to take care of you?' Or by my mother, 'do you realize that if something happened to you your sister would have to bear the burden of caring for you when you got ill or older.''*

In the case of younger participants who chose a highly self-sufficient and rural permaculture-oriented livelihood that differed from their historical urban friends, a great deal of open criticism, demeaning humour, or otherwise unintended marginalizing remarks were expressed toward them:

> *"People rolled their eyes, told me I was too extreme, it was ridiculous, that they would never do all that. That I was too self-depriving, or people would say, 'wow, that's weird'."*

> *"Trying to live outside the norm [mainstream economy] sometimes is an issue because it's like a barrier, a huge barrier in discussion when I can see that people really don't get it. Then I don't know where to start and am left feeling dissociated or judgmental, or somehow unable to connect. I just don't think it is benign [how others earn and use money]. So it is hard for me to put it down so that I can just hang out with my friends."*

These comments posed the burden of having to contend with negative interactions in a manner that does not further marginalize one and allows one to maintain previously important relationships without compromising one's integrity or need to act in alignment with one's values. For some, the solution was literally to seek out an entirely new social network and leave behind the old relationships. For others, the strategy they eventually developed was an ability to seek out commonalities, common worries, and focus on those areas in interactions, hoping to leverage a connection by locating shared concerns. Several continued to be searching for how to bridge these gaps in knowledge, values and concerns.

> *"I've just learned there are certain topics I can't bring up with my family members. Certain ones I know it doesn't help their day-to-day life when I talk doubt some of the uglier things going on in the world, the projections for the future…a lot of people don't want to hear the truth about what is happening. I've seen all sorts of ways that people show they just don't want to engage with this subject."*

In reaction to these deterring interactions, several people reported feeling self-doubts about the meaningfulness of their efforts and reported a sense of social isolation that resulted from not being able to share deeper level future concerns within social networks. With this type of social disconnection, it is also impossible to share one's grief and anxiety regarding current and future pending ecological losses and negative social impacts.
Perhaps worst, it renders one unable to share that heavy psychological burden with others.

> *"Whereas now we have all these tools to help us analyze and predict and so I feel like we're at this incredibly unique period in time where we can talk about these things that are happening and we have the tools to start to understand. We know a lot about what is needed. But so many people don't want to have that conversation, don't want to contemplate that society might fall apart, because it's too big to really comprehend, so that's tough. It's like walking around with this big kind of scary secret and wanting to shake people, and be like, why aren't you paying attention, this is the most important thing in the world right now."*

This unshared burden may also be a source of feeling overwhelmed, to say nothing of resentment and negative judgment toward others that several reported having to manage and continue to 'work on.'

> *"For me it is a challenge not to judge, so I have to work on it, everyone's consciousness is different. But yes, I've gotten lots of push back that is difficult."*

> *"We work at not being judgmental, in being able to meet people where they're at. We do really well with that in our professional work, but it is tougher in our personal lives. We're tough people to be around, we know a lot about what people can do, but what we found is that people are really interested in our story, in the journey, they're not interested as much in the technical stuff we could offer them."*

All in all, these interactions confirm that there is a large amount of social pressure to conform to more traditional mainstream values and beliefs associated with occupation and social status while trying to retain a positive view of one's self-identity and confidence in one's low-carbon livelihood and behavioural choices. Although the pressure to conform to modes of consumption in order to belong, show affection, or establish one's group affiliation experienced by the low-carbon lifestyle individuals is significant, the social challenges that emerge when one chooses to abandon these standards as a whole in preference for values and beliefs that sit altogether outside of a materialistic economy are likely to appear close to, if not insurmountable by many people.

b. Backlash and micro-aggressions as expressions of social disapproval that maintain the status quo.

<u>Backlash:</u>

Rudman is a feminist social psychology scholar who coined the term 'backlash effect' in 1998 to refer to social and economic penalties for counter-stereotypical behaviour (Rudman et al., 2012). Individuals who disconfirm stereotypes about their groups challenge cultural beliefs that legitimize social hierarchies and group-based roles. The backlash effect occurs, for example, when a woman moves into a higher status position that has historically only been

held by men, thereby threatening the social status identity of men in that same sector. When status is threatened, a barrier is erected to limit people from access to the higher status position. Rudman refers to those who are atypical role models as 'vanguards' and notes that by penalizing vanguards, backlash reinforces normative rules [regarding social status] and cultural stereotypes.

The work of social psychologists in this area has primarily revolved around gender and racial vanguards. However, the notion of backlash is helpful in the context of understanding the various forms of social pressure reported in this study experienced by those adopting low-carbon livelihoods. Certainly the backlash endured in reaction to gender, race, and religious vanguards is likely to rise to a higher level of intensity when the perceived threats to status are greater. But there is evidence that backlash applies to other social categories and to the more aggressive reactions faced by several participants in this study when they have moved outside the traditional socioeconomic status-based boundaries of their peers in their livelihood choices:

> *"Friends have made fun of me, saying 'Are you still shitting in a bucket? Or 'do you have running water yet?' Or by calling me a hippie."*

Social identity theorists would consider backlash a form of social identity preservation. In 1986, Glynis Breakwell, a social psychologist in the UK, laid out a comprehensive system for understanding social identity and reactions to perceived threats to identity at the individual and group levels. According to her Identity Process Theory (IPT), the goal of responses to threats is to maintain one's distinctiveness and self-esteem using a variety of coping strategies. Maladaptive strategies can include acquiescence or accommodation, deflection through denial, or redefining the cause of the threat (externalizing blame), and other strategies. More adaptive strategies might include re-evaluating one's own behaviour or beliefs, changing one's judgment criteria, or associating oneself with another positive characteristic (Breakwell, 1986). In this context it is clear to see why Rudman considers backlash a form of self-identity or social status protection.

Another important aspect of backlash that applies to the low-carbon livelihood vanguards in this study relates to the desire of others to preserve the status quo, in this case the socioeconomic status quo. Like the stereotype vanguards of Rudman and her colleagues,

exemplars, or moral low-carbon role models have the power to strongly affect cultural values and foster alternative economic activities, goals and future realities. They also have the power to threaten people's self-identity if the 'perceiver' views themselves in comparison as having less integrity, or perhaps having more culpability for complex ecological problems. Some who feel threatened by culpability will react defensively in order to maintain their self-esteem and expunge guilt.

Work has shown that ecological guilt can be defended against by externalizing blame (blaming others or the system), denying personal responsibility, viewing efforts as futile, or minimizing the impacts of pollution, among other strategies known to be used to protect one's sense of self (Breakwell, 1986). Caillaud and her colleagues (2016) at the Sorbonne have shown that similar defensive endeavours occur at the group level designed to alleviate negative moral emotions by transforming how issues are understood. Such strategies reduce negative emotions of guilt and shame associated with the group (therefore one's group-based social identity). Social justification theory has attempted to explain such individual and group dynamics and has been used to explain why lower class groups have a tendency to vote against their best interests (van der Toorn & Jost, 2014). Social justification strategies at even larger levels are seen in the media and in political rhetoric. To the extent that such tactics are successful in alleviating guilt, at the same time, they act to justify the larger system, or in this case act to maintain the function of a growth-based economy. Naomi Oreskes and Erik Conway (2010) have documented how defense of neoliberal economic ideology [and the SES status identity implications of those beliefs], were the motivation behind past efforts to derail anti-smoking campaigns and are now behind current global warming reduction policy efforts.

Accordingly, Rudman points out the critical role backlash plays in system maintenance and benefiting others by preserving their self-esteem and social status when their own self-worth feels threatened (Rudman et al., 2012). Fear of social rejection has been shown to move people to go against their better judgment to avoid ostracism. It damages people's sense of belonging and can lead to decreased self-promotion. And at some point, the mere threat of ostracism will suffice. The fear of backlash promotes a tendency to avoid counter-stereotypical activities and can cause people to quit along the way, as reported by those making low-carbon lifestyle efforts, thus feeding into a vicious cycle that reinforces

stereotypes (or traditional SES standards) by providing fewer role models to inspire future vanguards (Rudman et al., 2012). In this manner, backlash maybe preventing livelihood vanguards from becoming more visible as outstanding exemplars who elevate non-material values, because of how their beliefs and behaviours would lower the value of profit and status embedded in traditional socioeconomic metrics.

Micro-aggressions:

Micro-aggressions are the everyday verbal, nonverbal environmental slights, snubs, or insults, whether intentional or unintentional, which communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership.[12] In many cases, these hidden messages can invalidate the targeted person's group identity or experiential reality by demeaning them on a personal or group level. Micro-aggressions communicate that the targeted person is a lesser human being, suggest they do not belong with the majority group, threaten and intimidate, or relegate them to inferior status and treatment. Some of the quotes above could be considered aggressive backlash remarks, whereas micro-aggressions tend to be subtle. In one example, someone can feel infantilized by a remark and in another be mistaken for having an emotional problem.

> *"People make comments to me like when I'm arriving on my bike and it's raining or it's cold outside, they say good for you. It's like "good for you, you're riding your bike." To me that doesn't feel like it's good for me, this is just what I do [it's who I am]."*
>
> *"People have not understood why I am feeling bad and made me feel like there was something wrong with me rather than the world, that I should be happy. One woman even encouraged me at this party to consider counselling for myself."*
>
> *"It is a challenge for sure that there are people who think I am naive or paranoid for my views and from those who have difficulty believing anything I say. That is for sure an issue for me. It is very difficult to convince some people of what I see…it's just like I am living in a parallel universe or something…"*

Regardless of the intention, examples shared by participants do function, and in some cases are intentionally designed, to set the person apart socially. Equally, they serve to marginalize that person's behavioural efforts to take responsibility for contributing to ecological and social

[12] Pierce, a psychiatrist at Harvard, coined the term micro-aggression in 1970 to describe insults and dismissals inflicted on African Americans by non-black Americans. Derald Wing Sue (2007) later described three types of racial transgressions: micro-assaults, micro-insults, and micro-invalidations with the latter two being less obvious. Currently, these terms can be used with any marginalized or minority group.

problems through their livelihood choices. In a profound manner, social criticisms and micro-aggressions like these serve to protect the micro-aggressor's own sense of identity at the expense of the most meaningful characteristics of others who have the unusual capacity to align their lives and occupations with their highest social and ecological values.

Fortunately, vanguards interviewed for this study were not deterred from atypical livelihoods in spite of the economically embedded social challenges. However, becoming more aware of these dynamics will likely be necessary to support larger numbers of those wishing to adopt low-carbon livelihoods. It is easy to imagine that as low-carbon livelihoods choices proliferate, become more visible, and come to represent a radically different value system and economic model, even greater pressures will be brought to bear: role confusion, loss of status, and other future identity threats would arise for those in occupations that are becoming less socially desirable. Social support is one established antidote to backlash. Anticipating the potential for negative reactions and ensuring that support is available and publicly visible could dampen that possibility.

When vanguards are nurtured and supported, their self-esteem is protected and they can resist conformity pressures (Asch, 1955 in Rudman et al., 2012). Below is an overview of a variety of factors that can interact at personal and social levels to support adoption of livelihoods that rest outside of current North American SES norms.

c. External supports and internal moral convictions enabled visualizing and adopting a low-carbon livelihood.

