Community-Based Adaptation to Climate Change: An Exploration

MSc in Capacity Development and Extension

Major Research Paper

by

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"No matter what people tell you, words and ideas can change the world."

Robin Williams, Dead Poets Society
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Chapter 1: Introducing the Basics

“Participation is an ecological imperative because if we fail to make the developmental transition to an aware participative relationship with the planet we will in all probability create an environment unfit for human habitation.”

(Reason, 1998, p 3)

What is Climate Change?

Observed evidence of anthropogenic climate change has been documented globally (IPCC, 2014, (NASA, 2018a). The impacts of these climatic changes are also being experienced globally (Choptiany et al., 2015). The average temperature of the earth is 0.9°C warmer than the averaged temperatures between 1951 and 1980 (NASA, 2018a), in fact, “Sixteen of the seventeen warmest years on record have occurred since 2001,” (NASA, 2018b). Since the industrial revolution, the global average temperature has increased by 1.5°C, and trends are on track to continue in this direction (IPCC, 2014).

Climate change is sometimes known as global warming, but it is now understood that climactic changes manifest in a variety of other ways as well. Some places on earth experience higher seasonal averages, while others are seeing more frequent weather events, more extreme weather events, and changes in precipitation patterns. For twelve thousand years we have dealt with relatively stable temperatures on the earth (NASA, 2018a). We are now living in a time where climactic variability is the new norm. While uncertainty is an innate quality of climate change, Adger et al. (2006) state in their book, “uncertainty is hardly a reason for complacency.” Even though it is sometimes easier to ignore the changing climate than it is to make changes in our lifestyle, in the future (and for some places, now) we will no longer be able to function in a state of denial and maintain our current quality of life. Climactic changes are on track to continue to challenge current standards of wellbeing. We know for certain that the oceans are warmer, average temperatures have
been on the rise since the industrial revolution, sea levels are rising, and the frequency and intensity of extreme weather events is increasing in some parts of the world (IPCC, 2014), (NASA, 2018a).

At the beginning of this section I mention anthropogenic climate change. This is because historical climate changes have been documented through carbon data collected from arctic ice cores. The difference between this era of climate change and past ones is that the dramatic increase in global temperature can be directly attributed to human actions –i.e. output of green house gases (GHGs)– and is happening at a faster rate than previous warmings. According to one article that reviewed 11 944 scientific articles on climate change, 97.1% of scientists agree that the current era of global climate change is attributed to anthropogenic causes (Cook et al., 2013). Most arguments in opposition to this consensus are based on the fact that global climate changes have been recorded throughout the history of the planet, and it is suggested by these dissenting scientists that we are entering another natural cycle of global warming. The debate between these two perspectives matters more when discussing actions of mitigation. It is critical to the foundation of adaptive reasoning to understand that regardless of this position about the cause of global warming, there is scientific consensus that the climate is changing. Thus, as a species on this earth, we must adapt. For the sake of this paper, I have chosen to write from the assumption that climate change is due to anthropogenic causes. I will not be defending my position, other than by claiming to agree with the evidence provided by NASA, the IPCC, personal communication with geography professors, and the 97.1% of climate change scientists who also understand climate change to be a cause of human actions. To discuss the particulars of this debate would warrant the creation of an entire paper dedicated to the topic.
Climate Change: Community Impacts in Canada

Due to access of economic resources and government aid, wealthier countries tend to be less vulnerable than lower-income countries (LICs),¹ (Adger et al., 2006). While many of the concepts discussed in this paper can be applied to climate change adaptation throughout the globe, I write with the majority of my investigation prioritizing my home country, Canada. Even though LICs are more vulnerable to climactic changes, the current and imminent climactic changes are also going to have –or are currently having– a significant impact on how Canadians experience their lives. This is especially true of rural and resource-dependant communities (Sander-Regier et al., 2009). Rural and resource-dependant communities can include agricultural, forestry, rural tourism, or natural resource extraction-based economies and livelihoods. Such communities are more closely tied to the land because of their reliance on stable climactic patterns.

Sander-Regier et al. (2009) identify effects of climate change on Eastern Ontario. This part of Ontario has seen rising night-time temperatures, as well as a higher frequency of precipitation since the 1950s. The IPCC (2014) confirm that the trend of higher temperatures will continue to rise throughout the foreseeable future. As mentioned above, rural communities are innately more tied to the landscape because of their reliance on nature and natural resources for agriculture and resource-use. This close relationship with the land results in a heightened sensitivity to changes in the weather and climate (Sander-Regier et al., 2009; Adger et al., 2006). While this sensitivity has some obvious properties of a weakness, it also results in some strengths. Sander-Regier et al. (2009) claim that this closeness with the land can also place these communities in a position of adaptive advancement because of their historical endurance of anomalous weather conditions. This perseverance can be

¹ I prefer to use the term lower-income countries (LICs) over terms such as “third world” or “developing.” To use “third world” implies a hierarchical ranking of countries, which is not an idea I wish to perpetuate. To use “developing” implies that such categorized countries have a long way to go. Perhaps colonized ideals and capitalistic devotion of “developed nations” are not the goals of all LICs. My need to categorize comes from the need to distinguish nations that are in a position of financial stability from those that are more economically vulnerable. In my best attempt to avoid implications of assigning values to countries, I thus use the term LICs.
seen through technological advancement, adapted traditional methods, or in the local storied past. In local histories, there are often grand tales about extreme weather events, and perhaps even about local heroes who dealt with them. People in rural communities have been dealing with a certain level of climactic variability for generations. This type of wisdom and local history influences the inherent adaptive capacity of these communities (Sander-Regier et al., 2009; Fraser et al., 2005). This is a part of the existing assets within a community, but existing adaptive capacity may not be enough to deal with the imminent climactic changes and weather events that are becoming more extreme and more frequent (Colombo et al., 2007). Therefore, it is necessary to explore adaptation strategies.

**Global Responses to Climate Change**

There is controversy in the literature about the effectiveness of global-scale climate change negotiations. From the Kyoto Protocol in 1992 to the Paris Agreement in 2016, there have been many climate change negotiations at the international level, with the aforementioned being two of the largest. Earlier efforts, such as Kyoto Protocol and Copenhagen Accord, set a precedent from which newer agreements could build from. While these global-scale initiatives are important and ever-improving, they continue to function with some recurring shortcomings.

Before exploring improvements, I would like to elaborate on some of the shortcomings. Patrick Bond’s book, *Politics of Climate Justice* (2012), identifies that, on the surface, these global-scale climate change agreements have very strong platforms. As he continues his analysis, he states that a main issue lies within a feeble contractual foundation. Participating countries were able to negotiate deadlines and modify their contributions to the efforts, with some countries leaving the agreements entirely (Bond, 2012), (Yang et al., 2015). Both the Kyoto Protocol and the Copenhagen Accord were initiatives that had “soft deadlines.” The agreements were also non-binding, meaning that they legally were not obligated to follow through with their commitments (Bond, 2012), (Yang et al., 2015). This ability to easily revoke commitment results in a questionable legitimacy (Najam et al.,
2003). Bond (2012) continues to question these global-scale efforts by approaching the idea that they are simply a charade used to placate the participating countries’ environmentalist residents. This is perhaps branching off into notions of conspiracy. Perhaps the countries’ intentions were not so spineless, but more likely their national priorities were not aligned with the agreement when they signed it.

Interestingly, even if all of the countries did keep the promises they made during these negotiations, some authors suggest that the contracts were not sufficient enough to make any real change regardless of their success (Bond, 2012; Jensen, 2000; Malakoff, 1997). The main priority of international climate agreements has been the management of GHGs (Bond, 2012), (Najam et al., 2003). This is known as climate change mitigation. These authors suggest that mitigation efforts were not severe enough. Some of the authors in the literature (Bond, 2012; Malakoff, 1997) neglect to acknowledge some of the successes that have been brought forth from these international climate change agreements, but there are some worth mentioning. One large measure of success is that the hole in the ozone layer has in fact been getting smaller (NASA, 2018c) due to mitigation efforts – with NASA (2018c) stating that specifically the ban of chlorofluorocarbons (CFCs) at the Montreal Protocol was the main reason for this impact. A second measure of success that arose from these agreements was the global acknowledgement that industrialized countries, with their high levels of production and consumption of goods, are the largest contributors to environmental degradation – however reluctant they may be to act upon this information (Jensen, 2000; Najam et al., 2003; Müller, 2002). Third, international climate change agreements continue to improve, each one learning from the foundational and contractual holes in the ones previous. (Müller, 2002)

International climate change efforts have not been focussed on adaptation (Jensen, 2000), (Najam et al., 2003). The mitigation tactics have not been enough to rectify our civilization’s post-industrial impact. As mentioned in the first section of the paper, the impacts of climate change are being experienced throughout the globe and are on track to become more intense throughout the
foreseeable future. I do not wish to undermine mitigation work by suggesting investment in adaptive strategies. I believe they both have very important, but different places in our changing world. Now that climactic changes and more extreme weather events are here and intensifying we must focus on adaptation strategies to ensure the wellbeing of communities. We cannot give up on mitigation efforts, as they are still necessary. But previous attempts to mitigate the effects of climate change have been too little and too late to fix the damage done to our earth, and thus adaptation is vital.

One oversight of international climate change efforts is an inherent problem that comes with working at this international scale. Programming at this scale cannot actively consider the social, political, or ecological requirements of each country, let alone region (Bond, 2012; Yang et al., 2015). Yang et al. (2015) thoroughly analyzed and critiqued the European Union's (EU) international and conservation-based program called Rural Development Policy (RDP). Their research is a great example of the inability of international strategies to capture the needs of smaller regions. This program from the EU was an attempt to decentralize power, but the EU still placed themselves at the top of the decision-making process. This reinforced their position, acting as this all-powerful judge, which ultimately decided which community proposals were worthy of investment. Their efforts were well-intentioned, but their stronghold on decision-making power resulted in a frustrating experience for the rural communities involved in the program (Yang et al., 2015). With the funding coming from the EU for the RDP program, it is not all that surprising to see the central governing body attempt to control the process, but there are alternatives to their omnipotent presence in the RDP. Such alternatives, as suggested by communities involved, are increased local autonomy, improved communication between levels of governance, and even an overhaul of the program to allow for a bottom-up strategy that can allow for meaningful participation of local actors (Yang et al., 2015).

Due to the abundant issues with international-scale climate change work, it is argued in the coming sections of this paper that operating at smaller levels of governance is more successful.
Local Experiences of Climate Change

The environment continues to be degraded by human activity, regardless of our mitigation efforts (Fera & Hogg, 2016). The effects of climate change are being experienced by humans and animals throughout the globe. Thus, adaptation is a logical endeavour for communities to invest their resources in. As individuals and communities begin to be impacted, the urgency for engaging in climactic change adaptation increases. Primarily, it is for the sake of their wellbeing that communities could choose to adapt to these present and future climactic changes (Adger et al., 2006). A lack of preparation could result in devastating results for a community. This can already be seen in some areas. The 2016 wildfire in Fort McMurray is an example. The changing climate causes drier forests in the boreal region, which results in extending the length burn season (MNP, 2017). It also, unfortunately, resulted in a wildfire of greater intensity. Flooding in urban regions is another example. Flooding is occurring more frequently, due to changes in precipitation (Kessler, 2011; Sander-Regier et al., 2009). Infrastructure is becoming outdated as 100-year storm events are now occurring every 2-5 years (Kessler, 2011). Precipitation changes and aging infrastructure contributed to the flooding of certain subway stations and the submerging of part of the Don Valley Parkway in Toronto (TCRA, 2017). Two friends of mine own and operate an organic market vegetable farm 30 minutes north of Guelph [Sebastian Ramirez & Bethany Klapwyk, 2017, personal communication]. At the beginning of the season this year they were swamped with rain. A few species of their vegetables began to rot. Luckily they have a diversity of crops for their CSA (community-supported agriculture). Their CSA was able to continue as per usual; they had other crops to fill in for the absence of the rotten species. Their planning and use of biodiversity is what allowed them to get through that rain event financially unscathed. Ontario is becoming wetter (Fera & Hogg, 2016). Experiences similar to what these two farmers had are predicted to become more common. Perhaps other farmers in similar situations will not have the same diversity in their crops, a season of rain could potentially devastate an entire annual income. A limitation of these reports of extreme
weather is that it is difficult for scientists to differentiate between anthropogenic climate change as a cause for catastrophic events, and natural global stressors (O’Brien et al., 2004). Nevertheless, there are more frequent and severe changes occurring, and some communities throughout the world are extremely vulnerable to these changes. Planning ahead for such changes in the climate can help protect individuals and communities maintain wellbeing during such instances.

What is Adaptation?

Adaptation cannot solve climate change, but it allows people to adjust to the changes that climate change brings. There are common elements throughout most definitions of climate change adaptation. Differences in the definitions of adaptation emerge from each author’s lenses on scale, levels of emergence, local autonomy, and justice. While the differences are important to understand, similarities throughout the definitions will be discussed first. Each of these main criteria will be discusses at great length later in the paper. In those subheadings I will discuss the reasons why these criteria are so critical for successful functioning of adaptive strategies.

It is generally agreed upon that adaptation is a progressive measure, rather than defensive. This means that adaptation strategies should ideally be implemented in preparation for climactic changes. There is a preparedness that comes with adaptive capacity (Yates, 2014), even when the climate event cannot be predicted. In contrast, disaster management is reactive (Choptiany et al., 2015). Disaster management is more focussed on healing the affected community post-disaster. Although, sometimes catastrophic events can act as catalysts from which ideas to invest in adaptive strategies emerge (Ross et al., 2015). For communities that are truly vulnerable, planning ahead for climate change in order to increase adaptive capacity is ideal.