From the examples above, many cases clearly assume a low-carbon livelihood at the cost of breaking an old social status identity, and forming a new one; adopting new metrics for judging oneself; and forming or joining a social network supportive of that new identity, its beliefs and values. Internal and external enabling factors play an important role in facilitating this transition.

Half of the participants in this study were drawn from Victoria B.C. that has a well-developed transportation system within the city and is making significant improvements to its bicycling infrastructure. In addition, it has a relatively bike-friendly topography and climate. All of the participants benefit from the relative freedom of occupational choice offered by Canada's universal healthcare system. For many participants, the factors that enabled

successful navigation of an occupational transition process included the knowledge they gained through formal educational and vocational institutions, combined with access to hands-on experiences with low-carbon livelihood activities (e.g., volunteer organic farming, permaculture, farms to school programs, bicycling combined with low-impact living). Most had college degrees, knowledge about complex interrelated social and ecological problems, including familiarity with community-based alternatives that would foster reduced fossil fuel and natural resource use. Together, these experiences provided critical scaffolding opportunities that allowed some individuals to visualize low-carbon alternatives as viable and worthy of consideration. For instance, all of the agriculturally active participants had received hands-on experience with organic farming and permaculture design principles. Most had prior experience with frugality and living more simply that made transitioning to lower impact lifestyles and livelihoods less difficult. Many had a significant amount of moral support from their families, and in two cases that support included helpful financial assistance that allowed the individual to pursue their occupational goals. Almost all of those who did not have a great deal of support from family had significant support from partners and/or friends, and from shared interest social networks.

About one third of the participants reported getting significant amounts of recognition for their efforts from the local community and others who saw their work as an innovative and an important contribution. Many of the participants provided education directly or indirectly to others in the community. In fact, it did appear that Victoria, Salt Spring Island, and the Sooke British Columbia communities were very welcoming and noticeably appreciative of participants' low-carbon livelihood efforts. Community recognition of the importance of livelihoods that reside outside the traditional realms of socioeconomic status and material consumption afforded participants with behavioural reinforcement and a new source of social-status identity.

In addition to the external enabling factors described above, the majority of those pursuing low-carbon livelihoods appear to have been cognitively capable of higher-level abstract reasoning and planning. It is known that forming moral convictions requires a period of cognitive deliberation that depends on abstract reasoning. This process of deliberation is driven internally by the powerful emotions of empathy, guilt and grief and leads ultimately to

the establishment of moral convictions (Schlenker et al., 2009). Each person was able to examine livelihood alternatives in light of what was the right thing to do. Doing the right thing involves a process of awareness, a critique of the problem, and deliberation over the course of action. Participants engaged in such process of deliberation that ultimately formed the basis of their moral identities. It required them to have the ability to relate to their culture meaningfully and with self-discipline. Those moral convictions together with other important personal norm-based factors such as a significant level of personal integrity created an imperative for participants to align all of their life's activities with their personal values and allowed them to overcome a host of difficult challenges along the way. Lifestyles, and in this case, livelihoods are a set of practices that represent a way of life and contribute to a person's self-actualization, they are a form of self-identity and self-expression (Evans and Abrahamse, 2009). On the basis of scholarship reviewed below I have described participants in this study as moral exemplars.

Moral Exemplars:

As an introduction to moral exemplars, it is helpful first to review briefly some of the scholarship on morality and moral identity formation. An *ethical ideology* can be thought of as an integrated system of beliefs, values, standards, and self-assessments that define an individual's orientation toward matters of right and wrong. Schlenker et al. (2009) propose that an ethical ideology provides a *moral schema* for interpreting and evaluating events. In turn, a *moral identity* emerges that is thought to provide a basis for self-regulation. In this view, ethical beliefs and identity are not separate systems but are intertwined, each having implications for the other. A key dimension that distinguishes ethical ideologies is the *strength of personal commitment to moral principles,* in which the stronger the commitment, the more resistant it is to change and the more likely it is to guide future behaviour. When there is a strong commitment to moral principles, that commitment produces a sense of duty or obligation to perform consistently with those principles, or a sense of responsibility to behave accordingly. Once a moral schema has become part of one's identity representing moral convictions, those moral convictions replace external rules (Schlenker et al., 2009). Integrity is another critical factor due to the manner in which one's commitment to an ethical ideology, as opposed to a more expedient ideology, determines the strength of the relationship between

moral beliefs and behaviour (Schlenker et al., 2009). The tension between doing what is expedient or self-indulgent versus engaging in principled self-regulated behaviour has been associated with morality for many centuries.

Studies of moral exemplars (Colby and Damon, 1992 cited in Schlenker et al., 2009) find that these individuals describe their ethical conduct as *who they are*, *expressing their identity* versus following rules. Somewhere along the way, their goals for themselves have merged with moral goals to create a moral identity. As a result, their self-esteem is linked to acting in a personally responsible manner. A shift occurs from needing to be accountable to others *to also needing to be accountable to one self* that is at the root of accepting personal responsibility, a trait associated with integrity. Eventually, their actions gain social recognition and appreciation within a community.

While experts appear to know little about how personal integrity develops, we do know from studies of moral exemplars that integrity is associated with a positive outlook on life, a greater sense of purpose and meaning in life, and more felt certainty in the rightness of one's actions. Exemplars value being authentic and true to one's self and having social roles that are better integrated with their self-concept. They experience greater role satisfaction, lower role strain, and a lower need for self-monitoring efforts. Studies have also found moral exemplars are less materialistic, are more likely to orient toward greater spirituality. It has also been shown that moral exemplars are more likely to display caring and compassion, agreeableness, and show sustained helpfulness toward others. Different ethical ideologies take people down different moral paths. Higher integrity equips people with personal qualities that favour pro-social paths that are associated with psychological wellbeing and interpersonal success (Schlenker et al., 2009).

3.4 Introduction to the integral four-quadrant framework: Addressing the need to understand the systemic nature of forces that enable or inhibit adoption of low-carbon livelihoods.

Gifford and Nilsson (2014) have pointed out that the complexity of data and variety of factors that influence social change creates a challenge for scientists to comprehend adequately across disciplines. Similarly, O'Brien and others have noted that an expanded holistic systems-oriented understanding of critical barriers is necessary to implement effective

intervention strategies supportive of larger scale societal transitions (O'Brien, 2008; Riedy, 2009; Zimmerman, 2005). In an effort to provide a more systemic understanding of important factors that impacted participants in this study, I chose the four-quadrant framework from Integral Systems Theory (O'Brien, 2008; Riedy, 2009) to facilitate a systemic understanding of behavioural barriers and enablers, and to identify their implications. Before proceeding with a discussion of the interactions between the barriers and enabling variables described above, I review the model briefly and refer the reader back to pages 9-11.

Each of the four quadrants represents an analytical perspective (see Figure 1). The four primary perspectives correspond to individual psychological factors (IndP or UL), the individual's behaviour, traits and experiences (IndB or UR), surrounding cultural beliefs and values (C for culture or LL), and shared system-wide societal structures (S for social systems or LR). These divisions represent internal and external individual characteristics and collectively shared culture (internal) and societal institutions (external). Within each level, one can appreciate both internal and external aspects of individuals (IndP and IndB) and how those interact with the internal and external aspects of a culture and society (C and S). In this study, the four-quadrant model uniquely captures multiple factors simultaneously that affected the ability of participants to overcome challenges they faced. This was so, regardless of whether those challenges related to structural aspects of the larger social systems, such as lack of visible ecologically sound livelihood alternatives (S); cultural issues such as negative feedback from one's social network reflective of mainstream beliefs tied to socioeconomic status (C); or an individual's ability to manage self-esteem in the face of criticism (IndP).

Themes that emerged from participant interviews were first organized by quadrant. The four-quadrant model was then adapted into the form of two concentric circles (pie charts) that allowed a display of the major challenges in each quadrant to be viewed alongside an inner circle display of assets or enabling features within that same quadrant (see diagram in Appendix B). The broad interpretation that emerged from this format is that each quadrant presented unique challenges, but importantly, also enabling resources that participants could leverage to overcome challenges. Some challenges were clearly overcome by a combination of features from two or more quadrants. For instance, effective management of self-esteem in the face of micro-aggressions (IndP) was made possible for participants with different

combinations of family support (C), an individual's empathy for those who were critical (IndP), an ability to look for common ground (IndB), having received recognition and validation from the community (C), and possessing an attitude of gratefulness on the part of the individual (IndP). In this example, interactions between key features in quadrants provided the scaffolding that enabled the participant to overcome social challenges.

Most of the participants in this study fit very well with what is known about those concerned with the environment and engaged in pro-environmental behaviours. Gifford and Nilsson (2014) summed up in this way what studies have allowed them to postulate about these individuals:

> *"All that being said, we will conclude with a leap of faith and suggest that in broad strokes a person with a particular personal and social profile will be more likely to be concerned about the environment and to act on its behalf. Let us therefore posit that such persons are likely to have spent time in nature as a child, to have accurate knowledge of the environment, its problems and potential solutions, to have an open, agreeable and conscientious personality, to consider the future consequences of their actions, to feel in control of their behaviours, to harbour biospheric, post-material, liberal values and responsibility for environmental problems, to be among the upper half of the economic classes, to hold personal and descriptive norms about pro-environmental action, to adhere to a religion that teaches a stewardship orientation to the earth, and to spend time in non-consumptive nature activities."*

By organizing the characteristics and experiences identified in the livelihood participants within the four-quadrant model a deeper understanding was revealed of how personal qualities, individual attributes, social support, and societal structures interacted and were woven over time to enable adoption of a low-carbon livelihood. There is a richer understanding that can be shared when these interactions are included in a broader narrative or story. In the world of narrative inquiry, some define a story as a structure used by an individual for communicating an experience and set of actions. In this sense, stories provide meanings for past events, provide the context for what one knows or has learned, and who one has become. Narrative inquiry seeks knowledge about how people make sense of their experience, how they organize events, how they have interpreted events, and created change in their lives (Creswell, 2013). Here a deeper thematic narrative can be created that describes the essence (the what and how) of the experience of adopting a low-carbon livelihood by combining sources of data, various characteristics, and common experiences of the participants in this study into the four quadrant model to illustrate how the identities of

participants were constructed and evolved in response to a set of layered multisystem interactions over time. Narrative inquiry allows for the "re-storying" or placing gathered stories into a framework and making causal links among common events and experiences (Creswell, 2013). The narrative or restory that emerged from this process shows that many paths can lead to the same endpoint, although some factors are critical, none are sufficient in and of themselves. In addition, the story narrative form is used here because of how stories can be powerful in the way they can inspire, create familiarity alternatives, with a timeline, a series of steps, and paint a pathway that one can follow. A four-quadrant story is provided here to illustrate these interactions, followed by an assessment of the balance between rewards and challenges posed by the process of adopting and maintaining a low-carbon livelihood.

a. A four-quadrant story

The North American story for a middle class Caucasian appears to go something like this. A young person is raised in a family that teaches her values (about integrity, frugality, biking and/or nature). For those pursuing low-carbon lifestyles or livelihoods it is typical (although not universal) for one of these values to have been emphasized during childhood. Her strong intellectual capacity for moral reasoning (IndB) interacts with the beliefs (IndP) she develops based on knowledge gained through formal education or other knowledge sources about ecological problems (S). Her capacity to feel empathy for nature and for impacted societies (IndP) will trigger emotional reactions related to morality such as guilt and grief (IndP). Those emotions, her beliefs, values, and moral cognition are engaged in a period of reasoning about implications regarding possible future alternatives. She develops an interest in exploring alternatives. Her reasoned assumptions combine with empathy-derived emotions (despair, grief, guilt, anger) to play a critical role in motivating and activating pursuit of solutions and alternatives, such as the possibility of having a low-carbon occupation and lifestyle (IndP). These same emotions motivate further learning about alternatives (S), pursuing further hands-on experiences (IndB), and additional consideration of options for herself, perhaps influenced by social role models (IndB). Her integrity and need for meaningful work, for alignment of her values with her livelihood and lifestyle (IndB) and her willingness to accept responsibility for her contribution add to her motivation to find an occupation that will

both meet these needs and allow her to minimize her environmental impact. Over a period of time, moral conviction and sense of direction emerge out of her desire to limit her own harmful activities (IndB and IndP) even when she believes her individual behaviours are not likely to have a significant impact on the larger community (C).

Once she has decided to pursue seriously one of these occupational alternatives and shares that plan with family and friends, cultural biases (C) emerge that represent mainstream cultural notions concerning socioeconomic status, appropriate occupational choices, reasonable income levels, future sources of security, these and other future implications of residing outside the growth-based job market (C). Expressions of these biases are a form of social enforcement (negative judgements, questioning, resentment, backlash, micro-aggressions, and other forms of social regulatory pressure to conform) and can have an inhibiting effect (IndP and C) on her confidence, self-esteem, and sense of belonging. Those pressures then have to be managed without decisive loss of conviction, direction, or motivation (IndP).

At the same time that this social pressure to conform emerges from the cultural quadrant (C), that same quadrant offers this young woman many potential 'bridging' forms of social support that help her sustain her motivation, such as local or online support groups, activist and spiritual communities, along with other caring social networks. Those sources of social support (C) bolster self-esteem (IndP) and offer sufficient social status and identity validation (C) that she is able to follow through with her plans (IndB).

Once she adopts a low-carbon livelihood (IndB) and has successfully negotiated social pressures to conform (C), the negative concerns of family and friends usually reach equilibrium, such that continued ongoing pressure is much less common (a new level of stability is reached in her social system). Over time she gains more confidence (IndP), experience (IndB), and clarity that allow her to share her expertise and knowledge (IndB) with others (S) through offering educational experiences, practicums, writing books and articles, giving talks, and importantly, through providing a role model (IndB) in the community. She is likely to foster broader acceptance and adoption of low-carbon behaviours by others (IndB) who now can be supported by a new set of values that include social equity, care for community and Earth (IndP). She may spread these values (IndP) and knowledge (IndB) about

sustainable alternatives by working as a member of a local municipal council on policy changes and implementation (S). Through community activities she visibly exposes the public to information (S), new sets of values (IndP and C), and viable economic alternatives for consideration (IndB, C and S). By pioneering the adoption of a low-carbon livelihood, she provides us with a role model (IndB), a moral exemplar, and acts to seed future low-carbon economic alternatives for others in the community (C). As those new values are promoted and adopted more widely (IndP), they eventually spread throughout the community until a tipping point is reached, when broader cultural change occurs more rapidly (C).

Systems theory tells us that changing a system's underlying paradigm (its values and purpose) or goal is a critical leverage point (Meadows, 1972). In systems theory, the pattern described above with its self-reinforcing effect is known as a positive feedback loop. Anything that can produce more of itself is capable of exponential growth. In the case of the positive feedback loop described above, a community consensus is fostered that assumes a new set of ecologically sound beliefs, values and norms supportive of low-carbon pro-social activities at all societal levels. Many of the participants in this study have told and are telling a similar story, that having the core function of our economy be to produce profits at the expense of losing Earth's capacity to support life is no longer acceptable. An economic system with a goal that is no longer socially acceptable is one that is losing resiliency and weakened. At some critical point a tipping point is reached by which the purpose of economic activity is profoundly shifted toward the notion that such activities should meet essential pro-social and environmental needs: care for community, generate equitability, and be managed in a manner that renews and supports a continuation of nature's life sustaining functions. The story of these vanguard role models makes a significant contribution to that crucial systemic leverage point and it is a story that needs to be more publicly visible and rewarded.

3.5 Summary: Moral conviction and clarity of values exceed challenges associated with adopting a low-carbon livelihood.

This project was designed to fill a gap in degrowth scholarship regarding socioeconomic barriers that inhibit personal transition to more ecological livelihoods. It addressed this gap in three ways. First, it broadened our current understanding of people striving for low-carbon lifestyles to include their livelihoods. Second, it added detailed descriptions of how those

barriers are experienced, and third, it added clarity regarding the primary strategies participants used to overcome those challenges.

As an examination of North American socioeconomic barriers to individuals making this transition, this project was designed to identify those barriers that individuals experienced who had succeeded in adopting a low-carbon livelihood/occupation. It anticipated that participants in this study would be similar in their motivations and characteristics to individuals practicing frugal, anti-consumption, low-carbon lifestyles, and to downshifter movements.

North American occupations are deeply embedded in a growth-based economic system in which social status norms, beliefs and values preserve mainstream economic functions by punishing or marginalizing vanguards who deviate. I expected that those with low-carbon livelihoods that fell the furthest from mainstream occupations would report a greater amount of social challenges from family and friends. It was hypothesized that the primary factor enabling participants to overcome challenges would be an internal sense of moral obligation to do as much as possible to reduce their contribution to interconnected ecological and social problems.

a. Broadened understanding of low-carbon efforts to include livelihoods.

Indeed, many similarities in barriers and rewards were found between the low-carbon participants and those who downshifted and pursued low-carbon or frugal lifestyles. Those seeking low-carbon occupations and lifestyles also resembled one another, but differed from anti-consumption participants and downshifters in motivation, with the former being motivated by ecological concerns, empathy and guilt and the latter by the need for personal fulfillment. Nevertheless, some participants in this study did share the benefit of free time reported by occupational downshifters whose actions were motivated not by environmental concerns, but in order to spend more time with friends and family or pursuing other interests in hopes of finding more meaning and improving their quality of life.

The low-carbon livelihood and lifestyle individuals shared a common sense of contentment and enjoyed a deeper connection with community. Themes that emerged from this study were consistent with what is known about others who act on their environmental concerns. Participants were mostly Caucasian, from middle class and above family

backgrounds, had knowledge of concerns and potential solutions, considered future consequences of their actions, were conscientious, felt in control of their actions, and had a sense of moral obligation that appeared to be a primary internal motivator for their behaviour (Gifford & Nilsson, 2014).

Those who have adopted low-carbon livelihoods appear to differ from those seeking low-carbon lifestyles in their broader commitment to make all aspects of their lives low-carbon and at the same time, have a livelihood that allows them to make a pro-social contribution to their community.

b. Clarified understanding of barriers experienced.

The majority of participants in this study were similar to lifestyle groups, in that once their efforts took them far enough beneath traditional consumption levels, they encountered the 'glass floor effect' described by Cherrier, et al. (2012). They experienced pressure when they dipped below a threshold of 'socially required greenhouse emissions' (the Glass Floor), beyond which they triggered social reprimands or marginalization. Social barriers of this sort were uniformly experienced as the most challenging. Furthermore, consistent with expectations, it did appear that the most aggressive form of social pressure came from urban friends of one individual who adopted a rural and radically different permaculture-based livelihood based on self-sufficiency. Another individual who previously had a successful consulting business felt required to abandon her urban social contacts completely and start over, selecting only among those who shared similar values. A number of other participants experienced repetitive questioning about the merits of their livelihood choices by family, as well as by some co-workers when confronted with their decision to leave a government job considered to be very secure and well paid. Other family members assumed a lack of 'money-making skills' led to the choice of a job in a non-profit sector, or that the choice was a 'passing phase.' Based on this author's clinical experience, many of the stories resemble family reactions described in coming-out stories during which a homosexual orientation is considered 'a passing phase' or families voice concerns for future hardships the individual could encounter. Other challenges resembled the experiences of those with prior substance abuse problems who often find it necessary to avoid old friends who are not able to be supportive of their sobriety (DiClimente, 2003). Even in cases where there was not overt social pressure,

participants reported that social micro-aggressions and lifestyle differences often led to feelings of disconnection due to a sharp divergence in world outlooks, lack of common concerns, beliefs and shared values that created an inability to share the psychological burden of their concerns.

c. Filling a gap in understanding how barriers are overcome: Moral conviction, intrinsic rewards, and subsequent social reinforcements outweigh challenges.

Strategies and sources of support for overcoming social barriers were varied, but primarily fell in the domain of psychological traits, personality characteristics and supportive social networks. Personality characteristics similar to those of moral exemplars included having a need to align work with higher values, a need for meaningful work, comfort with frugality, and a strong and intact moral reasoning capacity. Resembling others with low-carbon lifestyles, the psychological traits of participants included a ready ability to experience empathy, guilt and grief, coupled with a willingness to accept responsibility for negative contributions and a sense of moral obligation that compelled their actions even when they seemed unlikely to make a difference. These internal qualities appeared to motivate action even during periods without a great deal, if any, social support being available from like minded communities, friends, and family. For most, social support appeared to play more a sustaining role rather than primary motivation for action, as did feelings of gratefulness, contentment, and deep sense of security offered by community attachments in part linked to opportunities to share feelings of despair and grief.

It was not possible from this study to determine whether participants who adopted low-carbon livelihoods differ from those who pursue low-carbon lifestyles in their capacity for empathy, readiness to experience guilt, level of integrity, or overall level of motivation. Nor was it possible to determine whether they had a greater need for meaningful work, or to align their work with higher values, although having a greater level of intensity of moral emotions and a higher degree of integrity are both possibilities.

One source of moral emotions of greater intensity might be empathy for and attachment to nature. Participants in this study reported a connection to nature that resembled those of others pursuing low-carbon lifestyles; however, for the majority, this connection appeared to be experienced at a deeper spiritual level. In addition to the

similarities of feeling part of nature, dependent on nature, participants often reported a type of exultation regarding the beauty of Mother Earth, analogous to the religious naturalism described by Donald Crosby (2013) in *The Thou of Nature: Religious Naturalism and Reverence for Sentient Life* or Joanna Macy (2003) in *The World as Lover, World as Self: Courage for Global Justice and Ecological Renewal.* Some participants reported a feeling of profound reverence and awe, gratefulness for what Earth and all of its sentient and non-sentient beings provide. These latter reports may reflect a type of spirituality termed 'oneness spirituality' by Garfield and colleagues (2014). Oneness spirituality reflects a belief in the interconnectedness, the essential oneness of all phenomena, and a belief that happiness is dependent on living in harmony with the rhythms of the universe and its unifying force. Several participants identified this orientation to nature as an important benefit and source of ongoing motivation. It was in large part out of such reverence that these individuals felt a moral obligation to avoid harm and reciprocate Earth's gifts with care and respect. This recalls Garfield et al. (2014), who found that spiritual oneness was a better predictor of pro-environmental attitudes and behaviour than religiosity with dominion-over oriented beliefs. These authors hypothesized that having a deeper sense of interconnectedness could promote pro-social and pro-environmental behaviour.