Adaptation cannot be strictly approached with quantitative methods (Bond, 2012; Choptiany et al., 2015; Munaretto et al., 2014; Pelling, 2011; Schipper et al., 2014; Smit et al., 2000; Ross, 2015; Ensor et al., 2014). Qualitative methods involving participation from all impacted stakeholders is
important for successful climate change adaptation processes. Both justice and local knowledge are components of these participatory approaches. In regards to justice, some authors see climate adaptation strategies as incorporating a type of contract of equity throughout all individuals, systems, communities, and ecosystems (Bond, 2012; Pelling, 2011; Huntington et al., 2017). In order to understand community needs, existing adaptive capacity, and community assets, local knowledge—accessed via qualitative methods— is also a key part of adaptation.

As mentioned above, there are some other critical components of the definition that are still debated in the literature. Scale, level of emergence, and community autonomy are all issues that are seen through different lenses by different authors. An example of differing opinions on levels of emergence is Adger et al.’s (2006) approach compared with McKnight & Block (2010). Here, Adger et al. (2006) focuses on distributed assistance in climate change adaptation methods. While their described methods are more top-down—with international organizations being the main distributors of knowledge and programming—they do also advocate for a just process. Adger et al. (2006) aim to bring resources to vulnerable regions, building their capacity, in order to ultimately provide them with the power to determine their own needs throughout the process. This means that the majority of work is accomplished at the community scale, but implies that communities are at the mercy of these governing bodies and institutions who have the power to come and assist them. Many other authors take a bottom-up approach, but they do not trivialize the importance of supportive governing bodies and institutions (Schipper et al., 2014; Ross et al., 2015; Fraser et al., 2005). This is where the emergence of community-based adaptation theory (CBA) lies. CBA tackles climate change adaptation at the community level, where the process relies heavily on the communities’ needs, knowledge, and values (Schipper et al., 2014), with main aims of the process being inclusion and empowerment. On the far end of the spectrum from top-down approaches, there are also valid points mentioned by McKnight & Block (2010), and Jensen (2000) in regards to strictly local actions.
These authors see a shift towards individual and community scale action as the primary option for ameliorating processes and outcomes in adaptation.

The level of emergence also goes hand-in-hand with scale. When a top-down approach is taken, the framing of the issue at hand becomes enormous, with the positions of the governing body or institution generalizing policy to best suit all regions within their ambit. Community-based manifestations of the bottom-up method may find themselves reaching out to institutions for supplementary support, but function primarily at the community scale. This allows communities to frame climate change impacts and adaptation efforts within the specific context of their region.

There are a lot of factors to consider when attempting to define a process as complex as this. CBA is the method I used to frame my exploration into this field. Based on the synthesized similarities between definitions throughout the literature, I have assembled my own definition: CBA is an ongoing participatory process that focusses on ensuring the holistic wellbeing of a community throughout anticipated changes in the climate by building adaptive capacity and community resilience.

Roadmap for the Paper

There are seemingly endless tangents to explore in climate change adaptation, resulting in many of my ideas and sections being parked away for another time. The paper that follows contains only ideas and topics that are essential to the exploration of CBA theory.

Chapter 2 frames the societal problem of climate change, answering questions such as:

- what dominating worldviews allowed civilization\(^2\) to create such damage on our planet

\(^2\) The term civilization here is used with intention. I use it because of its connotations of colonization. I recognize that environmental devastation could not have been this substantial without the power of industrialized nations, their steadfast economic ideals, and their innate systems of oppression—both historic and modern. It with hopes of acknowledging the integrity of certain peoples on this planet that I use this term.
• what types of shifts must occur in our worldviews for people to gain access to their local adaptive capacity and engage fully in planning for their resilience

• how is the idea of vulnerability intertwined with worldviews

• how can we frame gathering, understanding, and sharing data to best suit CBA

Chapter 3 acknowledges climate change as a wicked problem. In this chapter I introduce what wicked problems are, why climate change is framed as a wicked problem, and theoretical reasoning for how CBA is an ideal solution for climate change. The second part of this chapter explores six foundational principles of CBA, as supported by both wicked problem and CBA literature.

Chapter 4 breaks down the participatory processes introduced in Chapters 2 and 3 into manageable subheadings. Topics that will be discussed include: participatory paradigms, collective action, asset-based community development, phenomenology and narratives. This section discusses the theory behind why these tools and processes are incorporated into CBA.

Each step in the process of CBA implementation presents its own challenges. Chapter 5 is dedicated to exploring some of the operational hurdles and limitations in the literature that may be encountered while researching or implementing CBA. Accountability, flexibility, evaluation, and communication are all issues that will be discussed in this section.

Chapter 6 concludes the paper by reflecting on findings and planning for action.

Chapter 2: Worldviews

“For the world is not infinitely malleable; nature may be constructed, but it is not only a construction.”

(Anne Whiston Spirn in Cronon, 1996, p 113)
Introduction

Discussing worldview shifts is a daunting topic. My original assumption was that a worldview shift needed to occur in order for adaptation efforts to be mobilized. Needless to say, this thought process of worldview change as the only catalyst for behaviour change switched directions as I began to learn. Solving such a complex problem cannot be framed in such a dichotomous manner (Incropera, 2016). Climate change is already shifting people’s way of understanding the world and behaving in it. But to challenge people’s belief systems, their values, and ultimately their worldviews, from a top-down role is not only ineffective, but it is also coercive (Peterson, 2001; Bond, 2012). Although some shifts are going to be critical in order to maintain wellbeing throughout changes to climate, new beliefs cannot be imposed upon individuals or communities. Even if such methods of aid or policy development did change some behaviours, it would not lead to meaningful change for the community (McKnight & Block, 2010; O’Brien & Selboe, 2015). There are instances of such social manipulation, but these are often seen as oppressive and times of inculcation. To work through inculcation would result in resentment from the impacted community (O’Brien & Selboe, 2015).

This chapter begins by discussing what worldviews are and what the dominant worldview is. The following section discusses why the dominant worldview can make CBA a difficult program to engage in. It also points out where systems of coercion and steadfast economic ideals within the dominant worldview cause problems. The last section deals with the inharmonious components of the dominant worldview and the changing climate. The last section also discusses how CBA can act to facilitate more equitable and effective adaptation processes within the context of the dominant worldview as opposed to top-down methods.
What are worldviews?

When worldviews are analyzed they become nested within our own assumptions about human nature and social systems (Peterson, 2001). They act as a lens through which people simultaneously perceive the world and act within it (Peterson, 2001). They are, with all of their collected layers and notions, how people construct their reality. These layers that make up worldviews are composed of beliefs, assumptions, attitudes, values, and ideas (O’Brien & Selboe, 2015; Draper & Reed, 2009). There are other factors that influence a person’s perception of reality in addition to worldviews. Such factors include one’s “interests, identities, habits, loyalties, and motivations, and not the least by emotions,” (O’Brien & Selboe, 2015, p 9). I mention these factors so that it is easier to discern between what concepts this discussion of worldviews encompasses, and which parts it does not.

Environmental and social setting, as well as historical and cultural precedents, influence how worldviews are formed (Draper & Reed, 2009; Peterson, 2001). They are a coalescence of ethical and innate human nature. Worldviews are also influenced by experiences of the individual as well as beliefs and experiences that are shared, or collective (O’Brien, K. & Selboe, E., 2015).

Worldviews, as mentioned above, instruct a person’s perception—it is a filter through which a person constructs their reality (O’Brien, K. & Selboe, E., 2015). It also acts to justifies one’s actions. The behaviour that emerges from a group of individuals with shared worldviews may be incompatible with the environment and social justice (Draper & Reed, 2009). The impact of this is socially normalized destructive behaviour. The understanding of how worldviews impact behaviour is relevant to the discussion of climate change adaptation twofold. First, when the environment changes, the existing worldview may not be ideal for experiencing continued wellbeing with the new changes that develop (O’Brien & Selboe, 2015). Second, the dominant worldview reinforces some actions that are socially or environmentally destructive (Peterson, 2001; Jensen 2000). If a person
acts within the lens of the dominant worldview, or *metanarrative*, the actions of the individual are seen as appropriate and correct ways to behave, or at the very least, they are normalized. This is true whether the behaviour is (subjectively) destructive or positive. While worldviews represent unanimity of certain values and support of certain behaviours, there are spectrums of congruence between individuals within the collective whole. The literature highlights two reasons for why this happens. One reason is that each person’s experience of reality is subjective (Kronlid, 2014). The other reason this occurs is because, while there are many factors that perpetuate worldviews, there are also instances that challenge these norms (O’Brien & Selboe, 2015).

One of the factors that challenges dominant worldviews currently is the occurrence of climate change. By having conversations about these changes there comes an opportunity to consider change. This change begins with considering the impact of the dominant worldview on the development of community-based adaptions to climate change. By incorporating the hypothesized impacts in the process of CBA, communities can hopefully incorporate and foster with greater ease.

**Dominant worldviews: a reflection on coercion and capitalism**

Draper and Reed (2009) suggest that there are two dominant worldviews. The first one they recognize is the expansionist, or Western worldview, and the second is the ecological worldview. While they present these as two mutually exclusive worldviews, the reality seems more likely to be a spectrum between the two. There are perhaps two dominant worldviews, but most authors recognize the expansionist worldview as more pervasive (Jensen, 2006; Peterson, 2001; Born, 2014; Adger, 2006; McKnight & Block, 2010).

To elaborate on these terms, the Western worldview strongly stems from the Enlightenment Period, as well as the industrial revolution (Draper & Reed, 2009). This era of time saw changes to political and social systems, as well as massive changes to the economy (Born, 2014). With accelerated urbanization came less interaction with the natural world; with industrialization came
mass production and the accelerated use of natural resources (Draper & Reed, 2009). The result of this substantial historical contribution to the Western worldview included the development of many values that were advantageous for that time, but some of these newly developed values were simultaneously destructive. For example, the Western worldview came to equate material growth with development. This notion of development and material accumulation then became imperative to achieve happiness, and became equated with success (Draper & Reed, 2009). While this type of economic system benefits many people throughout the globe in certain aspects it mostly does so for the social and financial elite. It does not benefit those who are in a position that makes it difficult to obtain material wealth, and may result in experiences of disconnection and dissatisfaction (McKnight & Block, 2010).

The Western worldview is largely framed around capitalism, with the individual accumulation of wealth being the paramount goal within this system (Jensen, 2000; Jensen, 2006; McKnight & Block, 2010; Draper & Reed, 2009). Within this worldview, the capitalist market economy forms the foundation from which our social systems function. For most people throughout the globe, this idea is faithfully believed and acted out as though no alternatives exist (Swyngedouw, 2010). It is thus through a lens of resolute economic prioritization that climate change is perceived. Therefore, efficiency^3 and accumulation of wealth become seemingly insurmountable hurdles that justify a lack of behaviour change, and even justify a lack of conversations about the issue, let alone any genuine discussions of more radical actions (Jensen, 2006; Peterson, 2001).

As introduced above, on the opposite end of the spectrum, there exists the ecological worldview which places value on the interconnectedness between all beings (Draper & Reed, 2009). The values that form the ecological worldview are less common in Western communities and

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^3 The term efficiency is used here to identify economic efficiency. For example, top-down strategies of policy implementation may be more economically efficient but they may not offer communities and stakeholders the most locally relevant, comprehensive solutions—nor garner the highest adoption rates. Thus, from some perspectives, nullifying the impact of the short-term economic efficiency.
communities that are impacted by global capitalism, and even some that have been historically impacted by colonization (Peterson, 2001; Jensen, 2000). Although the Western worldview with its ideals of expansion, efficiency and wealth accumulation, has come to infiltrate many communities across the globe through the market economy. From my viewpoint in North America, the expansionist, or Western worldview can seem omnipresent. Some examples of ecological worldviews are viewed more as acts of resistance against the expansionist worldview. Some of this occurred historically with the Deep Green Movement, with transcendentalism, and with the conservation versus preservation debates. I feel that it is important to recognize that many of these examples of “ecological worldviews” emerged from the voices of white men who were raised with dominant cultural worldviews, such as Muir, Thoreau, Emerson, and Leopold. These individuals were able to choose this ecological perspective while they maintained their position of privilege and influence within the dominant Western civilization. If one pays close attention, instances of the ecological worldview can be seen emerging—or having old ways of possessing ecological worldviews reemerging with renewed strength—from places all over the world, on social media, in books, and within communities. Some examples that align with this strengthening of ecological worldviews would include alternative markets involving trade, decentralized currencies, and cooperative businesses resisting the hierarchical systems of global capitalism. There are more ecocentric voices finding platforms to raise their voices. But, as I mentioned earlier, I believe these examples to be on more of a spectrum between the expansionist and ecological worldviews, opposed to strictly aligning with one or the other.

While the expansionist-Western worldview is dominant, I am not writing this paper to advocate for a shift towards the ecological worldview. What I am here to do is point out some areas

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4 Most of the politically significant instances of emerging ecological worldviews I have encountered involve resistance or deviations from the neoliberalist economy, as suggested by these examples.
of incompatibility between the dominant Western worldview and the requirements for taking adaptive action at the community-level, and present solutions for addressing this discord.

Understanding the dominant worldview in the context of climate change and CBA

Regardless of the origins, the dominant worldview is one that, at this time, is perpetuated by the global capitalism paradigm (Jensen, 2006). Capitalism functions based on the tenet of individual wealth accumulation (Draper & Reed, 2009; Jensen, 2006). This is causing problems as it is perpetuating destructive behaviour, and makes it difficult for communities to adapt to climate change. Now that we have identified what the dominant worldview is, this section will elaborate on why it is problematic.