It is impossible here to quantify the cumulative benefits individuals accrued from external social support, community recognition, the internal rewards of living in alignment with one's higher values, doing work that is meaningful, sharing grief and the emotional burden of awareness of ecological harms, future threats to wellbeing, and the deeper sense of attachment to community that is gained by adopting a low-carbon livelihood. Nevertheless, it is clear that in the case of the livelihood vanguards in this study, those rewards far outweighed the challenges posed to them and served to reinforce motivation for their continued efforts.

d. Summary.

This study has helped narrow several gaps in degrowth scholarship by broadening the understanding of those pursuing low-carbon lifestyles to include adoption of low-carbon livelihoods in terms of internal motivations and socioeconomic challenges that are experienced. It has clarified the nature of enabling and inhibiting systemic interactions that impact livelihood choices at the individual and group/societal levels. This was expressed in

terms of internal motivations, personal traits, experiences and knowledge, socioeconomic cultural challenges to identity, and the level of external social support and services provided by societal structures needed to overcome those challenges. It provided details regarding some of the systemic interactions between those factors. It elaborated a variety of socioeconomic forms of backlash and micro-aggressions participants experienced, along with aspects of coping strategies that may be unique to these alternative-livelihood individuals. The four-quadrant narrative highlights the manner in which these participants are serving as moral exemplars because of their unique level of empathy and ethically driven willingness to accept responsibility for reducing their negative ecological contributions. A core finding of this study was that within the context of a liberal urban North American setting socioeconomic barriers were largely overcome by having clear values, coupled with a strong moral sense of personal responsibility and obligation that resembles that of moral exemplars. In turn, acting on those values eventually led to other external forms of reinforcement that strengthened social status identity.

Below is a discussion of the limitations of this research and of what we know about those individuals who pursue a low-carbon livelihood and lifestyle. That discussion is followed by a review of the implications of these findings for future research and potential interventions for enabling larger numbers of people to follow the moral role modeling offered by the vanguards who participated in this study.

Chapter Four DISCUSSION:

4.1 Limitations of the study.

The interviews of participants in this study have been conducted at a time when economic imperatives such as job creation and economic growth are still dominant in most government sectors. The dominance of this discourse continues to inhibit forethoughtful policy, legislation and funding of programs designed to assist communities and individuals significantly to lower carbon emissions, slow economic activities by reducing consumption, and shift societal focus to providing for the essential needs that underpin wellbeing. For these reasons, it has been assumed that the potential for change currently exists primarily at the individual and community level. Findings may only represent individuals similar to the participants in this study who were predominantly from a middle class socioeconomic background, mostly Caucasian, cognitively able, highly resourceful, and reasonably well-educated. For the most part they came out of Caucasian North American middle-class homes that valued education, frugality, and/or nature. In addition, similar experiences might only be possible in other predominantly politically liberal and ecologically aware communities that value and have invested in public transportation, bicycling infrastructure and public education. In the context of this study pro-social job opportunities in the private and non-profit sectors were available or created that allowed an individual to meet job demands without depending on fossil fuels.

Because no model accurately represents reality, it is possible that using the more comprehensive four-quadrant model still allowed for critical variables to be overlooked. In addition, some bias may have been introduced based on the influence of my background as a clinical psychologist who was trained to be both a scientist and a practitioner. I may have over emphasized the importance of empathy and moral sentiments, integrity, reverence of Earth/nature, and having access to opportunities to share feelings of grief and despair. Due to my own socioeconomic status and status identity, it is possible that I introduced confirmation bias by putting too much weight on challenges to status-identity posed by socioeconomic critiques from family, work peers, and social networks.

However, it is also possible that my background has allowed me to have a deeper appreciation of those internal challenges. And with any qualitative study, it is possible that interview questions were biased or unable to capture important material and themes. Even though there was an attempt to verify a mutual understanding of responses during interviews, responses may have been misinterpreted, or my interview technique may have introduced bias into how participants responded. For instance, there might have been a tendency for participants to agree with my interpretations, thereby introducing bias based on social desirability.

4.2 Discussion: Moral exemplars - We know more than we think.

A response to Gifford and Nilsson's (2014) question 'So, what do we know?' is perhaps we know more than we think. In spite of the fact that Gifford (2013) has framed those who do the lion's share of pro-environmental work as 'mules,' we can see from evaluating the efforts and successes of individuals pursuing low-carbon livelihoods and previous scholarship concerning individuals who make low-carbon lifestyle efforts, that what we need are larger numbers of similar moral exemplars to come forward and show us the way. Both groups of individuals have contended with many structural, cultural, and internal psychological barriers with reasonable success. For most of those interviewed in this project, moments of great tension came when the ecological behaviours they adopted reached a socially visible level, such as the moment when their job choices had to be negotiated with a partner, family, social network, or with co-workers. Among the livelihood participants, two individuals suffered quite extreme backlash that elicited personal threats and public harassment when they advocated for policies that challenged popular ideologies or promoted environmental regulations that prohibited polluting activities by some in the community. However, following the initial tension point when job choices first become visible to others requiring negotiation within one's social networks, these individuals together with those in their social networks were usually able to mitigate the socioeconomic discord that remained. Nevertheless, this moment of tension constitutes a critical social threat and hurdle, one that many would shy away from by compromising their values and better judgment. In fact, research clearly demonstrates that most people report being

deterred by a multitude of less intense challenges, many social in nature, but often experienced in much less personally threatening ways (see Gifford & Chen, 2017 for a succinct recent review).

So *what we do know with certainty* is that a very special type of person may indeed be required at this point: a person with a deeper spiritual sense of connection to nature, great empathy, moral integrity, and a willingness to accept personal responsibility for their actions, who needs their work to align with their highest values, is bright, resourceful, usually educated and not very willing to compromise their values. They are likely to have an appreciation and affinity for frugality, as well as an aversion to waste; to be creative; to be capable of perseverance; to be optimistic, grateful and predominantly hopeful. They will probably have the ability to identify, and at times to share with others their feelings of sadness and despair over accumulating damage to natural systems, species loss and associated social harms. When their social satus identity is threatened, they will have the courage not to retreat into avoidance, but be able to redefine components of social identity that previously were linked to market-economy socioeconomic notions of success, status and mainstream social metrics. In addition, this person is likely to live where public healthcare, public transportation, and bike infrastructures are available; who lastly, has had access to educational institutions that offered environmental knowledge content and access to non-profit opportunities for hands-on experiences and role modeling that enabled them to visualize and perceive those alternatives as viable for themselves.

Participants in this study are activists whose “protests” play out in their personal social and work realms, not in front of a capital building. They did not allow themselves to make excuses about their personal contributions to complex interrelated social and ecological problems. Although they often had to defend their choices, they did not seem to have the same need that many have to defend their self-identity with denial or a variety of rationalizations and justifications to do with lack of control or futility. Having moral concerns at the core of their self-identity provided participants with a deep level of commitment and motivation for acting in a personally responsible manner in all aspects of their lives. Participants with low-carbon livelihoods in this study were similar to moral exemplars in their sense that these values and ethics are who they are. They showed high levels of both agency

and communion-oriented motivation. In addition, several of the participants appeared to be strongly oriented toward a spiritual belief of "oneness" of all things. All of the participants were capable of a high degree of self-regulation, most reported elevated levels of contentment and gratefulness, and almost without exception all were engaged in a wide variety of pro-social activities, including activities oriented toward educating others. This aggregate of attributes is consistent with moral exemplarity. And finally, it appears that motivation driven by clarity of values and sense of ethical obligation allowed participants to overpower the socioeconomic pressures they encountered.

4.3 Implications for future research and interventions:

A core finding of this study was that socioeconomic barriers were largely overcome by having clear values, coupled with a strong moral sense of personal responsibility and obligation that resembles that of moral exemplars. In turn, acting on those values eventually led to other external forms of reinforcement that strengthened social status identity. The implications of similarities between moral exemplars and those with low-carbon livelihoods for future research and interventions that have the potential to build and fortify the Degrowth movement are discussed here.

a. Future research implications.

Certain structural baseline requirements may be necessary to support adoption of a low-carbon livelihood, such as access to a secondary and post-secondary education system (that offers a modicum of environmental knowledge content regarding global and regional problems and includes content regarding solutions and alternatives), a local public transportation system, a bicycle infrastructure of some kind, and a public healthcare system as were available in this case. A community without these systems is not as likely to be able to support similar livelihood transitions. However, it was not possible based on this study to determine which societal structures are sufficient to support alternative low-carbon occupations. Future research could help clarify this question.

Because participants were primarily Caucasian and drawn from a fairly narrow SES range and cultural background many questions remain about what the experience and needs would be for those from lower incomes, with less education, of differing

race, class and cultural backgrounds. Other interesting questions remain about those who may have attempted to enter a low-carbon livelihood and had to move out of it, perhaps after having a child, due to medical care needs, due to other conflicting role demands, or lack of needed resources to continue.

It was strongly suggested by this qualitative research project, but not possible to determine with scientific confidence that participants who adopted low-carbon livelihoods differ in their capacity for empathy, readiness to experience guilt, level of integrity and self-restraint, and having a greater overall level of motivation from those who pursue low-carbon lifestyles. Nor was it possible to determine whether they indeed do have a greater need for meaningful work, or a more substantial need to align how they work with their higher moral values, although having a greater need for this alignment, a larger level of intensity of moral emotions and integrity are possibilities that deserve further investigation.

Nevertheless, results of this study clearly confirmed the power of values to propel and maintain social and behavioural transformations that impact sustainability. Values, in this case, those that underpin sustainable behaviours are the key to motivation and social transformation (Dahl, 2013; Bamberg & Moser, 2007). Important questions arose from this study regarding the need to understand how to increase values that promote sustainability and economic goals that focus on wellbeing. Neurological and developmental studies have indicated that empathy and self-restraint rely on many cognitive ability components and learned skills (Zahn-Wexler et al., 1992). Can empathy be strengthened sufficiently to increase acceptance of personal responsibility and the deeper motivation that comes with it? Is there a way to enhance one's sense of personal responsibility for ecologically harmful actions? Is comfort with frugality critical? Can an increased sense of responsibility enlarge commitment to frugal behaviours and self-restraint? How are those enhancements best accomplished and during what time frames should this occur? Scholarship related to these issues from a variety of fields will play an important role in answering these questions, some of which may already exist but were not reviewed here.

Another important barrier to behaviour change are the common defensive responses evoked by climate action conversations. Because guilt proneness predicts trustworthiness and ecologically responsible behaviours, what is the point at which guilt becomes a threat to a

person's social status identity and triggers maladaptive defensive maneuvers versus enhancing motivation to accept personal responsibility toward adopting new pro-environmental behaviours? What does that distinction turn on?

We know that social support offers protection against backlash for vanguards in the workplace. Can providing social support or unconditional positive regard to individuals or groups prevent strategies of denial, social justification, and other identity defense tactics from being employed? DiClemente's (2003) work regarding the technique of Motivational Interviewing may have an important contribution to make given its focus on promoting internal motivation rather than offering direction for behaviour change. This approach might be useful in the context of those who value and can afford international air travel, activities or foods with high negative impacts and find them difficult to avoid. Chris Riedy's understanding of prototypic value sets and worldviews can be useful to identify shared concerns (2009) and create opportunities for productive community discussions and solution generation. Breakwell's Identity Process Theory (IPT) offers some possible strategies for supporting alternative social identities that need further investigation such as strengthening social support for low-carbon livelihood vanguards (Breakwell, 1986). Systemic Family Therapy techniques suggest that predicting a negative response from an individual or an audience is likely to neutralize defensive reactions, especially in the context of a public presentations (Boscolo et al., 1987). Implications for other intervention strategies are discussed below.

b. Implications for interventions that shift social values and metrics.