In order to reference problems within the dominant worldview more accurately, this section begins with an example. The South African city of Cape Town is experiencing a water crisis. At the beginning of February 2018, the municipality announced that unless rain comes by mid-May, all taps will officially be turned off –with the exception of public service buildings such as schools and hospitals (Said-Moorhouse, February 5, 2018). This has now been pushed back to June (Poplak, February 15, 2018). With this event now officially recognized as Day Zero, there is an apocalyptic feel to it. The city has revealed that there will be 200 water stations throughout the city, each serving roughly 20 000 citizens (Welch, February 2, 2018). While this part of the globe is naturally arid, it has experienced severe drought for the past three years, with its usual winter rainfall being negligible (Poplak, February 15, 2018). A factor that has contributed to the intensity of this water crisis, along with rising population and development, is the inability of the municipality to fathom that severe drought could occur for multiple years in a row (Poplak, February 15, 2018). Cape Town’s main water reservoirs are rapidly shrinking, currently at 13% of their capacity, causing fear and unrest throughout the city (Said-Moorhouse, February 5, 2018). Although the earth is still far from the
post-apocalyptic future as seen in the Mad Max film, their idea of revering water as a “holy” totem may not seem so far off for the residents of Cape Town.

The dominant worldview—with its expressions of progress and development, as well as its incentives for individual collection of wealth—is a major contributing factor to the creation of the anthropocentric climate change we are now experiencing, as established in Chapter 1. To maintain the dominance of the Western worldview is to continue placing value on behaviours that are at odds with the needs of the earth, equity, and community wellbeing (McKnight & Block, 2010; Draper & Reed, 2009). Some costs of structuring our understanding of, and behaviours within, this world around the expansionist worldview are: ecological devastation, human and social fragmentation, and spiritual impoverishment (Born, 2014; McKnight & Block, 2010; Reason, 2007). To ignore these issues is to affirm these ways of thinking.

The systems that support global capitalism inform civilization on how to manage processes efficiently. But this system of inflicting efficiency on all situations without discretion means that making goals, and the process for reaching these goals, are also embedded in efficiency (Jamieson, 2012). But, this is not always where the primary concern should lie (Jamieson, 2012). It is important for CBA and adaptive process to be handled within participatory paradigms and ideals of justice (Adger, 2003). CBA cannot function as it is intended if it is based primarily on economical and efficient ideals. CBA processes are intended to be initiated with mindsets that include values of humility, courage, and moderation, among others (Hirsch & Norton, 2012).

**Dominant Worldviews: perpetuating the problem through vulnerability and systems of oppression**

We are a growth-driven society where economic perspectives are fiercely dominant. The issue at hand is not that this thought pattern and reasoning is wrong. The issue is that by viewing any decision-making solely through one aspect of the world is to deny the relevance of other factors
that exist. To base decision-making and adaptation solely on its economic efficiency can be done, but it is to ignore its effect on, and embeddedness within, other systems. In addition to other systems, other values need to be considered throughout CBA processes as well, and in some cases, even take precedence over economic concerns. Community wellbeing and equity are two such values. Vulnerability and systems of oppression must be recognized in CBA to ensure that those values or conditions are addressed (Adger et al., 2006).

Vulnerability is a key term used in climate change adaptation literature. The exact definition of vulnerability is still being disputed within this field. There are various scales from which to look at vulnerabilities. Smit & Wandel (2006) note that vulnerabilities can be looked at from a global context, within regions, or specifically at the community level.

Considering vulnerable groups in adaptation is necessary. Intrinsic value should be enough on its own to justify the importance of “human life and health, security, and the integrity of the earth systems,” (Adger et al., 2006). This is often the case, as the capitalist structures of our society does not often consider these justice concerns (Adger, 2003). The elite echelons of corporations and political power often only tend to consider vulnerable groups either through aid or through public or consumer pressure. If the system of global capitalism could shift to include morals that align with climate change adaptation within its foundation, then the wellbeing of the planet and communities on it may not be in such a jeopardized situation. But it does not, which is why having capitalist ideals act as the foundation for the dominant worldview has achieved such grand levels of trauma to the

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5 As an example of this, I would like to highlight an experience I had when working as a landscape architecture intern. In this instance, the clients were high-rise developers who were driven economic gain. This resulted in designs that were the most cost-effective. This resulted thus in less plantings, no consultation of the populations that would be inhabiting the space, no consideration of that region's demographics, the social integrity of the space, or the ecological impact of the space. So, while this economic efficiency resulted in a large profit margin for the developers, this meant poor funding resources for completing thorough inventory prior to design. This example is from personal experience and thus only a lack of design-based inventory and analysis rigour can be confirmed; the residents’ experiences from an academic post-occupancy review of the design cannot be confirmed for this example.
earth, humans, and all other inhabitants on this planet. It is only with a genuine recognition of justice, fairness, and equity to all humans and beings that systemic wellbeing can be conceptualized.

CBA that proceeds without consideration of vulnerable groups would neglect the participatory paradigm that is expected of the process. The process and outcomes would be unjust and unfair. Building adaptive capacity for only certain groups of people can exacerbate the vulnerability of other local individuals and households (Adger et al., 2006; Castro et al., 2012). Not only is it unjust, but in not considering vulnerable groups within a community the process loses out on potential resources and access to local knowledge. Indicators of vulnerability need be assessed at a community level—as do community-based assets that could be mobilized to put toward planning for adaptive strategies. Increased severity and frequency of severe weather events, and gradual changes in climate require community-wide strategies in order to ensure protected livelihoods and wellbeing.

To consider vulnerability in CBA is to function within reasonable and morally responsible approaches to community-based adaptation, as defined by Adger (2003) and Smit and Wandel (2006). It has been incorporated throughout theory and practice as part of the foundation of the CBA process (Choptiany et al., 2015; Brooks et al., 2005; Bours et al., 2013). In their book, Adger et al. (2006) advocate for new, and more morally founded standards within adaptation processes. With CBA they introduce such considerations as justice, fairness and equitable approaches. These are methods used throughout Adger’s work in attempt to recognize and reduce vulnerability.

Many of the global economic and political elites have acknowledged climate change. Despite what people believe to be true, people and communities are not under the mercy of global economic systems. The experience of climate change and the impact it has on wellbeing are not altogether beyond community control. Due to dominant worldviews, there is a deep reliance on hierarchical structures and the powers they yield. But people are not passive actors; there exists an individual and collective ability to develop a critical consciousness (Freire, 1970).
In advocating for vulnerable groups, it is important to recognize that addressing vulnerability is not the ultimate goal. There are limitations to the effectiveness of this. In identifying vulnerable communities through a global or national perspective, this often leaves vulnerable communities at the mercy of the philanthropic and altruistic hands of the elite, rendering the communities most affected by climate change as dependant on these systems. This has them believe that they do not have the capacity to help themselves. Not only does this reinforce their dependancy on other, but they become identified by these NGOs or international organizations only by their weaknesses (B. Smit, personal communication, January 29, 2018). Smit also noted that when he went to various communities throughout the world, such as India, Bangladesh, and Chile, each country claimed to be the most vulnerable country in the world. This in itself became an adaptive strategy, although unrelated to climate change. The communities were able to identify that being vulnerable was able to get them assistance, and they thus embraced this label. You cannot build strong communities this way, by labeling the community by the problem and working from a place of fear (McKnight & Block, 2010). It is easier to build communities around positivity and recognition of strengths (Born, 2014). Once a disaster arrives, and no one is prepared for it, the people will be mending or rebuilding their community based in place of fear. In this place of fear, it is much more difficult to establish meaningful change (Born, 2014).

**Systems of Oppression**

Throughout the literature, the theme of systems of oppression has emerged as a leading cause for perpetuation of vulnerability. This section is not an exhaustive exploration of systems of oppression, but in order to more comprehensively understand vulnerabilities, it is important to mention.

Adger et al. (2006) uses the term “traditional power politics” as synonymous with systemic oppression. As mentioned earlier, there are historical influences that have greatly influenced the
dominant worldview that is experienced today. It was mentioned that the Enlightenment Period was highly influential in the shaping of it, but the historical impacts on the Western worldview date back much further than that. The Western worldview can be seen as far back in our civilization as biblical times (Jensen, 2006; Peterson, 2001). One of these persisting beliefs is the assumption of human superiority over other beings. This historically assumed dominance over other species has led to severe violence and coercion in human history. As the accumulation of wealth could be anything to own, anything that they was morally justify as non-human was something to be extracted and sold or controlled. This is based on the inherent rights on the individual to use what was put on this earth “for us” by God (Jensen, 2006). This has resulted in the exploitation of people who have historically been seen as less than human, such as slaves and women. Another illustrative example of this is when European settlers arrived in North America. A pervasive mentality was that of unlimited resources. They intended to achieve ownership by engaging in cultural genocide (Jensen, 2000; Jensen 2006). The settlers intended to achieve “peace” and ownership by wiping out the “problem.” They brought their oppressive and coercive systems with them, exploiting humans and the earth. This aggressive resource extraction has been maintained even though we are fully aware of our finite access to resources, as have systems of oppression –although perhaps not as obviously violent. This systemic approach of exploitation is still dominant. Western ideals of progress have led to economic expansion and perpetuation of systemic oppression that has run amok.

While many people would like to deny their part in systems of oppression, it is very much a real issue. They contribute to the impact of climate change on communities, and their ability to adapt –ultimately affecting their vulnerability. Relating back to the example at the beginning of this section, the Cape Town metropolitan centre is primarily wealthy, and primarily white (Statistics South Africa, 2016, May 20). Rural areas in South Africa,
without access to dammed water resources, have already had to begin accepting that chronic drought has become normal, with a report for OXFAM suggesting that a national disaster should have been declared back in 2016 (Hornby et al., 2016), which is poignantly illustrated in the comic to the right. Even the challenges of the sprawling poorer castes around Cape Town have been ignored. But, it was only once this metropolitan centre experienced such extreme impacts of climate change that it became recognized by the political elite (Neill, 2018, February 2). These experiences of the rural and poor communities is due to the “prevailing apartheid legacies,” (Neill, 2018, February 2). Systems of oppression that are built into their culture and their worldview have caused the country to ignore struggling populations, and ultimately, and ironically, causing the “elite” to shoot themselves in the foot by ignoring others’ struggles and the indicators of intensifying climate change impact that they represented.

When combined with the current steadfast economic devotion, traditional power politics result in diminished returns on climate change efforts because of the worldviews and values they function from (Adger et al., 2006). Climate change adaptation must be fair and just for everyone, and ideally for all beings involved—as ecological worldviews would have it. CBA is not a process that provides a platform for local elite to dictate what must be addressed to achieve wellbeing for the community throughout climate change. CBA processes must be consciously aware of violence, coercion and systems of oppression. Climate change adaptation “must acknowledge the social justice significance of recognition, participation, and legitimate distribution and use of power,” (Adger et al., 2006).

So its a problem. What can we do about it?

It is important to acknowledge that the way the dominant worldview suggests things are done, is not the only the option. Regardless of their opinions and action plans, all authors agree that there has to be some form of change. This section presents some authors’ suggestions that, perhaps
it is a shift in how we frame the problem that will create a more enabling atmosphere for care and willingness to adapt; CBA and other climate change actions may not require a blatant worldview shift.

Kegan and Lahey (2009) believe that the capacity to adapt to new environmental challenges lies within the power of shifting our mindsets, and that action and behaviour change will follow. Some authors, such as Munaretto et al. (2014) and Yang et al. (2015) believe that significant changes can be made by adjusting governance to slightly alter traditional modes of decision-making. While being wary of total top-down action, these authors still present solutions that work from this same structure—acting within existing dominant worldviews and its value of hierarchical systems. Jensen, a radically benevolent environmentalist, advocates for extreme action to be taken by individuals regardless of a collective agreement (Jensen, 2006). But working against the dominant worldview within the community is not always the answer. CBA theory suggests that neither of these options are ideal. It is not the role of governing bodies and institutions, nor the role of individuals acting alone, to decide on what changes need to be made to improve resiliency. It is the responsibility and right of the community. Although some shifts in behaviour and framing of the problem may be critical, it is ultimately up to the community as a whole to decide how much change can be processed, and what actions match their definitions of wellbeing.

**Conversations**

The collective, or shared foundation of dominant worldviews can act to protect and validate the individuals that share these beliefs and values (O’Brien, K. & Selboe, E., 2015). This perpetuation within shared worldviews can act to validate systems and cultural structures that are responsible for increasing vulnerability and sometimes even destructive behaviour (O’Brien, K. & Selboe, E., 2015). Peterson (2001) notes that this shared worldview, or as she often refers to it, metanarrative, is also often very positive and allows individuals to have a place within a story greater than themselves. In
order to continue to live on this earth and celebrate such social and cultural systems that make us human, a platform has to be available for communities to discuss problems being experienced. Peterson (2001) suggests that by having conversations about problems we are experiencing, we can start to bring awareness to the ways in which the dominant worldview is incompatible with the maintenance of individual and community wellbeing. It is during these conversations that we can also acknowledge in what ways the dominant worldview is incompatible with the current changes in climate. It is also during these conversations that awareness can be brought to ethical flaws within the dominant worldview that perpetuate vulnerabilities that impact ability to adapt to these locally experienced climactic changes.

It is through these conversations, the analysis of the collected narratives, and identification of local strengths that it becomes possible to fathom alternative approaches to increasing resiliency. As discussed later in this paper, such meaningful conversations are part of the CBA processes (Adger et al., 2006; B. Smit, personal communication, January 29, 2018). Once conversations begin and communities share knowledge and experiences amongst each other, it becomes possible to identify alternative ways of acting in the world—ways that enable more harmonious relationships between the changing environment and the communities affected. Although building adaptive capacity is a main goal of CBA, it also has some principles of mitigation involved where communities strive to adopt behaviours and shift behaviour to ways that are less harmful to the earth, to other beings, and to ourselves.

Acknowledgement of subjective reality brings both strengths and limitations to the conversations that occur throughout CBA. There is no single correct way to be, to act, or to think in the world (Peterson, 2001). This brings diverse voices, experiences, and knowledge to the process, but this also means that there is also no single solution. There is no single worldview shift that would benefit all communities equally throughout the world. Individuality is also something to be celebrated, not nullified. Rather, the ideal approach in conversations about worldviews is to
recognize that there are parts of the dominant worldviews, and ethical assumptions about the world, that have potential to become less destructive (Peterson, 2001). There is no single set of uniform traits that could function for each community, nor each individual. This idea is addressed more specifically in the sections on the importance of local knowledge and specificity of place in the next chapter.