Because our occupations are intertwined with our lifestyles, it is of primary importance that we always include occupation, economic activity and its goal in any social change equation in order to be successful. Implications for interventions at the policy and community level are explored below.

At the policy level we can use the four-quadrant model again to organize the implications for interventions likely to facilitate adoption of new values that support down-sizing and redirect the goal of economic activity toward wellbeing within each quadrant. Much could be done in the Societal or LR quadrant (see Appendix B, lower right quadrant) at the level of public policy, public and private institutions. Numerous thoughtful texts have been written in the hope of promoting initiatives at this level. These proposals would allow for a planned

scaling back of economic activity, while generating as few negative social impacts as possible (Brown, 2009; Heinberg, 2011; Odum & Odum, 2001,2008). The interventions at the provincial, state and national policy levels that could most directly affect the needs of those hoping to work in a low-carbon manner might include:

- providing public funding of start-up financing for those with low incomes to develop low-carbon businesses;
- providing business mentorship, guidance creating a viable low-carbon business plan;
- encouraging workplaces to reduce job hours and increase job sharing;
- helping businesses reconceptualise how they can provision supplies, redesign and distribute products without fossil fuels, promoting zero-carbon distribution systems;
- offering retraining programs;
- offering collective pension plans or a guaranteed pension for those who adopt a low-carbon livelihood (J. Lawson, personal communication, February 2, 2019);
- providing training in energy retrofitting services for implementation in low-income rental situations;
- creating economic alternatives and cooperative business structures, along with many more possibilities;
- reducing student debt obligations for those that pursue low-carbon livelihoods to free young people to have this opportunity.

Very important, but less specific support is provided by public transit systems, bicycling infrastructure, public healthcare, access to education and training in skills for planning and decision making efforts necessary to promote community conversations so critical for adaptability and resiliency to economic and environmental stressors. The Transition Network Movement attempts to bring many of these activities into communities through efforts such as their RE-economy and Transition Streets projects among others, often starting at the neighbourhood level (www.transitionnetwork.org).

Implications for interventions at the local community level remind us to consider the Cultural (lower left, see Appendix B) quadrant involving possibilities for activities that support

a shift in cultural values, norms, beliefs and social metrics toward those that underpin sustainable activities. In general, we are talking about various forms of social support and social recognition for efforts individuals make to reduce the need for fossil fuels in their work and job-related activities, while at the same time making these possibilities more visible through role modeling and media campaigns. Neighbourhood-based programs such as CRAIGs in the UK, the eco-village movement, and TransitionStreets.org among many others are designed to provide social support for carbon reduction efforts. These groups can be fairly successful, especially in terms of lifestyle energy and resource reduction efforts (Evans & Abrahamse, 2009).

Cultural values and beliefs are at the heart of our economic paradigm and offer a critical leverage point for social change (Meadows, 1999) capable of strengthening the Degrowth movement. The results of this study clearly confirm the power of values to propel and maintain social and behavioural transformations that impact sustainability. Many now argue that a focus on social values and cultural matters will be more successful at generating larger-scale behavioural change (Bamberg & Moser, 2007; Riedy, 2009), compared to a focus on promoting individual behaviour change. Values are the key to motivation and social transformation (Dahl, 2013; Bamberg & Moser, 2007). Furthermore, strong values are linked to more effective outcomes. In addition, when values can be measured, they become visible and important and therefore are encouraged and cultivated (Dahl, 2013; Meadows, 1998).

The following discussion will focus on interventions that could foster a shift in values and cultural social metrics used for measuring success. Such a shift would contribute directly and indirectly to having an economy that enhances wellbeing and equity. Below, interventions are divided into those that 1) leverage social role-modeling to increase visibility and viability of occupational alternatives and inspire change; 2) promote awareness of values and identity metrics embedded in consumerism, offer the alternative values of “One Planet Earth Citizenry” and increase awareness of and strategies for addressing social pressure to conform to growth oriented standards; 3) foster and support individuals involved with low-carbon career planning and efforts; and 4) shift the goal of economic activity toward wellbeing.

b.1 Social role modeling.

Social role modeling is an effective way to promote rapid learning of new values and behaviours (Bandura, 1977). Given that moral cognition has the distinct ability to motivate social behaviours (Moll et al., 2009), the growth of similar values and actions in communities could be promoted by bringing out into public awareness the values and moral motivations behind the actions of livelihood vanguards (Moser & Dilling, 2007) while pointing out the failures of consumerism and the growth paradigm. An effort is needed to elevate the social status identity of those with low-carbon livelihoods at the same time discourage marginalization of them and negative reactions to their efforts. Such efforts spread notions about other ways of measuring one's social value that fall outside of consumption and socioeconomic status. Based on what we know about social learning, mirror neurons, the influence of moral role models, and the alluring potential for social contagion, it seems reasonable to consider the possibility of identifying students and other individuals in various sectors of the community with environmental interests, provide them with support and guidance, and put them forward as role models for others in terms of their values, moral convictions, and livelihood goals.

Studies in social psychology (Bandura, 1969) have long underscored the use of moral exemplars for moral learning via vicarious learning (observing moral behaviour), moral elevation (the warm uplifting feeling experienced when witnessing unexpected act of human goodness), and upward comparison (motivated by envy or a desire to be more like the role model). Neuroscience has now shown that activity increases in regions of the brain responsible for moral emotion and motivation in response to seeing people exhibiting moral behaviours (Moll et al., 2008). More recent work has detailed that moral role models need to be engaging to be effective. When that is the case, they can significantly promote moral reasoning and behaviour (Han et al., 2017). Scholars have shown that the more a person can identify with the moral role model the more they are likely to learn from them or emulate them. Being of the same age, gender, having similar interests, or backgrounds among other commonalities help promote pro-social behaviours in others. In addition, Han and colleagues (2017) found that making the behaviours seem less elevated, or within reach, and relevant for a person also encourages motivation to act in similar ways (and presumably discourages

engagement of defensive strategies). These details provide insight about how role model based interventions should be designed.

b.2 Consciousness raising groups & one planet citizenry.

Public interest programming at a national, state, or provincial level, coupled with existing public and non-profit programs involved in that effort, could clearly provide an impetus for broader-scale and more rapid spread of "One Planet Earth Citizenry" values and behaviours. However, given that these policies run counter to the prevailing notions regarding the benefits of economic growth, a major source for such programming is unlikely to emerge from higher levels of government. Nevertheless, serious efforts to support a paradigm shift in values continue to grow in hard copy and online publications, in activist movements, and in change-oriented community movements around the world.

According to Gibson-Graham (2002), in this change process, one first needs to 'dis-identify' with what is offered by mainstream capitalism and make livelihoods that are now considered 'social identities' into honourable occupations: homemaker, volunteer, home food or goods producer, artisan, hunter, migrant, public servant, community worker, social entrepreneur, and cooperative worker. Activities like these have been assigned less value within the current economic system. Having less social status identity value has acted to reinforce capitalist economic goals by discouraging unpaid occupations such as homemaking that exist outside of profit and commodification. Currently, homemaking is not considered an occupation, never mind a profession (although it used to be one if you are old enough to remember 'home economics' classes and 'home economists'). Extremely important economic behaviours such as those motivated by parenting, solidarity, stewardship, obligation, reciprocity, care-taking, vegetable gardening and food provisioning have been discouraged when unpaid and seen as lower in social status.

There is a need to raise people's awareness of the myriad of other interactions that are a part of, and can be a part of 'a diverse economy' that may be unpaid, paid in kind, paid by barter, or reciprocal exchanges of many varieties. When these activities are marginalized, they are not visible and cannot offer viable alternatives for us. These insights suggest that interventions that increase people's awareness of these alternatives and raise consciousness regarding their value can support the growth of low-carbon livelihoods. Consciousness raising

groups are an example of a strategy that could “re-value” unpaid forms of provisioning and volunteer work among many other economic activities while pointing out the negative side of behaviours afforded by wealth and having a higher income in North American cultures.

‘Consciousness raising discussion groups’ could facilitate a new economic vision by promoting alternative self-identity metrics, increasing awareness of other viable non-growth oriented economic activities that promote community resiliency, and by discussing coping strategies for addressing negative social pressure. Encouraging people to locate and center their conversations with others around shared values and concerns is a very effective way of avoiding defensive reactions, as can be the use of motivational interview techniques, and simply predicting a head of time that the listener is likely to have a negative reaction can neutralization its occurrence.

Because low-carbon livelihoods may not in large part, if at all, be income generating, such as running a self-sufficient permaculture homestead or making bread in exchange for eggs, it will be crucial to help others ‘dis-identify’ with mainstream market identity metrics in order to remove barriers related to social status identity. When enough people are able to create viable work focussed on promoting wellbeing and equity outside the parameters of traditionally paid jobs, the entire economic system by definition is transformed. Increasing the social status of activities traditionally not considered part of ‘the economy’ would create a self-reinforcing and positive feedback loop.

b.3 Fostering low-carbon career planning.

We also know that social support is a powerful antidote to threats of backlash and stigmatization (Rudman et al., 2012). When vanguards are nurtured and supported, their self-esteem is protected and they can resist conformity pressures (Asch, 1955 in Rudman et al., 2012). Offering an opportunity to be in a support group on campus (or near campus) specifically for the purpose of developing potential low-carbon career plans given by others who are perceived as similar and likable (role models providing support for future role models) could be an effective intervention. Information could be offered about the myriad of non-growth based economic activities that exist to be creatively adapted. Help accessing other resources for academic or non-academic issues could be provided in that context, such as business planning support if needed.

b.4 Shifting the goal of economic activity toward wellbeing.

Donella Meadows argued that wellbeing is the ultimate indicator of how well a system is functioning (1998). For Meadows it was the indicator of ultimate ends, the most important indicator, without which others make no sense. When indicators arise from values that we care about, those indicators act to reinforce those same values. Involving neighbourhoods in developing and implementing community-based measures of wellbeing is an important intervention to pursue (Dahl, 2013).

Another approach that would generate prestige and social value in previously unpaid work and pro-environmental behaviours could be modeled after the World War II poster propaganda campaigns designed to promote the war effort. The WWII campaigns were publicly spearheaded and volunteer driven (Witkowski, 2003). This national effort was supported by locally driven campaigns that became very successful in promoting values such as frugality, growing and storing food at home, and reducing consumption to promote the war effort. A similar effort could now be used to promote a 'War Against Climate Change' effort. A war-type effort has been promoted by many as a means of addressing the scale and urgency of social transformation that is needed (Brown, 2009; Heinberg, 2011).

Following this model, an inexpensive publicity campaign could be implemented locally and driven 'chain-letter' style at the neighbourhood level to promote the values of low-carbon living in a morally appealing manner. Activities that are already being promoted such as eating local, shopping local, and using farmer's markets can be extended to composting local, banking local, vacationing local, and encouraging the development of coops and sharing exchanges. Debunking myths about the ineffectiveness of individual change efforts could be used to encourage renewed efforts such as: "Small changes add up," "Break your carbon chains," "Share your yard," "Skill-up, power down," "Live simply, so that others can simply live," "Strive for One Planet Living," etc. Posters could promote frugality, simple living, organic 'climate victory' gardens, urban farming and plow share, fruit and nut gleaning, DIY, rainwater collection, community cooperatives, public banks, time banks, home and business weatherization, sharing tools, skills and resources to name only a few possibilities.[13]

[13] Many resources for all of these possibilities are available online.