**Perceived Psychological Distance**

As mentioned above, while there are incompatibilities with the Western worldview, climate change, adaptation, and vulnerable communities, there are alternatives to attempting to facilitate a shift in worldviews. Singh et al. (2017), in their article, present data on people’s perceptions of climate change. Specifically, they conducted a study on the relationship between people’s perceived psychological distance from climate change and their willingness to engage in environmental efforts. While it is not as complicated as a worldview, psychological distance has its own intricacies. The authors define psychological distance as “an individual’s perception of how removed an object, risk, or event is from that individual,” (Singh et al., 2017, p 94). In their research, they break down psychological distance into four sections: hypothetical distance, which relates to how realistic the predicted climactic changes are; temporal distance relates to how near the event is to the present; social distance relates to the individuals who are or will be experiencing the event; and lastly, spacial distance which is used to understand how geographically near the climate event and its impact is to the community.

Singh et al.’s (2017) results showed that public support for adaptation and willingness to participate in adaptive strategies is influenced by perceived proximity to climate change. The anomalous group in Singh et al.’s (2017) findings, who’s engagement levels did not change, was a collection of people who were already concerned with climate change. Their support was steadfast regardless of more or less relevant local climate change communication.

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6 The anomalous group in Singh et al.'s (2017) findings, who's engagement levels did not change, was a collection of people who were already concerned with climate change. Their support was steadfast regardless of more or less relevant local climate change communication.
such as CBA. This suggests that by framing climate change impacts as happening here, now, and to the community involved in the adaptive strategy, there is likely to be greater support for change. Singh et al. (2017) work mostly through the approach of climate change adaptation policy. While they take a more decentralized approach to policy, they do have elements of top-down policy application. With CBA having a high level of participation, collective learning, and collective action, it seems even more likely that this type of knowledge transfer could occur. There are many more instances of connection and learning in CBA than in implemented top-down policy, and thus more chances to appropriately and effectively communicate what climate change means to that specific community. Although, this is a personal hypothesis, and would have to be researched further.

Often, communities engage in CBA process because a critical mass of citizens already recognize the impacts of climate change, or at least because they are experiencing hardship (B. Smit, personal communication, January 29, 2018). With an almost unanimous scientific agreement that anthropogenic climate change exists, as seen in chapter 1, framing the local problems around contextually relevant data would be not only easy, but also scientific reality. Singh et al. (2017) continue to suggest that based on their findings, perceived immediacy also will lead to more motivation to act, and to support adaptive policies. Based on this finding, it is through the initial stages of CBA, while increasing local awareness of climate change, that enhancing perceived immediacy of climate change’s effects should be a priority, as this information will impact the engagement of the community. A role of CBA facilitators would thus be to communicate climate change in a way that illustrates the true vicinity of severe weather events to the community members. People need to understand that it is not just people in faraway lands, in faraway times that are being effected. It is here, and it is now, and it is perhaps an explanation for their experience of distressed wellbeing and struggling livelihoods.
Knowledge

As the above example from Singh et al. (2017) illustrates, there is an intricate relationship between knowledge and worldviews. The research completed by Shi et al. (2015) complements this information. They were able to determine that communicating climate change knowledge has direct impact on people's concern for the issue, as well as their desire to alter their actions. They did not take into consideration the perceived proximity to the issue, but rather considered the moderating effect of worldviews in how climate knowledge is perceived. What they discovered was that worldviews did not significantly alter the level of concern or willingness to act from individuals. But, what did impact willingness to act and level of concern was including action-based information about the climactic changes. Like Shingh et al. (2017), Shi et al. (2015) provide results that justify CBA's approach. This includes access to locally relevant climate change information, ability to bring social significance to the issues, and providing a platform to discuss the problem at hand through an action-based approach.

The next part of Shi et al.'s (2015) findings seems best illuminated by a Franz Kafka quote, which is, “you may not destroy someone's world unless you are prepared to offer a better one.” (See Jensen, 2000, p ix). While it is perhaps a bit severe, this quote highlights the same meaning that Shi et al. (2015) discovered in their findings, which is that if people felt that the knowledge they were exposed to was fatalistic, they had little to no motivation to change their behaviour. If they were presented with causal-based climate information as well as action-based information, their behaviour was more likely to change (Shi et al., 2015). To elaborate, if the people who are given climate data perceive actions towards solutions as futile, then they will not be willing to participate in adaptive or mitigative behaviour, regardless of their increased level of concern. Should climate change adaptation be seen as too enormous a task, people will become overwhelmed and immobilized (Shi et al., 2015; Ross et al., 2015). People have to feel that their involvement will make a difference. The risk of experiencing damage is much greater if adaptive strategies are not formed. The problem and
the approach for the solution have to be framed in a way that people feel motivated, which is a foundational principle of how CBA was formed (Adger et al., 2006; B. Smit, personal communication, January 29, 2018). After all, adaptive strategies are not about solving climate change, but addressing the experience of its impacts. In regards to community-based adaptive strategies though, there are solutions that lie within the assets of the community. Increasing adaptive capacity is a realistic goal and, if community-based strategies are implemented, can be effective in changing the outcome of peoples experiences of imminent and existing changes.

Chapter 3: Guiding Principles

“…we must mobilize people to work together toward a common vision if we are going to deepen community for all.”

(Paul Born, 2014, p 9)

Introduction

The discussion of CBA’s guiding principles that follows situates itself within the context of wicked problems. Thus, this chapter is broken down into two main sections. In Part 1, the chapter first explains what wicked problems are, then lists criteria for creating solutions for them, and lastly I suggest that CBA is a prototypical solution to wicked problems –specifically addressing the wicked problem of climate change. In the second section of this chapter I come to discuss what I call the “guiding principles” of CBA. The first four principles are also seen in prototypical solutions to wicked problems. The last two are principles I have deduced as critical because of their ubiquity in applied CBA programs. Part 2 of this chapter is about the guiding principles of CBA. Following the identification of the guiding principles, Part 2 looks at each principle’s definition in the context of CBA and its significance to the process. This significance is specifically the justification and validity of the principle as a pillar that upholds the foundation of CBA throughout its practice.
PART 1: Wicked Problems

Wicked problems were introduced by Rittel and Webber in 1973 (Incropera, 2016). Rittel and Webber (1973) define wicked problems as inherently complex planning problems. In justifying their selection of the word wicked to describe these problems, Rittel and Webber (1973, p 160) state, “we are calling them ‘wicked’ not because these properties are themselves ethically deployable. We use the term ‘wicked’ in a meaning akin to that of ‘malignant’ (in contrast to ‘benign’) or ‘vicious’ (like a circle) or ‘tricky’ (like a leprechaun) or ‘aggressive’ (like a lion, in contrast to the docility of a lamb).” Rittel and Webber contrast wicked problems with “tame” problems. Tame problems are often mathematical or involve solutions that can be formulated in an exhaustive and definite manner (Riddel & Webber, 1973). They break down their definition of wicked problems into ten these specific criteria (Riddel & Webber, 1973, p 161-167):

1. There is no definitive formula for a wicked problem.
2. Wicked problems have no stopping rule, as in there is no way to know a solution is final.
3. Solutions to wicked problems are not true-or-false, they can only be good-or-bad.
4. There is no immediate test of a solution to a wicked problem.
5. Every solution to a wicked problem is a "one-shot operation"; because there is no opportunity to learn by trial-and-error, every attempt counts significantly.
6. Wicked problems do not have a set number of potential solutions.
7. Every wicked problem is essentially unique.
8. Every wicked problem can be considered to be a symptom of another problem.
9. There is always more than one explanation for a wicked problem because the explanations vary greatly depending on the individual perspective.
10. The planner/designer has no right to be wrong and must be fully responsible for their actions.
Rittel and Webber are famed for coining the term “wicked problems” but there is a great narrative of creative problem solving in human history. Academic analysis of complexity in problems is also not new, as seen with John Dewey’s 1910 publication *How We Think* (Conklin et al. 2007). Although this theme of complex problems has existed for decades, our understanding of these issues and how to solve them continues to evolve. For example, newer definitions of wicked problems continue to emerge and bring with them valuable contributions to the field. Newer definitions encompass more disciplines than just planning, which is a limitation of Rittel and Webber’s definition (Incropera, 2016). For example, Buchanan’s (1992) and Conklin’s (2006) definitions. Buchanan (1992, p 15) redefined wicked problems as “a class of social problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing.” Conklin uses Rittel and Webber’s definition as a base, but applies more generalized language so as to expand beyond planning. Conklin (2006, p 7-8) presents his definition of wicked problems through the use of 6 qualifiers. They are clearly developed as a distilled version of Rittel and Webber’s list of 10:

1. The problem cannot be understood until a solution is developed, for the solution contextualizes the problem.

2. “Wicked problems have a no stopping rule…The problem-solving process ends when you run out of resources such as time, money or energy, not when an optimal solution emerges.”

3. Solutions to wicked problems are not right or wrong, simply better or worse.

4. Every wicked problem “is essentially unique and novel.”

5. Every solution to a wicked problem is a ‘one shot operation,’ meaning that “you can’t learn about the problem without trying solutions, but every solution is expensive and has lasting consequences that may spawn new wicked problems.”
6. Wicked problems have “no given alternative solution.” The list of solutions is limited only by creativity and judgement of their suitability.

As seen above, the definitions of wicked problems are somewhat complex—as is their nature. The same is true of their solutions. Solutions to wicked problems are defined by a small catalogue of criteria. First, solutions to wicked problems are expected to involve participatory planning and stakeholder involvement (Conklin, 2006; Maani, 2013; Stenmark, 2015). This means that all of the people who are affected by the problem have an opportunity to participate throughout the process. Second, the solutions are approached in context-specific manner in order to frame them within a comprehensible boundary (Bours et al., 2013). Place specificity in creating solutions for wicked problems acknowledges that indicators for success are not universal, but embedded in the context of the solution’s contriving. An important bridge between participation of stakeholders and specificity of place makes up the third criterion. This is the importance of accessing local knowledge. Local knowledge informs the context-specific solution and is accessed via participatory processes. This type of contextual information is needed in addition to locally relevant quantitative data (Ensor et al., 2014; Smit and Wandel, 2006). Local knowledge brings light to the intricate relationships that make up the local systems, and makes known the expectations that the stakeholders have of the solution. This brings us to the fourth component of wicked problems and the approach to their solutions. This is the incorporation of systems thinking (Maani, 2013). Systems thinking requires that the scope of the solution functions within the web of interrelated and interdependent components of the whole problem and solution (Maani, 2013; Choptiany et al., 2015; Berkes et al. 2003). These foundational criteria for creating solutions to wicked problems inform the structure of this chapter. I also introduce two more principles later in this section.

Climate change is a wicked problem (Maani, 2013; Incropera, 2016; Stenmark, 2015). This has been established in climate change literature. As a solution to the impact of climate change, CBA fits the mold of typical solutions to wicked problems. The established criteria for defining solutions
to wicked problems aligns with the intentions\(^7\) of CBA. In Part 2 of this chapter I discuss these characteristics of wicked problems in the context of CBA. Stakeholder involvement, specificity of place, local knowledge and systems thinking form the first four guiding principles of CBA. In addition to these I have identified two more criteria that form the foundational principles for approaching CBA: local indicators of wellbeing and local values, and local autonomy.

**PART 2: The Guiding Principles**

**Stakeholder Involvement**

Participatory approaches are so vital to CBA that this theme is explored in great depth throughout the entirety of Chapter 4. This section merely introduces stakeholder involvement as a guiding principle of CBA.

Wicked problems have many stakeholders (Incropera, 2016). As it is with wicked problems, there are inherently no single solutions for CBA. Furthermore, there are multiple consequences for each course of action. In order to come up with the best solution, all of the stakeholders must collectively participate in the decision-making process. Because these solutions have no objectively right or wrong course of action, it is up to the people who are impacted by the problem to participate in conversations about what the best option is, as measured against their values, priorities, and standards of wellbeing (Incropera, 2016). It is through this participatory paradigm involving all stakeholders that local knowledge and local narratives about the experience of the problem are accessed.

The term “stakeholder involvement” is used in literature on wicked problems. When this theme of inclusivity arises in CBA literature, the term often becomes synonymous with

\(^7\) I say intentions here as opposed to “innate qualities” or “standards” because the facilitators and researchers who document the process often record that these principles are incorporated in the planning stages, but are sometimes not realized during the process. The limitations of CBA in practice is elaborated on more in Chapter 5.
‘participatory approaches’ and ‘working from a participatory paradigm’. I believe this difference in nomenclature is an indicator of the assumed quality of CBA stakeholder involvement. The difference being that CBA not only requires stakeholder involvement, but it requires meaningful and deeply inclusive stakeholder involvement (Choptiany, 2015; Adger, 2003).

Intentional participation of individuals in a community brings awareness to their role and impact with it (Reason, 1994; Born, 2014). This quality of participation matters very much to the process of CBA. It is upon this principle of stakeholder involvement that the integrity of all other principles rests. To understand a given place we must ask the local stakeholders. To access local knowledge, stories have to be shared. To understand local systems and allow for holistic adaptation, participation in collective conversations is essential. Community values and indicators of wellbeing would only be assumptions if communities did not collectively consider them. Community autonomy could not be meaningful without the locals’ participation. A participatory paradigm in CBA is thus vital as a principle unto itself, as well a cornerstone on which all other principles can rest.