The poster program could be jump-started by one or two people per neighbourhood providing posters to be displayed in household windows and local businesses. One or two more people adjacent to the next neighbourhood could be recruited to do the same. This system would allow for time and monetary costs to be spread out across individuals allowing it to be 'socially' funded if no 'political will' or community funding became available.

Conclusion:

From the beginning, Degrowth scholars have pointed out the need to reduce our ecological footprint by slowing economic activities, reducing production, reducing population growth, *reducing all but essential activities until that point of balance/sustainability is reached*. In effect, we are talking about a paramount need for self-restraint at all levels of society in North America. How is that done? The WWII propaganda campaign briefly reviewed above, in combination with nationally set guidelines and directives, accomplished this by promoting rationing of essential goods, prohibiting sale of most non-essential goods, along with being thrifty, recycling metals and other materials, obeying price and rationing controls, along with growing and storing your own food (Witkowski, 2003). This process may seem too radical by today's standards for implementation.

Thomas Kuhn (1962) wanted us to understand that in the context of scientific paradigms, when you discover a more viable theory, hardly anyone will believe you. Paradigm changing ideas are *always* initially rejected and punished (in the case of challenging mainstream economic activities - backlash, micro-aggressions, social and economic penalties are imposed). The political rejection of the notion of limits to economic and population growth rose to a very high level following the MIT publication of *Limits to Growth* in 1972. This rejection is still largely in place with regard to the notion that economic growth creates more poverty, not less, and that technology usually worsens problems rather than solves them. It seems very likely that even now, 47 years after the first publication of the MIT findings, that only a small group of people would accept that we should recruit those ecologically driven by guilt, grief and despair; tell them they can succeed at being happy by being poor, frugal, and wasting nothing; tell them that they should strive to have a livelihood that provides an essential service or product for their community, and do it all primarily by bicycle or on foot. Furthermore, it seems ironic that we should at the same time encourage people to show their despair, discuss their feelings of empathy and grief, and share their moments of hopelessness with one another. Perhaps we should even provide a reminder of Viktor Frankl's (1959) notion that there can be purpose [and reward] in suffering when there is no other choice. These are currently very counterintuitive ideas. A notable and relevant quote paraphrased from a lecture by Donella Meadows at the University of Michigan Ross School of Business is:

"Ironically, as rational as it seems to want to live more sustainably, you have to act irrationally to move into another system, or into a sustainable system."

The irony that wanting to live more sustainably requires one to "act irrationally" is due in large part to the fact that the prevailing economic system is profit-driven, not values-driven. The long-term effects of society being focussed on the goal of growing profit versus growing wellbeing can be seen in the manner in which human worth, our self-identities, along with our sense of security and place in society have all, in effect, been monetized and defined by socioeconomic status and material consumption. In North America, redefining how we define worth, purpose and identity will be critical. Moving these social metrics involves moving the focus of society's activities toward health and wellbeing and deepening our sense of interconnection with the natural world and our dependence on treasuring Earth's health as much as our own. Redirecting social metrics depends on shifting the values, goals and beliefs that underpin culturally sustaining activities within communities. Again, when policy level and public funding efforts are ideologically limited as they are currently, it is likely that the more effective strategies will involve those that shift our social values and metrics in a manner that prioritizes and redirects economic activities toward essential pro-social goals. In general, there is a growing awareness of environmental concerns, climate disruption, and their economic and social costs. However, that awareness needs to be scaled up dramatically. One avenue for building cultural momentum without dependence on higher levels of government policy is to provide various forms of social support and social recognition at the local level. Individuals and groups are elevated when given recognition. Efforts that individuals and groups make to reduce the need for fossil fuels in their work and job related activities should be promoted. That same social recognition has a multiplier effect, in that it simultaneously opens up new worlds of livelihood possibilities for others as those alternatives become more visible and viable through role modeling and media campaigns as discussed above.

There is a positive story that can be told from imagining a world that is radically different. Like overcoming any addiction, these individuals reported feeling better, being grateful, and contented with their low-carbon livelihoods and lifestyles. They provide a positive vision in which quality of life improves when we challenge our current concepts about livelihoods, income, social status and standards of living. Those who have chosen to adopt a

low-carbon livelihood have taken a seemingly irrational leap off the merry-go-round. But participants in this study are already educating others and have become assets for those who will continue to come after them. For these individuals, the leap has been fuelled by moral emotions of empathy and guilt, personal integrity, at times anger, and despair. The choice to adopt a low-carbon livelihood was eventually well supported by community, friends and family, but not usually in the beginning. It involved strengthening habits of frugality and/or bicycling, avoidance of car travel and flying, developing over time a preference for vegetarianism, veganism, and exploring forms of spirituality such as reverential naturalism and oneness beliefs among other things. The leap emerged following an understanding of complex interconnected social and ecological problems. Choices were guided by information accumulated about low-carbon livelihood and lifestyle alternatives. These skills and habits did not emerge over night, but grew over time. Like anyone else, these low-carbon livelihood moral exemplars chose from alternatives that had unique appeal and viability for them based on their interests. They pursued their goals with persistence, driven by clear values, at times horrified, hopeless and despairing, at times hopeful and reinforced by community appreciation for their accomplishments, and at all times I suspect, secretly hopeful that their efforts would make a difference.

REFERENCES:

Alexander, S. (2011). *Voluntary simplicity: overcoming barriers to sustainable consumption*. Available at www.simplicityinstitute.org/publications. Accessed October, 2016.

Alexander, S. (2012). *The Sufficiency Economy: Envisioning a Prosperous Way Down*. Simplicity Institute Report 12s.

Alvaredo, F., Atkinson, A.B., Piketty, T. & Saez, E. (2013). The top 1% in international and historical perspective, *Journal of Economic Perspectives*, 27(3): 3-20.

Angus, I. & Butler, S. (2011). *Too Many People? Populations, Immigration and the Environmental Crisis*, Haymarket Books, Chicago, IL.

Anielski, M. (2007). *The Economics of Happiness: Building Genuine Wealth.* New Society Publishers, Gabriola Island, B.C.

Antonetti, P. & Maklan, S. (2014). Feelings that make a difference: How guilt and pride convince consumers of the effectiveness of sustainable choices, *Journal of Business Ethics*, 124: 117-134.

Assadourian, E. (2010). *The Rise and Fall of Consumer Cultures*, in Worldwatch Institute, *State of the World,* W.W. Norton, New York, NY.

Bamberg, S. and Moser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psychosocial determinants of pro-environmental behaviour*, Journal of Environmental Psychology*, 27: 14-5.

Bandura, A. (1977). *Social Learning Theory*. Prentice Hall, Englewood Cliffs, New Jersey.

Baumeister, R.F., Vohs, K.D., DeWall, C.N., and Zhang, L. (2007). How emotion shapes behaviour: Feedback, anticipation, and reflection, rather than direct causation, *Personality and Social Psychology Review*, 11(2): 167-203.

Becker, G.s. (1974). A theory of social interactions. *Journal of Political Economics,* 82(6): 1063-1093.

Berenguer, J. (2007). The effect of empathy in pro-environmental attitudes and behaviours, *Environment and Behaviour,* 39(2): 269-283.

Bernard, R. (2001). *Research Methods in Anthropology: Qualitative and Quantitative Approaches, 3rd edition*. Alta Mira Press, Oxford, UK.

Bevington, D. & Dixon, C. (2005). Movement-relevant theory: Rethinking social movement scholarship and activism. *Social Movement Studies,* 4(3): 185-208.

Boscolo, L., Cecchin, G., Hoffman, L., & Penn, P. (1987). *Milan Systemic Family Therapy*, Basic Books, New York, NY.

Breakwell, G.M. (1986). *Coping with Threatened Identities*, Methuen & Co., London, UK.

Brook, A. T., Garcia, J., & Fleming, M. A. (2008). The effects of multiple identities on psychological well-being. *Personality and Social Psychology Bulletin*, 34, 1588–1600.

Brown, B.C. (2007). *The Four Worlds of Sustainability: Drawing Upon Four Universal Perspectives to Support Sustainability Initiatives*, Integral Sustainability Center, February 20, 2007. Downloaded August 15, 2017 from http://nextstepintegral.org/wp-content/uploads/2011/04/Four-Worlds-of-Sustainability-Barrett-C-Brown.pdf

Brown, E.H. (2007). *Web of Debt: The Shocking Truth About Our Money System and How We Can Break Free, 5th Edition*, Third Millennium Press, Baton Rouge, Louisiana.

Brown, L.R. (2009). *Plan B 4.0: Mobilizing to Save Civilization, 1st ed*., W.W. Norton, New York, NY.

Brown, L.R., Gardener, G., & Halwell, B. (1998). *Beyond Malthus: Sixteen Dimensions of the Population Problem*, Worldwatch Institute, Washington, D.C.

Bulkeley, H. (2000). Common knowledge? Public understanding of climate change in New Castle, Australia, *Public Understanding of Science,* 9: 313-333.

Burgess, J., Bedford, T., Hobson, G., Davies, G. & Harrison, C. (2003. (Un)Sustainable Consumption. In Berkhout, F., Leach, M. & Scoones, I. (eds.) *Negotiating Environmental Change: New Perspectives from Social Science,* Edward Elgar, Cheltenham, UK.

Caillaud, S., Bonnot, V., Ratiu, E. & Krauth-Gruber, S. (2016). How groups cope with collective responsibility for ecological problems: Symbolic coping and collective emotions, *British Journal of Social Psychology,* 55: 297-317.

Cangiani, M. (2011). Karl Polanyi's institutional theory: Market society and its "disembedded" economy, *Journal of Economic Issues*, *45*(1), 177–198.

Caradonna, J.L. (2014). *Sustainability: A History,* Oxford University Press, New York, NY.

Carmi, N., Arnon, S. & Orion, N. (2015). Transforming environmental knowledge into behaviour: The mediating role of environmental emotions, *The Journal of Environmental Education*, 46(3): 183 - 201.

Cherrier, H., Szuba, M. & Ozcaglar-Toulouse, N. (2012). Barriers to downward carbon emission: Exploring sustainable consumption in the face of the glass floor, *Journal of Marketing Management*, 28(3-4), 397-419.

Christakis, N.A. and Fowler, J. H. (2012). Social Contagion Theory: examining dynamic social networks and human behaviour. *Statistics in Medicine,* 32(4), 556-557.

Cialdini, R.B. and Trost, M.R. (1998). Social influence: social norms, conformity, and compliance. In Gilbert, D.T., Fiske, S.T. & Lindzey, G. Eds. *The Handbook of Social Psychology,* McGraw-Hill: New York, NY.

Costanza, R., Alperovitz, G., Daly, H.E., Farley, J., Franco, C., Jackson, T., Kubiszewski, I., Schor, J. & Victor, P. (2013). Building a sustainable and desirable economy-in-society-in-nature. In Assadourian, E. & Prugh, T. (eds.), *State of the World 2013: Is Sustainability Still Possible?* Island Press, Washington, D.C.

Creswell, J.W. (2013). *Quantitative Inquiry and Research Design: Choosing Among Five Approaches, 3rd Edition,* Sage Publications, Thousand Oaks, CA.