**Specificity of Place**

Before delving into the explanation of this principle’s place in CBA, I would like to break down the meaning of this heading. *Specificity* relates to the uniqueness or contextual differences of any given community. Each community is different. The culture, the livelihoods, the local environment, and the use of natural resources is all specific to each place. Because each community has its own unique context, norms and needs, it is important to work within specific regions for addressing adaptation. In part, this is why *community-based* adaptation exists. Considering context is important for the CBA process, and for wicked problems in general. The other part of this heading is *place*. Place is not necessarily just determined by geographical or municipal boundaries. For the purpose of this paper, it is defined in relation to the boundary of the community that resides in the
area, along with necessary consideration of social/cultural/economic/ecological boundaries that may have an impact on defining the problem and solution for each instance of CBA. I prefer Smit and Wandel's (2006, p 283) definition of community to understand the term place, where the term community “is used here to mean some definable aggregation of households, interconnected in some way, and with a limited spacial extent.” Specificity of place is framing the problem within a specific geographic region, and it has to be big enough to involve a significant cross-section of stakeholders. For example, it may not work to approach CBA at the municipal level. The community that Ross et al. (2015) worked with in Australia spanned three politically distinct municipalities. In contrast, Choptiany et al. (2015) worked with individual villages at a time. Because of the remote nature of the rural communities Choptiany et al. (2015) worked with in Angola, it would not have made sense to bring multiple villages together. The culture in remote villages can be very different from one another, with different leaders and different customs. Even if the effect of the climactic changes are the same throughout villages in a region, the impact of the changes can be felt in very different ways due to other factors within their local system. How the boundaries of the community are drawn depends on the problems being experienced and the resources being allocated to the process. As each community is different, and each experience of the problem is different, so is the boundary of the place in which CBA is carried out. It may end up being the municipal boundary, but this should not be assumed.

With regards to comprehending climactic data on weather variability, CBA requires that the climate data be locally relevant to the community of focus (B. Smit, personal communication, January 29, 2018). This requires adjusting the broad scope of data twofold. Bigger is not better in this instance. First, temporal and geographic scope of the data does not have to be exhaustive. If the CBA program is locally responsible for planning for forceable changes up to 25 years, it may be excessive for climate scientists to provide data that looks at local climate predictions for 50 years from now (B. Smit, personal communication, January 29, 2018; Adger, 2003). The geographic scope
is a consideration as well. Provincial data may be irrelevant for a community due to the data’s
generalized quality. For example, the community may be in a snow belt or lakeshore region, where
the rainfall and temperature averages would be very different from the provincial averages. Lastly,
climate data has to be locally relevant in terms of the social sphere. If the majority of livelihoods
rely on forestry, the pertinent climate data will likely be different than if the community mostly relies
on fishing, farming, or tourism. In addition to livelihoods, adaptation success is linked to “local
economic trajectories, social vitality, and to the ways in which local institutions, organizations and
social structures interact with one another,” (Sander-Regier et al., 2009, p 37). In framing adaptation
on too large a scale, these intricacies of place—and thus also the solutions—become too generalized
to meet with success (Incropera, 2016).

The span of considerations that contribute to a community’s vulnerability and resiliency are
too copious and specific to allow for the generalized approaches of top-down policies (Smit &
Wandel, 2006). CBA research has revealed “that the conditions that interact to shape exposures,
sensitivities, adaptive capacities, and hence create needs and opportunities for adaptation, are
community specific,” (Smit & Wandel, 2006, p 288).

**Local Knowledge**

The valuing of local knowledge in CBA prioritizes understanding locally identified indicators
of wellbeing, local values, and collection of information on existing coping strategies (Ensor et al.,
2014). It provides the community-based adaptation process with place-based knowledge (Evans et
al., 2011).

As mentioned in the above sections, it is local knowledge that provides understanding of
context. Solutions to wicked problems, such as climate change, have to incorporate local knowledge
to work, as does CBA (Chertow & Esty, 2007; Stenmark, 2015). It provides the information base
from which community-based decisions are formed, in addition to scientific knowledge (Smit & Wandel, 2006). It is the way of life in these rural and remote communities that contextualizes the scientific data, and brings attention to how the existing or predicted climactic changes will impact the community. This includes the incorporation of considering local experiences and understanding that there are different ways of knowing (Wyborn, 2014). That is to say, as established in chapter 2, reality is subjective. How and why this experiential information is accessed is spoken about at length in Chapter 4’s *Phenomenology* section.

Rather than the institution, researcher, or facilitator of the process assuming how the climactic changes will impact the community, in CBA it is the community that identifies which climactic changes matter to the community and which ones do not (Smit and Wandel, 2006). They are able to share their own stories about how climate changes are experienced throughout their community, and how their livelihoods or wellbeing are, or will be affected. The community informs the process (Choptiany et al., 2015).

Local knowledge is also a supplement to scientific knowledge. It is “authentic knowledge that accurately represents the lives of those affected by environmental problems, and scientific knowledge should be seen as much as a ‘topic’ of research and open to deconstruction and problematization as a resource,” (Smith and Pangsapa, 2008, p 13). Through this lens of local knowledge, citizens are able to ground themselves in the purpose of the changes that CBA brings (Smith and Pangsapa, 2008).

Local knowledge can also provide information on how the community works together. Without the community providing local knowledge there would be no insight into the complexity of the local systems, nor into how climate change affects all aspects of the local systems and their relationships with one another. It is communities’ local knowledge and insight into their local systems that provides a holistic understanding of the problem and help guide the direction of the process in providing locally-specific solutions. By accessing local knowledge, it is possible to work
towards adaptive solutions to climate change impacts that are consistent with the primary local values and abilities (Heberlein, 2012).

Most authors in CBA use narratives as a primary theory for accessing local knowledge (Smit & Wandel, 2006; Adger et al. 2006; Ensor et al., 2014). Narratives help open our minds to new perspectives. The speaker does not have to defend themselves for it is their perspective, they are not being presented as the answer, or the only story (Stenmark, 2015). It is through the collecting of these stories that the community story, or community narrative, can be understood (Peterson, 2001) and the CBA process be given purpose.

**Holism/Systems Thinking**

One way that climate change adaptation is addressed through CBA is based on an understanding of interconnectedness. Unlike top-down policy, this community-based process incorporates interconnectedness throughout its entirety (Chertow & Esty, 2007). This innate foundational principle of CBA can be understood as a systems-based approach—such as those taken in approaches to wicked problems.

This systems-based principle informs the CBA process to take a more holistic look at the problem. One reason why CBA seems to be a popular method for locally addressing climate change adaptation could be that both the problem and process are understood through this systems-based, or holistic lens. Top-down solutions do not have the capability to create policies in such a way (Chertow & Esty, 2007; Yang et al. 2015). Each system within a community is intertwined. Many systems have intimate relationships that cannot be solved for as independent from the whole. These components can be independent though. It is this relationship with other local systems that is important to incorporate into both the framing of the problem as well as the construction of the process and outcomes. The process of CBA reflects and considers this interconnectedness of communities’ systems. For example, if a community were to approach adaptation as an economic
issue, then social, cultural, and ecological issues would not receive the attention they require to create a solution that works towards the wellbeing of the entire community.

CBA attempts to approach adaptation holistically, through this systems-thinking approach. Working from this principle, the process of CBA attempts to discover deeper, more successful adaptive solutions that align with community values and systems (Smit & Wandel, 2006; Pelling, 2011; Adger, 2006; Adger et al., 2003). Although, the lens of systems thinking is interpreted with slight differences of intensity throughout the literature.

Reason (1998) saw the emergence of holistic approaches to problem solving as a paradigm shift. He recognized this transformation in approaches as a response to wicked problems. “Ecological devastation, human and social fragmentation, and spiritual impoverishment,” are all issues that Reason believes we can solve by moving towards systems thinking. He digs deeper to push specialists, as well as citizens, into this worldview. His understanding of holism involves an intensive participatory approach. Before we can work within this systemic or holistic framework, Reason believes that whoever is involved in the decision-making process has to understand that we are part of this web of intricate systems, and not divided from our neighbours, our community, and our planet (Reason, 1998). Jensen (2000) echoes this by suggesting that maintaining top-down process and single-minded solutions perpetuate problems stemming from systemic dissociated superiority complexes between elite and other humans, as well as the earth, and the valuation of some systems over other—such as the economic systems. Reason (1998) continues to suggest that taking a holistic approach involves both corporeal processes and spiritual extension. As introduced in the worldviews section, this is not necessarily the case for CBA processes. It is part of understanding the problem, and understanding the solution, but it is not required of the individual’s within the community to engage in an active paradigm shift, or process of moral extensionism.

Bond (2012) and McKnight and Block (2010) see holism as an innate part of justice and fairness in community-based approaches. Adger (2003) and Smit and Wandel (2006) also view
holistic/systems-based approaches the same way—as fair and just and necessary. To value some components over others is to suggest that these neglected elements lack importance or are not worthy of consideration (Bond, 2012). For example, to work within a framework that considers only economic and political priorities would disregard community values, innate interconnectivity of systems, and the other local systems.

The FAO program established by Choptiany et al. (2015) integrates holism to the project’s very core. It is called Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP). This “holistic assessment” component of the project was deemed the best way to ensure collective action, community empowerment, and realistic solutions. By looking at the entire social, political, economic, cultural, and ecological picture, the specialists and citizens were then able to identify issues and solutions while taking into account the entire network of possible indicators.

Pelling (2011) emphasizes complexity as a main theme of climate change solutions. His opinion varies from that of the authors. He sees complex issues, but frames each component separately, without recognizing relationships between systems, or the interconnectedness. Most of the top-down climate change efforts he identified in his research were about local resource management or local technological advancements (ie. solar and wind power). These are largely mitigation efforts, and thus different from the adaptive focus of CBA. Pelling suggests that we have a responsibility to approach these complex issues with complex solutions. The systems thinking approach taken by most of the authors in CBA does not assume an intimate relationship between complexity and systems thinking.

Chetow and Esty (2015) and Wyborn (2014) state that the scale of involvement for creating policy should reach everyone who is affected by the environmental or climactic issue at hand. Neither of these authors provide specific solutions for the community level, but look more at how to shift to adaptive and inclusive governance. A component of Chetow and Esty’s (2015)
recommendations is to increase holism in the policy system. To them, this means shared 
interresponsibility through all levels of governance. They see community governance as nested 
within the municipal body, municipal governance as nested in a regional body, etcetera. Governing 
institutions and organizations would also be integrated into this nested approach. Chertow and Esty 
(2015) put forth ideas of holism that are conservative in contrast to other authors in this field. Their 
approach implies the maintenance of traditional power structures and top-down influence. Although 
Wyborn (2014) maintains some similar arguments as Chertow and Esty. She would disagree with the 
scope of holism that they apply to their research. To Wyborn, when holism is incorporated into this 
process of adaptation and adaptive governance, it spans further than seeing environmental 
governing bodies as nested entities. Wyborn aims to view holism throughout data collection, 
collective identification of issues, diverse governance, and also a framing of the problem within the 
context of ecological, political and cultural landscapes.

As seen by the perspectives presented above, which are by no means exhaustive, it displays a 
cross section of where author and researcher stances are on the interconnectedness of systems. 
Chertow and Esty, as well as Wyborn maintain holism as a structural shift implemented by 
governing bodies. Adger and Smit see systems thinking as a natural part of the CBA process that 
requires little cultivation. Even though each author tends to have varying opinions, something that 
can be agreed upon by all authors who spoke of systems thinking, holism, and interconnectedness, 
is that by taking a holistic approach all actors and stakeholders have to be welcomed to the process, 
all local systems must be considered, and the relationships between these systems must be 
understood.
Community Wellbeing & Values

“Whether the solution is right or wrong will not be judged by absolute or objective standards, but by the beliefs and values of the stakeholders.” (Incropera, 2016, p 14)

Community wellbeing is vital to the process of CBA, and this theme constitutes the fifth guiding principle. It is often threats to wellbeing and quality of life that catalyze the initiation of strategic adaptive processes within communities (Adger et al, 2006). CBA facilities the articulation of a community’s indicators of wellbeing and values. It is only once this occurs that a common vision for CBA can be identified.

I make the assumption that most people have some standard of wellbeing they wish to achieve. Each community’s wellbeing is assumed to matter to its citizens. Even a stable quality of life maintained over generations can be challenged by emerging vulnerabilities brought on by climate change (Adger et al., 2006). It is impossibly vague and immoral to base adaptive actions on assumed standards of wellbeing. It is by listening to the community—and them listening to each other—that common indicators of wellbeing can be established. These set community expectations and goals for the CBA program. It is thus through indicators that wellbeing is understood in CBA (Fraser et al., 2005).

Facilitating this conversation on community wellbeing is complex. By communicating indicators of wellbeing and values to each other, there emerges a stronger common knowledge base from which all can act (Born, 2014). This information, as gathered through participatory processes, has the potential to increase empathy between community members (Born, 2014; McKnight & Block, 2010). Despite having this common base of knowledge, people will inevitably have some differences in values (Stenmark, 2015). Although values are often more similar than one thinks, they are mistaken for beliefs and opinions. For example, someone can be of the belief that a candidate would be the best president, perhaps because he promises to bring back their job in the coal industry. Another person may be of the belief the other candidate would have made a better
president, perhaps because she promised to provide better assistance for startup companies. But both of these people, with their opposing beliefs, can hold this position based on the same set of values. In this hypothetical instance, both of these people form their beliefs on the value of hard work.

It is by collecting and distilling the stories from local citizens that these local values and indicators of wellbeing can be identified. Through these common threads, a shared vision can be identified. Chertow and Esty (2007) and Born (2014) suggest that through proper facilitation and a platform for community development (i.e. CBA), people are able to come together through a shared goal.

The incorporation of this principle increases the integrity of the process, but its application also has the potential to benefit the community in addition to adaptive outcomes. The gathering of this information from community entails prioritizing inclusion and ensuring a sense of belonging (James, 2009). Making community the apex for change and development means that working for the common good—and thus collective indicators of wellbeing and shared values— is paramount (Born, 2014).

Without considering local values and the indicators of local wellbeing the process would end up being based on the priorities of the facilitators, institutions or researchers who come in to the community. It would become a top-down program, rather than community-based, which would essentially be the antithesis of CBA’s aims. An illustrative example of this is from the paper by Yang et al. (2015) who analyzed the RDP program brought to rural Europe as implemented by the EU. The international values of the EU, such as conservation and sustainable development, did not align with the values of many communities. It also did not even align with the bureaucratic systems of some communities.

These community values and indicators of wellbeing are used for a few purposes. Firstly, when the data is compiled and analyzed, the resulting local values and indicators of wellbeing act as
indicators by which to measure the success of the CBA process. Secondly, it helps to facilitate conversations later about what the community visions are. Thirdly, these values and the local understanding of wellbeing can sometimes be the driving force that initiates CBA processes to begin with. Lastly, these help to form the basis for understanding existing local problems.

**Community Autonomy**

The scale of study for climate change adaptation strategies is dependant on the scope of the authors who are researching it. In this field of research, there is not yet a single scale from which to view climate change adaptation. Community-based adaptation is only one method of addressing adaptation. Community autonomy is an innate CBA characteristic which differentiates it from other types of adaptation programs and policies.

Citizen participation in deliberation on decisions that impact their lives, gives meaning and legitimacy to democracy (Fisher, 2000). CBA is community-led. Through community-based action CBA addresses “communities’ priorities, needs, knowledge and capacities, which seeks to empower people to prepare for and cope with the impact of climate change,” (Reid, in Schipper et al., 2014).

There are many reasons why and how local communities come to take control of their own climate adaptation strategies. It seems that the frameworks used in the literature take one of three directions: the communities either come into their own power by the downloading of responsibility from the central government; they become dissatisfied with central government methods and take control of their own process; or they are identified by researchers or NGOs as a place to study and implement programs on a quasi-experimental level.

It is seen in Ross et al.’s research that participation is critical, but it is not enough to go through the motions. If communities are to be responsible for their own climate change adaptation strategies, they have to have the capacity to make their own decisions.
Limitations exist within the practice of community autonomy. Professionals and politicians believe that citizens do not have enough knowledge to participate in a productive or meaningful conversation due to a lack of scientific or “expert” knowledge (Fischer, 2000). There is a hesitancy of upper levels of government or institutions to give up control to those “without knowledge.” This argument does not go unfounded. An example of community autonomy that went awry is in the community-based natural resource management (CBNRM) field. The research in CBNRM has been academically castigated for setting a bad example of autonomous communities (Bradshaw, 2003). This is not a new predicament. Hopefully CBA can learn from such disciplines and their mistakes. Ideally this would mean using sound and rigorous facilitation techniques to develop the capacity of communities to make their own decisions. There are other limitations to community autonomy, but these are reviewed in Chapter 6. With all of this being said, in such a democratic country as Canada –where I am writing from– it is injudicious to suggest denying citizens a platform to participate in decisions that impact their lives.

To conclude this section I would like to reiterate that CBA is not a policy that is applied to the community sphere. It is community-led. Through these principles I have proposed above, each CBA project in its own uniqueness can be implemented with similar standards.

Part 2 of this chapter has presented six foundational principles. The first four have been informed by theories surrounding wicked problems, as discussed in Part 1. Qualities of prototypical solutions for wicked problems have been applied to CBA’s foundational principles to reinforce their significance and validity. The last two principles were not common themes in wicked problem literature, but were still significant in CBA. The identification of these six principles was motivated by their recurrence as peripheral themes in CBA literature. There were no articles that plainly listed any such principles. I have created this list in order to set a standard for the integrity of CBA that can be referenced universally.
Chapter 4: Understanding CBA Processes with Theory

“Citizen participation is citizen power.”
Sherry Arnstein, planner & author of A Ladder of Citizen Participation

Introduction

Participatory worldviews were introduced in Chapter 2. Chapter 3 then identified participatory paradigms in the stakeholder engagement section, with themes of participation continuing throughout the other identified foundational principles. This chapter provides theoretical and practice-based support for CBA's prioritization of a participation paradigm.

Participation is an essential requirement for adaptation to function at the community level. This chapter explores the evidence that supports participatory processes in CBA. The first section discusses what it means to work with participation as well as why this is important to CBA and collective action. It is through the theories discussed in the first section that some participatory methods from CBA literature are then discussed. Asset-based community development is one such method explored in this chapter. While it necessary to understand where weaknesses and vulnerabilities lie, in order to gain momentum with CBA many researchers, consultants, and facilitators use forms of asset-based community development to improve growth and outcomes. Phenomenology is then introduced as a theoretical support for the use of qualitative inquiry in CBA. The last section of this chapter explores the use of narratives as a method which supports current practices in CBA inquiry and implementation. It is through the lens of phenomenology that the importance of narratives is discussed.

Participation

This section talks more about theories of participation, rather than specific methods of engagement. This section of the chapter is dedicated to elucidating the various arguments that
support participation, as well as understanding the quality of participation that is required. Participation is a keystone component of the CBA approach to adaptation (Pelling, 2011; Munaretto et al., 2014; Adger et al., 2006). If participatory perspectives are not utilized, then the process could bring more damage than benefits (Caldwell et al., 2015). An example of this can be seen in Ross et al.’s (2015) research which was conducted in Australia. They advocate for participatory processes and local autonomy through their report. In their methods section, it is clear that they had intended to facilitate the process by putting into practice their participatory theory. Their goals and their execution of the project do not seem to align adequately. Their groups were too handpicked. For the sake of their research, they tried too hard to avoid conflict and unpredictability. It seems as though they invited “atypical stakeholders” as token participants from the greater community. Furthermore, they verbally bestowed more power and autonomy to the community than could realistically be realized through the scope of this research project. The limitations that this case study highlights are explored further in Chapter 5. While Ross et al. (2015) strove to achieve collective action as a result of participation, this project fell short of harnessing the potential action they fostered. A second example of how a community can be harmed by inadequate participatory processes is from a case study in Mexico (Imbach and Beltrán, 2014). In this particular case study, two rural communities in the Quinta Roo region of Mexico experienced devastating climate change induced disasters. The introduction of tourism in these communities had already exaggerated the vulnerabilities within the indigenous, agriculturally-centred citizens. Imbach and Beltrán (2014) identified that the CBA process in these two communities primarily involved stakeholders within the tourism industry. The indigenous locals were not given a strong voice in the CBA process. The resulting actions prioritized the reinforcement of the tourism industry. This meant that the indigenous peoples were largely neglected, bringing further economic and social disparity to the region.

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8 This is an example of CBA that arose post-disaster, rather than as a preparatory measure.
As discussed in Chapter 3’s section on Specificity of Place, each community is different. The participatory methods used have to be tailored to each locale. Perhaps the best thing for one community would be an initial potluck, or a video contest, or even one-on-one interviews. Just as each community needs different adaptation methods, it also needs a different process to encourage collective action depending on the local culture (Yang et al., 2015). Using such creative methods of bringing people together can help in supporting an inclusive and accessible participatory process (Caldwell et al., 2015; Sarkissian & Hurford, 2010).

To carry out CBA within a participatory paradigm is to act with adaptation’s priorities of fairness and justice (Adger et al., 2006). This approach can bring a greater sense of wellbeing to the community and individuals involved (McKnight & Block, 2010; Born, 2014). The ability to collectively share, learn and problem solve cannot be achieved by all types of community involvement. For example, if we reference the image of Arnstein’s ladder, a general approach of informing the public of decisions made by local specialists and elite would not be categorized as CBA. There are some sections of the CBA process that could require periods of time where the focus is information dissemination. Likely, the type of information shared would be in a participatory setting, with place-based data. Even in times of consultation, there is still a standard of inclusivity that is essential for the vitality of the process (Pelling, 2011).

Arnstein’s ladder has contributed significantly to the community engagement field, but a newer rendition from the International Association for Public Participation (IAP2) is now often used instead (R. Sutherns, personal communication, September, 2018). This new model gets rid of controversial terms like placation and manipulation – although, it could be argued that some specialists do still use those methods. In both spectrums, there are connotations of hierarchy, as if Arnstein’s Ladder:

Degrees of Citizen Participation
(Arnstein, 1969)
the specialists must invite the public to participate before they can interact. IAP2's spectrum progresses as inform, consult, involve, collaborate, and empower. In CBA it is understood that not only is it just and fair to include people affected by decision-making in the process, but they have a right to contribute. This notion of inclusivity is one of the seven core values of IAP2, but it is also presented throughout the literature (Adger et al., 2006; Jensen, 2006), (Schipper et al., 2014; Choptiany et al., 2015; Reason, 1998).

There is an innate holistic perspective within CBA, requiring input from many facets of the community (Pelling, 2011). As mentioned in Chapter 3, this is why it is an ideal part of the solution to the wicked problem of climate change. To elaborate, holism in CBA means that there must be an understanding of the whole local system. To access information from all areas, CBA participation has to include political figures, planners, local business owners, employees, parents, labourers, farmers, low-income members of the community, local organizations etcetera. Every identified stakeholder in the community should be included. I am not saying that this will be easy, but this is what is fair.

Reason (1998) speaks of participation as a necessary part of solving ecological problems. At the time of his writing, he spoke of bringing awareness to ecological damage and environmental problem solving. I believe that his philosophies are still relevant and quite applicable to the issue of
climate change adaptation. He highlights that humans have self-awareness, but that they also act within, and contribute to, a collective consciousness\(^9\). Reason (1998) expands his theory further suggesting that to deny this opportunity for collective consciousness is to monopolize decision-making power. By having only educated and powerful elites make decisions on adaptation that are non-participatory, it is to engage in an ultimately exploitative process (Fischer, 2000; Adger et al. 2006; Choptiany, 2015). The people who are most affected become alienated in such a scenario. It is not inclusive, and to CBA that means it loses vitality. It becomes lifeless.

With the application of CBA comes the expectation of the prioritization of justice. This involves recognizing the assets and rights of individuals in the community. With uneven distribution of decision-making power, existing vulnerabilities in a community can become more pronounced (Pelling, 2011). All members of the community must have access to equal opportunities to participate. Sometimes people who are vulnerable, who are lower in the economic or social realms of the community, can be included as some form of charity. In meaningful participatory work, it is not up to the local elites to reach out and include some stakeholders out of pity (S. Cheuy, personal communication, June 8, 2017). Inclusion is not charity, it is fairness. It is simply what must be done to ensure an equitable process.

It is perhaps more blatant as to why it is important for the wellbeing of the community, but participation can also impact the wellbeing of individual citizens. Participation “…plays an important educational and psychological role in the social development of the individual citizen,” (Fischer, 2000, p x). Being included in meaningful participation can also result in reduced conflict between individuals, stronger empathy, and a feeling of connectedness (Caldwell et al., 2015; McKnight & Block, 2010). Citizens who participate in the process of CBA are more inclined to

\(^9\) This theory lends itself to the tenet of Ubuntu –made famous by Nobel Peace Prize winner, Desmond Tutu– where it is understood that a person is a person through other people or, I am because we are.
make the community’s goals a reality (Caldwell et al., 2015). Contributing knowledge and opinions to the process brings a sense of ownership to the individual.

Some professionals and politicians believe that citizens do not have enough knowledge to participate in a productive or meaningful conversation. But, in some fields it is beginning to be recognized that it is injudicious to make decisions that deny citizens a platform to share their knowledge, contribute their assets, and share their opinions –especially for a process with impacts as pervasive as adaptation. As Fischer (2005, p 54) recognizes, there is often a divide between “those with and without knowledge.” Every person has a stake in their future and their wellbeing, as well as having assets and knowledge to contribute (McKnight and Block, 2010). This is not to suggest though that local autonomy has always been successful. Some examples of community-based natural resource management endeavours illustrate this, as is explored further in Chapter 5. The difference is, these communities did not have the capacity to manage such complex systems, despite their intimate relationship with the local resource (Bradshaw, 2003). Thus, citizens require opportunities to engage in collective learning –to learn and to share. There has to be a period of building community capacity through collective learning if citizens are expected to have the capacity to engage in participatory community development.

**Asset-based Community Development as a Component of CBA**

Recognizing vulnerabilities is part of the process of creating adaptive strategies. Although when wellbeing is the goal, it is important to not solely define communities by their vulnerabilities. There are innate positive attributes within each community, for example, existing resilience and capabilities. Part of the process in creating adaptation strategies is to shed light on this abundance that community already has. There are areas of existing and latent potential that can contribute to each communities’ CBA strategy, if acknowledged and incorporated. To forgo this step is to lose out on potential opportunities for empowerment, local knowledge and existing local tools.
In their book, McKnight and Block (2010) break down what it means to use community-level approaches to problem-solving. They believe that traditional top-down policies have their place to make differences and do good work. For certain complex problems, top-down policies are not the most effective. As a career, McKnight has facilitated community ‘awakening’ through participatory problem solving for decades (J. McKnight, personal communication -lecture, June 7, 2017). The solutions that emerge from this work come from acknowledging three things: first, the existing abundance within the community; second, that there is power in connecting to one another and to place; third, the process is difficult and requires us to set personal and collective visions or intentions. Institutions have a habit of labelling communities by the problems they experience, or defining them by deficits in their local sources of capitol (McKnight & Block, 2010). Some communities even learn to identify themselves as such, requiring external help to come and “fix” them (B. Smit, personal communication, January 29, 2018). Acknowledging the strengths within a community is vital to its wellbeing. Minimizing conflict, building resilience, building feelings of stability and empowerment, and understanding the value of local relationships are some of the possible benefits from applying asset-based community development into CBA.