Crosby, D. A. (2013). *The Thou of Nature: Religious naturalism and Reverence for Sentient Life,* State University of New York Press, Albany, NY.

Cruwys, T., Steffens, N.K., Haslam, S.A., Haslam, C., Jetten, J. & Dingle, G.A. (2016). Social Identity Mapping: A procedure for visual representation and assessment of subjective multiple group memberships, *British Journal of Social Psychology*, 55, 613-642.

Daly, H. & Cobb, Jr., J.B. (1989). *For the Common Good: Redirecting the Economy Towards Community, the Environment and a Sustainable Future*, Green Print, London.

Daly, H. (1996). *Beyond Growth: The Economics of Sustainable Development*, Beacon Press, Boston, MA.

Demaria, F., Schneider, F, Sekulova & Martinez-Alier, J. (2013). What is degrowth? From an activist slogan to a social movement, *Environmental Values,* 22. 191-215.

Destin, M., Rheinschmidt-Same, M. & Richeson, J.A. (2017). Status-based identity: A conceptual approach integrating the social psychological study of socioeconomic status and identity, *Perspectives on Psychological Science,* 12(2), 270-289.

DiClemente, C.C. (2003). *Addiction and Change: How Addictions Develop and Addicted People Recover,* Guilford Press, New York, NY.

Dietz, R. and O'Neill, D. (2013). *Enough is Enough: Building a Sustainable Economy in a World of Finite Resources,* Berrett-Koehler Publishers, San Francisco, CA.

Dobernig, K. & Stagl, S. (2015). Growing a lifestyle movement? Exploring identity-work and lifestyle politics in urban food cultivation, *International Journal of Consumer Studies*, 39: 452-458.

Douglas, M., Wildavsky, A. (1982). *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*, University of California Press, Berkeley/Los Angeles, California.

Durlauf, S.N. and Young, H.P. (2001). The new social economics, in *Social Dynamics*, ch.1, pp. 1-14, MIT Press, Cambridge, MA.

Easterlin, R.A. (1973). Does money buy happiness? *Public Interest*, 3, 3-10.

Esbjorn-Hargens, S. (2005). Integral ecology: The what, who and how of environmental phenomena, *World Futures, 61: 5-49.*

Evans, D. and Abrahamse, W. (2009). Beyond rhetoric: the possibilities of and for sustainable lifestyles, *Environmental Politics,* 19 (4), 486-502.

Frankl, V.E. (1959-2006). *Man's Search for Meaning*, Beacon Press, Boston, MA.

Garfield, A.M., Drwecki, B.B., Moore, C.F., Kortenkamp, K.V. & Gracz, M.D. (2014). The oneness beliefs scale: Connecting spirituality with pro-environmental behaviour, *Journal for the Scientific Study of Religion,* 53(2): 356-372.

Georgescu-Roegen, N. (1971). *Entropy Law and the Economics of Progress*, Harvard University Press, Cambridge, MA.

Gibson-Graham, J.K. (2002). Beyond global vs. local: Economic politics outside the binary frame. In Herod, A. & Wright, M.W. (eds.) *Geographies of Power: Placing Scale,* Blackwell Publishers, Malden, MA.

Gibson-Graham, J.K., Cameron, J. & Healy, S. (2013). *Take Back the Economy: An Ethical Guide for Transforming Our Communities,* University of Minnesota Press, Minneapolis/London.

Gifford, R. (2013). Dragons, mules, and honeybees: Barriers, carriers, and unwitting enablers of climate change action, *Bulletin of the Atomic Scientists*, 69(4): 41-48.

Gifford, R., Kormos, C. & McIntyre, A. (2011). Behavioural dimensions of climate change: Drivers, responses, barriers, and interventions. *Wiley Interdisciplinary Reviews: Climate Change,* 2(6), 801-827.

Gifford, R. & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. *International Journal of Psychology*, 49(3): 141-157.

Grant, L. (2001). *Too Many People: The Case for Reversing Growth*, Seven Locks Press, Santa Ana, CA.

Han, H., Kim, J., Jeong, C. & Cohen, G.L. (2017). Attainable and relevant moral exemplars are more effective than extraordinary exemplars in promoting voluntary service engagement, *Frontiers in Psychology,* 8 (283), www.frontiersin.org

Hards, S. (2011). Social practice and the evolution of personal environmental values. *Environmental Values*, 20, 23–42.

Hartmann, P., Eisend, M., Apaolaza, V. & D'Souza, C. (2017). Warm glow vs. altruistic values: How important is intrinsic emotional reward in pro-environmental behaviour, *Journal of Environmental Psychology*, 52: 43-55.

Heinberg, R. (2011). *The End of Growth: Adapting to Our New Economic Reality,* New Society Publishers, Gabriola Island, B.C.

Heinberg, R. (2015). *Afterburn: Society Beyond Fossil Fuels*, New Society Publishers, Gabriola Island, B.C.

Hiller, H.H. & Diluzio, D.L. (2004). The interviewee and the research interview: Analysing a neglected dimension in research, *Canadian Review of Sociology*, 41(1), 1-26.

Hopkins, R. (2008). *Transition Handbook: From oil dependency to local resiliency,* Chelsea Green, white River Junction, VT.

Hopkins, R. (2011). *The Transition Companion: Making Your Community More Resilient in Uncertain Times.* Chelsea Green, White River Junction, VT.

Howell, R.A. (2012). It's not (just) "the environment, stupid!" Values, motivations, and routes to engagement of people adopting lower-carbon lifestyles, *Global Environmental Change,* 23, 281-290.

Howell, S. (2003). The diffusion of moral values in a global perspective. In Eriksen, T. (ed.) *Globalization: Studies in Anthropology*, Pluto Press, London, UK.

Isenhour, C. (2010). On conflicted Swedish consumers, the effort to stop shopping and neoliberal environmental governance, *Journal of Consumer Behaviour,* 9, 454-469.

Jackson, T. (2005). *Motivating Sustainable Consumption: A review of Evidence on Consumer Behaviour and Behavioural Change*, Report to the Sustainable Development Research Network. University of Surrey, Guildford, Surrey.

Jackson, T. (2009). *Prosperity Without Growth: Economics for a Finite Planet,* Earthscan, Sterling, VA.

Jackson, T. (2011). Societal transformations for a sustainable economy, *Natural Resources Forum*, 35, 155-164.

Jackson, T. (2017). *Prosperity Without Growth: Foundations for the New Economy*, Routledge, London, UK.

Jasper, J. (1998). The emotions of protest: Affective and reactive emotions in and around social movements, *Sociological Forum,* 13(3): 397-424.

Kahlke, R.M. (2014). Generic qualitative approaches: Pitfalls and benefits of methodological mixology, *International Journal of Qualitative Methods*, 13 (1): 37-52.

Kennedy, E.H., Krahn, H. & Krogman, N.T. (2014). Egregious emitters: disproportionality in household carbon footprints, *Environment and Behavior*, 46(5), 535 – 555.

Kim, J. (2016). Female education and its impact on fertility: Its impact is more complex than one may think, *IZA World of Labor*, 228.

Kollmus, A. & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8(3): 239-260.

Kuhn, T.S. (1969). *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago, IL.

Latouche, S. (2003). Would the west actually be happier with less? The world downscaled, article in *Le Monde Diplomatique*, December, 2003.

Latouche, S. (2010). *Farewell to Growth,* Polity Press, Cambridge, UK.

Levett, R., with Christie, I., Jacobs, M. and Therivel, R. (2003). *A Better Choice of Choice: Quality of Life, Consumption and Economic Growth*, Fabian Society, London, UK.

Levine, E.E., Bitterly, T.B., Cohen, T.R. & Schweitzer, M.E. (2018). Who is trustworthy? Predicting trustworthy intentions and behaviour, *Journal of Personality and Social Psychology*, 115(3), 468-494.

Lorenzen, J. A. (2012). Going green: The process of lifestyle change, *Sociological Forum*, 27 (1), 94-116.

Macy, J. (2003). *The World as Lover, World as Self: Courage for Global Justice and Ecological Renewal*, Parallax Press, Berkeley, California.

Malm, A. (2016). *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming,* Verso, London, UK & New York, NY.

Manstead, A.S.R. (2018). The psychology of social class: How socioeconomic status impacts thought, feelings, and behaviour, *British Journal of Social Psychology*, 57, 267-291.

Markowitz, E.M. (2012). Is climate change an ethical issue? Examining young adults' beliefs about climate and morality. *Climate Change*, 114(3): 469-495.

Maslow, A.H. (1968). *Toward A Psychology of Being – 3rd ed.,* John Wiley, New York, NY.

Maslow, A.H. (1970). *Motivation and Personality* (2nd ed.), Harper and Row, New York, NY.

Max-Neef, M., Elizald, A. & Hopenhayn, M. (1989). Human scale development: an option for the future, *Development Dialogue*, 1, 17-47.

McCarty, C., Molina, J-L., Aguilar, C. & Rota, L. (2007). A Comparison of Social Network Visualization, *Field Methods,* 19(2), 145–162.

Meadows, D.H. Meadows, D.L., Randers, J. & Behrens, III, W.W. (1972). *Limits to Growth: A Report to the Club of Rome Project on the Predicament of Mankind,* Universe Books, New York, NY.

Meadows, D.H. Meadows, D.L. and Randers, J. (1992). *Beyond Limits: Confronting Global Collapse, Envisioning a Sustainable Future,* McClelland & Stewart, Toronto, Ontario.

Meadows, D.H. (1994). Envisioning a Sustainable World, presented at the Third Biennial Meeting of the International Society for Ecological Economics, October 24-28, published in Costanza, R., Segura, O. & Martinez-Alier, J. (eds.) *Getting Down to Earth, Practical Applications of Ecological Economics*, Island Press, Washington DC, 1996.

Meadows, D.H. (1998). *Indicators and Information Systems for Sustainable Development: A Report to the Balaton Group*, Sustainability Institute, Hartland Four Corners, VT.

Meadows, D.H. & the Sustainability Institute (1999). Leverage points: Places to intervene in a system, *World*, 1-2.

Meadows, D.H. (1999). *Sustainable Systems*. Lecture given at the University of Michigan Ross School of Business, March 18. Downloaded 9-1-18 from https://www.youtube.com/watch?v=HMmChiLZZHg&index=1&list=PLie52ZHbZvfEPQlnCK9JBjHJcczi1CrNa.

Meadows, D.H., Randers, J. & Meadows, D.L. (2004) *Limits to Growth: the 30-Year Update,* Chelsea Green Publishing Company, White River Junction, VT.

Meadows, D.H. (2008). *Thinking in Systems: A Primer,* Chelsea Green Publishing Company, White River Junction, VT.

Merriam, S.B. & Tisdell, E.J. (2016). *Qualitative Research: A Guide to Design and Implementation, 4th ed.* Jossey-Bass, San Francisco, CA.

Milbrath, L.W. (1995). Psychological, Cultural and Informational Barriers to Sustainability, *Journal of Social Issues,* 51(4), 101-120.

MEA - Millennium Ecosystem Assessment Annual Report (2004). *Living Beyond Our Means: natural Assets and Human Well-being,* Coordinated by the United Nations Environment Programme (UNEP).

Miller, E., & Bentley, K. (2012). Leading a Sustainable Lifestyle in a "Non-Sustainable World": Reflections from Australian Ecovillage and Suburban Residents, *Journal for Education of Sustainable Development*, *6*(1), 137–147.