The main messages from McKnight’s theories (J. McKnight, personal communication -lecture, June 7, 2017) are inline with the ideas of capacity building and CBA. By working with forms of asset-based development it is possible to help communities realize that they do not need to be dependent on others’ solutions for their problems. Community wellbeing is not a luxury, or a superfluous ideal. Community wellbeing is a large contributing factor for individual wellbeing (Pelling, 2011). Not only does CBA plan for wellbeing in the future of the community, but its processes themselves can bring more strength and resilience to the community as well. McKnight has found that one of the main catalysts for building strong community-based solutions is care. Care is one reason why tackling issues at the community level can be easier. From the perspective of McKnight and Block (2010), access to care is a resource. Its value is not to be underestimated.
Institutions and governing bodies have trouble communicating their care for the places affected by their policies (J. McKnight, personal communication -lecture, June 7, 2017). All communities have the capacity to care, maybe it is a case of helping communities realize that they have this latent power, and sometimes it is there already in abundance. There are tones of naivety in McKnight’s teachings, but I do believe there is also truth to them.

Born (2014) acknowledges that there are many arguments against collective action and participatory processes. When people hold close the ideals of individualism, it is difficult to see the utility of collective action. One’s own needs are often prioritized above the common good. As discussed in Chapter 2, global capitalism perpetuates this notion of competition. Furthermore, this culture of Western capitalist ideals, affirms actions that idealize individualism. In order to function within CBA, the community members must take collective action seriously. Born (2014, p 2) notes that another possible area for resistance is the myth of efficiency. “All we need is more time, money, and technology to solve the problems…” is a common story that is believed. Firstly, efficiency distorts purpose. There is no end to it. There is no final destination. Efficiency is an excuse to avoid collaboration. It takes too much time to learn together, it costs too much money to learn from local narratives. These may be valid concerns when looking through the lens of global capitalism’s values, but taking a participatory approach results in a more stable outcome, that is easier to implement locally, and results in less resistance (Burck, 2014). There is a value in learning together, caring, and relationships that cannot be commodified (Born, 2014).

Phenomenology

Regional data on weather events and gradual climactic changes is important technical knowledge. While it should be factored into CBA, this quantitative data is not where the focus of the planning should lie. Qualitative information on how communities and individuals experience these phenomena also has to be considered in order to gain a more holistic understanding of the
regional context. Phenomenological inquiry has the ability to illuminate ideas that go far beyond the often unyielding rationalist approaches to climate change adaptation (B. Smit, personal communication, January 29, 2018). Specifically, phenomenological inquiry provides a way to explain and understand people’s experiences. It is based on the principle that the world is not just objective (James, 2009).

As participants in the CBA process, whether a community member or involved facilitator, one must grip the “embodied entanglements of humans and their environments,” (Paschen & Ison, 2014, p 1087). When done correctly, this phenomenological approach to gathering information reveals the emotional impacts of climate changes, the socio-cultural norms, as well as understanding what and how individuals perceive (Paschen & Ison, 2014). This is where quantitative data, even demographic statistics, falls short. It cannot provide the thick description necessary inform CBA processes.

Farmers do not only see extra centimetres of rainfall on their crops. They feel the mud beneath their feet when weeks ago it had been solid ground. They bear the heavy weight in their chest as they examine the rot creeping up the stalks of their crops. They gamble with nature, denying in their necessary optimism that there could possibly be a fourth year of bad weather in a row. Just as a farmer would have their own unique reality of climate change, so too would others. A person living in a low-income house on the edge of town does not just process the degrees of the hotter summer. Perhaps they suffer heat stroke from their long workdays under the summer sun. Perhaps there is more conflict within their apartment complex as people get agitated in the heat, with no air conditioners in the building. Maybe a local student benefits from increased precipitation, shovelling snow after school, glad to make extra money by cleaning neighbours’ driveways—even with the frostbite on their nose from the unseasonably cold -29°C weather. Without consideration of phenomenological data, these stories and experiences would go unheard. These stories inform the process. They reveal community values that indicate priorities for the process, as well how
climate change affects different stakeholders. Each person's reality is different. Their position in the community, their livelihood, their relationship to the environment, and their level of self-reflection all impact the type of story they will tell (James, 2009). This story, in turn, influences the priorities of the local CBA process.

To move through the process without accessing the stories of the people affected would be to ignore unrealized potential within individuals, neglecting to unearth existing coping mechanisms. It would also mean making assumptions and generalizations about how local citizens experience the effects of climate change. As much as it would seem to simplify the process, to assume uniformity of experience is proven to be more problematic than helpful (B. Smit, personal communication, January 29, 2018). Neil Everden justifies the necessity of experiential data eloquently in the following quote.

The legitimacy of your own experience can be undermined if people can convince you it is “only” subjective. What authority do you credit? What constitutes real knowledge, or “factual” information about the world? Undermining subjectivity by denying the merit of your experience leaves you open to the acceptance of somebody else's idea… (see Jensen, 2004, p 113)

We must understand the whole intricate web of how the individuals in a community are affected by climate change events. Understanding how they perceive the issues evolving locally will help create a map for how future changes will impact the community. The communication between locals in such a manner illuminates how others perceive the same phenomena, building empathy and strengthening the ability to work together.

**Narratives**

This section presents narratives as an ideal method to use in order to access phenomenological data. The type of narrative referred to here is accessed through participation of
stakeholders. It is a method used to access stories of experience, to thus inform the CBA process and ensure it targets root problems, nested within the local social context. This is not to be confused with narratives as a way to present “storied” climate change information to the public. It is not intended to be used as a tool of coercion. The use of narratives in CBA is to bring out the storied realities of local people, and ultimately informing the process with local knowledge, local values, and indicators of wellbeing.

Climate change is not something that affects only the local ecosystem. Climate change impacts have potential implications on all local systems, due to the interconnectivity of these systems. This includes social capital, relationships, economics, health, as well as the environment. All aspects need to be considered, and can later be prioritized based on findings in community values and potential areas of higher vulnerability to the anticipated changes. Narratives provide a “holistic understanding of the socio-ecological system of interest.” (Paschen & Ison, 2014). For adaptation specifically, narratives can help to identify what existing coping mechanisms are already in the community, and identifying community priorities and assets.

Using a narrative approach to gather and share information within a community is aligned to the idea of shifting worldviews, as discussed in Chapter 2. If executed with conscious alignment with the values of a participatory worldview, narrative methods will be in line with the CBA standards of collective action, participatory learning, alleviating alienation, and gathering phenomenological and experiential data.

Narrative methods, with the information gathered and their participatory-based process, actually produce more relevant information for adaptive planning than gaining more precise climate predictions (B. Smit, personal communication, January 29, 2018; Paschen & Ison, 2014). To work only with the climate data would be to make heroic assumptions about how people in the community interact with the changes. Through narratives, the hopes of CBA researchers and
facilitators is to gain genuine understanding of how people make sense of their world (Paschen & Ison, 2014), in the context of their local socio-ecological environment (Liamputtong, 2013).

During my conversation with CBA researcher and professor Barry Smit, he spoke at length about the necessity of sharing stories in climate change adaptation. When approaching a community to do CBA research, he noted that one must enter completely unbiased and ready to ask open-ended questions. If a person enters the community and asks what local experiences of climate change are, then the community will narrate their stories accordingly. In contrast, if a researcher approaches people in the community with open-ended questions, such as “how has life been in the past ten years?” the variety of answers will be much more diverse. There are often unexpected emergent connections between changes in climate and seemingly unrelated aspects of life. This causality may not have been recognized with more specific questions. An example of such findings can be seen in Smit et al.’s (2010) paper about vulnerability and adaptation in a small village in Chile. As discovered in local citizens’ accounts of their recent history, the prominent local narrative was of civil unrest. It was also discovered that there had been changes in water access. The narratives that people shared with the researchers unveiled an unexpected link between these community experiences. One of the main climactic impacts experienced in this region was warming. This caused glaciers that fed the river to melt more quickly and increase water flow. This change caused a web of impacts such as increased access to irrigation, changes in water management, impacts on seasonal workers, and their intricate map of vulnerabilities goes on. The research team was able to analyze the narratives and determine that this glacial change was a major contributor to social tension. Without the use of narratives, Smit suggested that this relationship between civil unrest and climate change would have likely gone undetected, and process would have become less effective.

It is important when collecting storied information that the interviewer be aware of their process of interpretation. The story becomes mediated through the passing between the individual and the interviewer. The social and physical context of the interview may impact how comfortable
the individual is with sharing. Is there an existing relationship between the interviewer and the respondent? These are critical points to consider when working through narratives (Paschen & Ison, 2014). If the interviewer is from out of town, it is ideal that they spend time in the community building relationships, and displaying their commitment to the cause by spending time there. As Liamputtong (2013) identifies, the more time you spend in the local environment, the more opportunity you have to understand it. Not only is spending time in the community important for understanding context, but also for building relationships (Ledwith & Springett, 2010). There is a perceived hierarchy when the individual presents themselves as a specialist, or researcher. The person doing the inquiry must be able to address the interviewees without jargon and expert language (B. Smit, personal communication, January 29, 2018). And in order to achieve a level of trust, there must be established familiarity. Without it, the interviewer will likely encounter reticent participants.

This chapter has illustrated that by placing value on people’s experiences we accept that all perspectives have merit. Even if it is more efficient, it is not just nor fair in the pursuit of community-based adaptation to accept a singular specialist position that determines the future of the entire community. Such an approach would not align with the foundational principles of CBA. Nor would a top-down approach garner as much community support as collective action and participation would (Ross et al., 2015), (Yang et al., 2015). Participation in CBA brings access to a plethora of local information such as social norms, power relations, values, historical experiences and coping strategies (Paschen & Ison, 2014). CBA is informed by these narratives and realities of the local citizens. The sharing of stories fosters a sense of “connected knowing” that supports the shared vision of CBA, contributing to the community narrative (Ledwith & Springett, 2010).
Chapter 5: Operational Hurdles & Literature Limitations

Introduction

CBA is a relatively new academic field. There is not much literature on CBA that predates the year 2000. The most cited article in the field was not written until 2006 (Smit & Wandel, 2006). The body of literature in this field is still growing (Pelling, 2011); thus the limitations of CBA are still being unearthed. This chapter highlights both operational challenges of CBA and the limitations of CBA knowledge which is seen by the paucity of research.10

Rather than focus on context-specific issues of CBA implementation, this chapter discusses more broad issues that can be applied to CBA's process and the general operations necessary throughout each instance of its application. The issues addressed here are problems that occur with CBA as a community-based process, and the implications of what that may mean to the community, the facilitator and the success of the process overall. Furthermore, I ascribe some of these operational challenges to the lack of research. The issues in this chapter are operational issues that are overlooked in this discipline’s discussion. There are many more issues that could arise during the implementation of CBA that are community specific. This list includes challenges like limited access to resources and conflict management between stakeholders. While these hurdles are important to recognize, they are more context specific and are too varied to discuss within the page and time limit of this paper. In addition, these issues are largely tackled in the number of case studies that exist within the literature.

This chapter addresses some issues that are thus far not investigated in the academic literature. The main focus of each section is identifying an important operational problem in CBA, justifying why it needs attention in the academic literature, and lastly, suggestions on how this

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10 Considering the recency of this field of work, the research that has been done is vast and impressive. I believe that the lack of research comes only as an innate quality of a young field.
limitation could be overcome. I reference existing literature to “paint” a picture of the gaps I see—to use negative space to paint a picture of what is missing.

**Communities and Communication Between Levels of Governance**

Communities are nested within larger regions, levels of governance, and institutions, just as households are nested within a community. Communities are primary actors in CBA, but they are not entities unto themselves—not independent of all top-down rules and regulations. This section discusses and provides examples of the extent of existing literature in this area, and how the literature does not specifically address the lack of communication between communities and other governing bodies. Referencing research from closely-related disciplines, this section also presents information about why neglecting to investigate this aspect of CBA could be detrimental to its success.

Throughout this paper I have reiterated that community autonomy is important to the success of CBA processes. While this is absolutely true, there are some potential issues that could arise through miscommunication—or lack of communication—between communities and governing bodies or institutions. It is often a reality that communities cannot function as single entities with sole accountability unto themselves.\(^\text{11}\) Referring back to the discussion on systems thinking in CBA, the main focus of this theory was on the innate interconnectedness within local systems. But these local systems interact with—and are often influenced by—systems external to the community. Part of the challenge with CBA is recognizing and understanding the ambit of local autonomy over CBA by considering the realistic influence of other external and governing factors and systems.

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\(^{11}\) This is true of places with exogenic economies, places which house commuters, places that rely on provincial/state and federal laws or influences, communities which report to institutional funding or programming sources. There are some anomalous cases though where this is not the reality of the community. An example of this would be the rural and remote communities that Choptiany et al. (2015) worked with in Angola. These communities were largely self-sufficient and socially/politically isolated. They were accountable to the FAO (the organization for which Choptiany et al. were working), but not restricted by influences from other communities or larger governing bodies.
Part of the problem is that the answer to the question, *How involved should the government and institutions be?* is that, *it depends.* It depends where funding for CBA projects comes from. It depends on the type of changes the communities decide to make. Despite the variability of communication intensity among communities, governing bodies, and institutions for each instance of CBA, there still needs to be a more thorough exploration in the extent of what constitutes appropriate interaction between communities and these governing entities.

The following paragraphs describe where CBA literature stands on the topic of the role of governing bodies in CBA. This collection of articles also includes insight from related fields, such as community-based natural resource management, monitoring and evaluation, and participation literature.

Adger et al. (2006) look at problems that arise with the involvement of government through the lens of systems of oppression. They also suggest taking emancipatory measures that prevent upper levels of government from influencing the community-led decision-making process of CBA. These measures are important to recognize, as community autonomy is one of the guiding principles of CBA, but this can also be limiting. As mentioned throughout this section, community autonomy has to be balanced with managing and recognizing connections outside themselves.