Moll, J., de Oliveira-Souza, R. & Zahn, R. (2009). Neuroscience and morality: Moral judgments, sentiment and values, in Narvaez, D. & Lapsley, D.K. (eds.), *Personality, Identity and Character: Explorations in Moral Psychology,* p. 106-135.

Montgomery, D.R. (2012). *Dirt: The Erosion of Civilizations*, University of California Press, Berkeley and Los Angeles, CA.

Moser, S. and Dilling, L. (eds.) (2007). Toward a social tipping point: creating a climate for change. Chapter 32 in their book: *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change,* Cambridge University Press, Cambridge, UK.

Moser, S. and Kleinhuckelkotten, S. (2018). Good intents, but low impacts: diverging importance of motivational and socioeconomic determinants explaining pro-environmental behavior, energy use, and carbon footprint, *Environment and Behavior*, 50(6), 626 – 656.

Muraca, B. (2013). Decroissance: A project for a radical transformation of society, *Environmental Values*, 22(2), 147-169.

Newlin, D.B. (2009). The human mirror neuron system, in Trajkovski, G. & Collins, S.G. (eds.) *Handbook of Research on Agent-Based Societies: Social and Cultural Interactions*, Information Science Reference, Hershey, PA.

Norberg-Hodge, H. (2002). The Pressure to Modernize and Globalize, in Mander, J. (Ed.), *The Case Against the Global Economy*, Sierra Books, San Francisco, CA.

Norgaard, K.M. (2011). *Living in Denial: Climate Change, Emotions, and Everyday Life,* MIT Press,

Cambridge, MA.

NurrieStearns, M. (1999). Transforming despair: Interview with Joanna Macy, *Personal Transformations,* 7(5): 64-68.

Nyborg, K., Anderies, J. M., Dannenberg, A., Lindahl, T., Schill, C., Schluter, M., Adger, W.N., Arrow, K.J., Barrett, S., Carpenter, S., Chapin III, F.S., Crépin, A., Daily, G., Ehrlich, P., Folke, C., Jager, W., Kautsky, N., Levin, S.A., Madsen, O.J., Polasky, S., Scheffer, M., Walker, B., Weber, E.W., Wilen, J., Xepapadeas, A. & de Zeeuw, A. (2016). Social norms as solutions, *Science*, *354*(6308), 42–43.

O'Brien, K. (2008). *Responding to climate change: The need for an integral approach*. Presented at the Integral Theory in Action Conference, August 7-10, 2008 by the JFK University & Integral Institute. Retrieved July 7, 2018 from https://www.uww.edu/Documents/ce/workshops/Latin%20American%20Workshop/0%Brien_Integral_bookchapter.pdf.

Odum, H.T. & Odum, E.C. (2001, 2008). *A Prosperous Way Down: Principles and Policies*, University of Colorado Press, Boulder, CO.

Oreskes, N. & Conway, E.M. (2010). *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*, Bloomsbury Press, New York, NY.

Oxfam Report (2015). Extreme carbon inequality: why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first, www.oxfam.org. Downloaded February 2, 2019.

Peredo, A. M., & Chrisman, J. J. (2006). Toward a Theory of Community-Based Enterprise, *The Academy of Management Review*, 31(2), 309–328.

Peredo, A.M., Haugh, H.M. & McLean, M. (2017). Common property: Uncommon ways of prosocial organizing, *Journal of Business Venturing*, 1-12.

Pohl, C., Krutli, P. & Stauffacher, M. (2017). Ten reflective steps for rendering research societally relevant. *GAIA,* 26(1): 43-51.

Polanyi, K. (1947). On belief in economic determinism, *Sociological Review*, 37(1): 96-112.

Power, K. and Mont, O. (2010). The role of formal and informal forces in shaping consumption and implications for sustainable society, Part II, *Sustainability*, 2, 2573 - 2592.

Raworth, K. (2012). A Safe and Just Space For Humanity: Can we live within the Doughnut? *Oxfam Discussion Papers* (Vol. February), Oxford, UK.

Reich, R.B. (2007). *$upercapitalism: The Transformation of Business, Democracy, and Everyday Life,* Alfred A. Knopf, New York, NY.

Riedy, C. (2009). Household behaviour change for climate change response: An integral scan, *Journal of Integral Theory and Practice*, 4(4), pp. 103–120.

Roberts, M. (2016). *The Long Depression: Marxism and the Global Crisis of Capitalism*, Haymarket Books, Chicago, Illinois.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, III, F.S., Lambin, E., Lenton,T.M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C. A., Hughes, T., van der Leeuw, S., H., Rodhe, Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R. W., Fabry, V. J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P. & Foley, J. (2009). Planetary boundaries: exploring the safe operating space for humanity, *Ecology and Society,* 14(2): 32 – 62.

Roiland, D. (2016). Frugality, a positive principle to promote sustainable development, *Journal of Agricultural and Environmental Ethics,* 29, 571-585.

Rowe, J. (2016). Is fear of death at the heart of capitalism? *In The Arrow: A Journal of Wakeful Society, Culture and Politics*. Downloaded January 20, 2019: https://arrow-journal.org/is-a-fear-of-death-at-the-heart-of-capitalism/

Roy, R. (2002). Case studies in low-carbon living, in Herring, H. (ed.) *Living in a Low-Carbon Society in 2050*, Energy, climate and the environment series, Palgrave-Macmillan, Hampshire, UK.

Rudman, L.A., Moss-Racusin, C.A., Glick, P. & Phelan, J.E. (2012). Reactions to vanguards: Advances in backlash theory, *Advances in Experimental Social Psychology,* 45, 167-227.

Scheurs, J., Martens, P. & Kok, G. (2013). How to promote sustainable living? Inspiring experiences of Dutch downshifters. In Schrader, U., Fricke, V., Doyle, D. & Thoresen, V.W. (eds) *Enabling Responsible Living*, Springer Verlag, Berlin.

Schlenker, B.R., Miller, M.L. & Johnson, R.M. (2009). Moral identity, integrity and personal responsibility, in Narvaez, D. & Lapsley, D.K. (eds.) *Personality, Identity and Character: Explorations in Moral Psychology,* Cambridge University Press, Cambridge, MA, p. 316-340.

Schor, J. B. (1998). *The Overspent American*, Basic Books, New York, NY.

Schultz, P.W. (2002). Empathizing with nature: The effects of perspective taking on concern for environmental issues*, Journal of Social Issues*, 56, 391-406.

Schumacher, E.F. (1973). *Small is Beautiful: A Study of Economics as if People Mattered*, Blond & Briggs, London.

Seyfang, G. (2009). The New Economics of Sustainable Consumption: Seeds of Change. In *Energy, Climate and Environment Series,* Palgrove Macmillan, Hampshire, UK.

Seyfang, G. & Haxeltine, A. (2012). Growing grassroots innovations: exploring the role of community-based initiatives in governing sustainable transitions, *Environment and Planning C: Government and Policy, 30, 381-400.*

Shaw, D. and Newholm, T. (2002). Voluntary simplicity and the ethics of consumption, *Psychology and Marketing,* 19(2), 167-185.

Shuman, M. (2000). *Going Local: Creating Self-Reliant Communities in a Global Age,* Routledge, New York.

Heinrick Boll Stiftung Foundation & the Institute for Advanced Sustainability Studies (2015). *The Soil Atlas 2015: Facts and Figures About Earth, Land and Fields*, AZ Druck and Datentecknik GmbH, Berlin, Germany.

Throsby, D. (2001). *Economics and Culture*, Cambridge University Press, Cambridge, UK.

Todd, S., & Lawson, R. (2003). Towards an understanding of frugal consumers, *Australasian Marketing Journal*, 11(3), 8–18.

Torstveit, L., Sutterlin, S. & Lugo, R.G. (2016). Empathy, guilt proneness, and gender: Relative contributions to prosocial behaviour, *Europe's Journal of Psychology,* 12(2): 260-270.

Trainer, T. (2014). The Degrowth Movement from the Perspective of the Simpler Way, *Capitalism Nature Socialism*, 5752 (July): 1–18.

Tremblay, C., Gutberlet, J., & Peredo, A. M. (2010). United we can: Resource recovery, place and social enterprise. *Resources, Conservation and Recycling*, 54(7), 422–428.

Turner, G. (2008). A comparison of *Limits to Growth* with 30 years of reality, *Global Environmental Change,* 18, 397-411.

van der Linden, S. (2015). Intrinsic motivation and pro-environmental behaviour, *Nature Climate Change,* 5: 612-613.

van der Toorn, J. & Jost, J.T. (2014). Twenty years of system justification theory: Introduction to the special issue on "Ideology and system justification processes," *Group Processes & Intergroup Relations*, 17(4): 413–419.

Wackernagel, M. & Rees, W. (1996). *Our Ecological Footprint: Reducing Human Impact on the Earth*, New Society Press, Gabriola Island, B.C.

Wackernagel, M. & Rees, W. (1997). Perceptual and structural barriers to investing in natural capital: Economics from and ecological footprint perspective, *Ecological Economics*, 20, 3-24.

Walker, L. J. & Frimer, J. A. (2015). Developmental Trajectories of Agency and Communion in Moral Motivation, *Merrill-Palmer Quarterly*, 61(3): 412-439.

Walker, B., Holling, C. S., Carpenter, S. R. & Kinzig, A. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and Society*, *9*(2), 5. Online at: http://www.ecologyandsociety.org/vol9/iss2/art5.

Witkowski, T. (2003). World War II poster campaigns: Preaching frugality to American consumers, *Journal of Advertising,* 32(1), 69-82.

Wolf, J., Brown, K. and Conway, D. (2009). Ecological citizenship and climate change: perceptions and practice, *Environmental Politics,* 18, 503-521.

Yunus, M. (2007). *Creating a World without Poverty: Social Business and the Future of Capitalism,* Public Affairs, New York.

Zahn-Wexler, C., Radke-Yarrow, M., Wagner, E. and Chapman, M. (1992). Development of concern for others, *Developmental Psychology,* 28(1): 126-136.

Zavestoski, S. (2002). The social-psychological bases of anti-consumption attitudes, *Psychology and Marketing,* 19 (2), 149-165.

Zimmerman, M.E. (2005). Integral ecology: A perspectival, developmental, and coordinating approach to environmental problems, *World Futures,* 61(1-2), 50-62.

Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,* Hachette Book Group, New York, NY.

APPENDIX A: INTERVIEW QUESTIONS

PARTICIPANT INTERVIEWS:

Background Questions:

Age, Job history, including years in present low-carbon livelihood?

Educational history (both formal and informal)?

Interview questions:

1. How would you describe your business or occupation?
2. How do you see your work as low-carbon?
3. How would it look if not low-carbon?
4. How did you become aware that you could work in this manner?
5. Did you have a role model?
6. What motivated you to work in this manner?
7. Did you have to make a major transition to work in this manner?
8. What were the largest challenges that you faced? (financial, educational, social)
9. If social, describe those in detail. When, Who, What did the specific behaviours or interactions look like. How were your relationships or your social networks affected by your efforts?
10. Are you dealing with any ongoing social challenges?
11. What sustains you or supports you in this effort?
12. What kind of support would have been helpful to you?

APPENDIX B: CIRCULAR FOUR-QUADRANT MODEL of ENABLING and INHIBITING FACTORS