Choptiany et al. (2015), as mentioned earlier in this paper, work with their CBA program called SHARP in rural and remote communities in Angola. The involvement of other institutions and governing bodies is not mentioned at great length, other than to discuss the lack of government involvement in climate change adaptation efforts. This case is slightly different than others because of Angola being a lower income country\(^\text{12}\), and the lower capacity of the government to manage these rural programs. Although Choptiany et al. (2015) do not actually discuss communication between communities and more powerful tiers of government, their work does briefly mention community autonomy. The implementation of SHARP did not have to give

\(^{12}\text{Angola’s rural and remote communities do not have the same wealth that exists in the nation’s capitol.}\)
much consideration to the influence of the government because the federal government had not been very communicative with these communities in the first place. Choptiany et al. (2015) created this program because of the lack of action from the government. The rural and remote communities and the FAO had significant freedom in terms of what they could control because of this lack of connection with other levels of government. Most of the people who the FOA worked with on this project were pastoralists and subsistence farmers who lived in remote communities. This means that their local economy is almost entirely endogenic—contained within itself. While this may be a disadvantage in other aspects of their lives, this is beneficial to some extent for the CBA process, as they have a lot of control over their own decisions. This example of communication between the CBA site and the governing bodies is anomalous because the community autonomy was automatic and not achieved through consideration or discourse. This may not be possible in all countries.

Singh et al.’s (2017) research targets adaptation to climate change in general, but not specifically CBA. The results from this research are still somewhat applicable to CBA, but there are limitations to this. Their approach looks at top-down policy. They discuss the issue of perceived policy effectiveness. They reveal that perceived policy effectiveness is important to the level of support the adaptation policy gains from the affected communities. Singh et al. (2017) clearly do not approach climate change adaptation from an emergent or bottom-up perspective as CBA does. They look at individuals’ perceptions of top-down climate change policies. The hypothetical policy recommendations they worked with in this study were to be implemented by experts. Throughout the chapters of this paper I discuss why community-based decision-making garners more support in the development of adaptive actions. The policies that Singh et al. (2017) work with do not actually consider the influence or uniqueness of communities in their study—the “specificity of place.” Nor do they consider the downloading of decision-making power to communities.
The examples above have been climate change adaptation strategies that peripherally discuss the communication between communities and larger governing bodies in the context of climate change adaptation. The next examples come closer to elucidating the importance of this issue, rather than circumventing it. Although, as mentioned earlier in this chapter, not all examples of literature I found on this topic are from authors in the CBA field.

Chertow and Esty (2007) take an approach that looks at reforming top-down policy. They suggest a “co-evolutionary” approach to managing systems. This involves increased connections between disciplines and levels of leadership. The template that they suggest involves increasing communication between community or municipal programs and higher tiers of government. Chertow and Esty (2007) still do not apply this directly to community-based or grassroots initiatives. Rather, they imply that this co-evolutionary approach is initiated by the higher echelons of governing bodies and through charitable inclusion they seek out input from affected regions. While the body of their work takes a more radical approach, they conclude by making no extreme suggestions, only wishing to slightly shake up business as usual by incorporating more input from communities and the levels of government who create the policies. These authors suggest working with the system, not against it to make the most impact. In order to make change realistic and effective, Chertow and Esty (2007) suggest increasing interresponsibility at municipal levels, as well as increasing this holistic approach between organizations at the governance levels as well.

Wyborn (2014) takes this idea of inclusive governance a bit further suggesting “co-productive governance.” Wyborn actually discusses the importance of diversifying knowledge, collaboration, and collective learning. Her suggestions are more applicable to CBA as they take problem solving to a local level where the power is seen as equally distributed in communities, institutions and governments.

Sander-Regier et al. (2009) advocate for the importance of coordination among and across community institutions and governance. They suggest that it is important for rural communities
addressing climate change issues to have local institutions (formal and informal) that are able to work together. They believe that the community has to be able to communicate efficiently and effectively with higher level government and governance institutions. It is with these last two theories from Wyborn and Sander-Regier that I believe the most valuable lessons lie. These seem most aligned with the founding principles of CBA in participation, specificity of place, and others.

**Ensuring Accountability**

Another potential hurdle for CBA implementation is accountability. As with the issue of communication between communities and levels of governance, accountability is also almost absent in the literature. Who is accountable to whom? Who ensures accountability? These questions are not posed, nor are they answered; although I would suggest that they are foundational questions. It seems as though the authors in this field assume idealistic conditions where everything is carried out according to plan because stakeholders are collectively responsible and will be driven to complete the tasks at hand. This may not always be the reality of the situation. This theoretical idealism has been identified in case studies (Yang et al., 2015; Huntington et al., 2017; Munaretto et al., 2014; Ross et al., 2015) and throughout some personal communication with professionals in related fields (Bruce Kelly, the Project Manager at Farm and Foodcare; Phil Beard, the General Manager at Maitland Conservation Authority; Alex Chapman, Climate Change Office Manager at the City of Guelph).

Accountability, as applied specifically to CBA, is a topic that is not discussed thoroughly in any of the books or papers I have read in this field. It is implied and discussed in the periphery of other themes but, in my opinion, it is a theme that requires more research. As it is something that I have not found a specific definition for in the context of CBA work, I have come up with my own definition of what accountability means—or should mean—to the process of CBA work and research. Ensuing accountability throughout the CBA process means keeping people accountable to
their assigned commitments and roles in the process and to the integrity of the democratically and locally established CBA vision. Ensuring accountability also means that through participatory monitoring, evaluation, and reflection keeping the process accountable to the values established by the community and uphold the foundational principles of CBA. Therefore, ensuring accountability could be applied twofold – both in keeping people accountable to the process and keeping the integrity of the process accountable to the people.

CBA requires that people understand their roles in the process. CBA also requires that people are held accountable to these commitments, as is a basic expectation in all programs. It is not in a domineering way that this is done. It is not the forcing of people to come together, but rather it is valuing working together for transformative change. It also reassures citizens that their contributions matter (Born, 2014). Accountability reinforces the positive impact of individual and collective actions to the process (McKnight & Block, 2010; Ledwith & Springett, 2010).

Through example, I will illustrate why more consideration needs to be given to accountability in CBA. Consideration and application of accountability is largely neglected in the example illustrated below.

An example of how accountability is important is seen through the failure of Ross et al.'s (2015) review of the climate change adaptation efforts in three Australian communities. The facilitation of community gatherings was thoroughly planned. The researchers rigorously planned around their acknowledgement of (what I call) the founding principles of CBA. The researchers ensured that specificity of place was incorporated into the planning and approach. The valuing of local knowledge was given a high priority and status in the process. They attempted to bring in stakeholders from all key groups within the three communities. This was done in order to highlight

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13 The literature that does reinforce the importance of accountability is from the fields of participatory research and community development.

14 The use of the word failure here is not based on my interpretation of the case study’s results, but rather, the results that the researchers wished to see were not entirely achieved. The researchers actually did not fully recognize the limitations of their study or the extent of the “failures” of they encountered.
the importance of participation and accessing local knowledge from all parts of the socio-cultural systems. Although, I would argue that their "inclusivity" was too hand-picked with some groups being invited through charitable reasoning rather than the acknowledgement of the intrinsic value of their contribution in the process and their inherent right to be there. They had conversations about past experiences, local indicators of wellbeing and local values. The facilitation and planning of the initial gatherings was successful, and as mentioned earlier, rigorously planned for and formally incorporated. The community came together to compile and analyze local knowledge. They spent time with experts who filled in knowledge gaps about climate change in an attempt to build capacity of the stakeholders. Even with all of this planning, the CBA process in these Australian communities was not successful. Once this part of the process was completed, there was no progress with the adaptation initiatives. When the researchers did phone interviews six months after the initial stages of the programming, nothing had been done. None of the plans had been carried forward or were nearing fruition. What I answer next is, why did it fail?\footnote{My conclusions discussed here are based on my knowledge of CBA, and are informed, but they are personal opinions and assumptions.}

A primary reason why it failed was that there were no leaders in the community spearheading this project. It was led by researchers and facilitators. Community autonomy was also low. The stakeholders were being guided through this process by researchers and facilitators. The community voiced the need to have more assistance than the government was providing them. These experts\footnote{I use the word expert with caution here. It is for a lack of a better word. There is no humility in the term expert. It lacks the understanding that the community members are the true experts.} in the field jumped in to help and carry out research objectives. The community was given a false sense of comfort and autonomy during the process. They were given roles and discussed changes they wanted to see, but the people who had committed to fulfilling roles were not held accountable. The beginning of the process was so structured and formally led by non-community members. The progress dropped off once the facilitators left the community to leave the stakeholders to
implement the plan. The researchers stayed only to facilitate the initial planning stages and knowledge gathering. There were no people assigned to oversee the process, to develop measurable (or even immeasurable indicators), nor was a timeline developed to ensure goals were met.

There was a lot of interest from people in these Australian communities to participate in action. They had been motivated to reach out for help through passion and dissatisfaction. The energy produced in the beginning of the process was not fostered. Unsurprisingly, it dried up. It is seen in Ross et al.’s (2015) research that the foundational principles are critical, but it is not enough to go through the motions. The interaction has to be meaningful and the process has to be honest. Part of that honesty would have had to come from the facilitators and researchers and making sure the community knew the limitations of their involvement in the process –as the researchers knew they themselves were not accountable for monitoring and implementing the plans. The community autonomy was not well established, perhaps because capacity building did not take place. The stakeholders who eagerly awaited change did not have a schedule to rely on, and were not formally held accountable by the process or other stakeholders.

One of the lessons we can learn from this example of CBA in Australia is that if communities are to be responsible for their own climate change adaptation strategies, they have to be held accountable and the communities have to understand their level of autonomy, whether it be entirely independent or relying heavily on the facilitators. It seems clear to me that the flaws in this example are the fault of the facilitators and researchers who abandoned the community once their data had been collected –and not being transparent about the plan. If the community and researchers had dialogue about this, capacity could have been built among stakeholders in order to give them the knowledge and supports they needed to create accountability among the stakeholders themselves.
Monitoring and Evaluating CBA

A component of ensuring accountability is monitoring and evaluating the CBA process. CBA processes have the added complexity of being community-based. This requires that different approaches are taken. Based on monitoring and community development work, I suggest that the use of participatory monitoring and evaluation (M&E) is the most appropriate method (Bours et al., 2013). In climate adaptation work there is not a great volume of academic research on participatory M&E of CBA and climate change adaptation related processes (Munaretto et al., 2014). Although, there is much more recorded and reviewed in grey literature, as seen in the reports by Choptiany et al. (2015) and Bours et al. (2013). I see it as a limitation in this academic field to not acknowledge the importance of participatory M&E in CBA. Perhaps authors cannot keep up with the progress being made by organizations and institutions who practice CBA. Regardless of the reason, I feel it is my responsibility to mention it in this chapter.

Despite consideration of more objective CBA monitoring and evaluation criteria almost twenty years ago (Smit et al., 2000) –as the research in this field was in its infancy. There are still problems in this area (Faulkner, 2015). Specifically, monitoring programs are not always applied, and effective monitoring is not always ensured (Faulkner, 2015). Furthermore, the literature in CBA does not often cover monitoring and evaluation practices, as it is with the other neglected topics introduced in this chapter. The authors that write in related fields claim that part of the problem is that when you approach these issues with a system for how to quantify results –how to measure success, how to transfer and repeat the process– one ends up with outcomes that are “divorced from local peoples’ reality,” (Dressler et al., 2010, p 12). Meaning that the traditional benefits “universality” will not work in community-specific programs like CBA.

Participatory M&E involves the meaningful inclusion of stakeholders in the monitoring and evaluation components of a project, program, policy or process (World Bank, 2010). The requirements of meaningful inclusion in participatory M&E are that: all stakeholders have equal
opportunity to be involved, the skilled facilitators guide the process but participants must have
predominance over the content, the place of gathering must be socially and politically neutral, and
lastly, the information gathered has to be incorporated into the process with the promise of
stakeholders to ameliorate issues within the CBA process and implementation strategies (Dillon,
2017; Ledwith & Springett, 2010). Dillon (2017, p 2) continues by providing a list of core principles
for participatory M&E:
1. “Local people are active participants — not just sources of information.
2. Stakeholders evaluate, outsiders facilitate.
3. Focus on building stakeholder capacity for analysis and problem-solving.
4. Process builds commitment to implementing any recommended corrective actions.”

This is the standard of participatory M&E that would be interesting and informative to
explore in future CBA research. M&E has been traditionally performed by contracted experts who
measure a program’s success by evaluating the process against a list of indicators which are used
universally for a specific field (Dillon, 2017). Participatory M&E “involves primary stakeholders as
active participants and offers new ways of assessing and learning from change that are more
inclusive, and reflects the perspectives and aspirations of those most directly affected,” (Dillon,
2017, p 1).

It is the pragmatic understanding of the importance of justice, local values, strong core
values, and community-based effort that make community-based natural resource management
(CBNRM) and CBA so comparable. CBNRM is an example of why participatory M&E is an
essential element of community-based processes. CBNRM was introduced as a solution to
ineffective traditional top-down management schemes (Dressler et al., 2010). This devolution of
power transferred management decisions to the people who are directly impacted by those decisions.
Bradshaw (2003) points out that it is an assumption that local communities could better manage the
sustainable use of those resources. How can success be reached “if newly empowered communities
are not credible in their management of local resources or have insufficient capacity to do so?” (Bradshaw, 2003, p 138). As mentioned in Chapter 3, CBNRM has been deemed a debacle from both academic and professional spheres. Capacity building has had the ability to ameliorate some problems with community autonomy in CBNRM. Even with efforts of capacity building in CBNRM, the literature maintains its polemic that it was not enough (Dressler et al., 2010). Part of the problem that Dressler et al. (2010) identifies is that there was not a true participatory paradigm applied to CBNRM. It led to a sort of “privileging conservation,” which further disparaged vulnerable groups in the communities. Management and monitoring was not done with the best interests of all affected citizens, and how could it, when the process did not even give these vulnerable groups a voice? Based on the insight I can glean from the failure of CBNRM, participatory M&E is something that would help activate the participatory paradigm while also ensuring CBA’s success.

This next part of the section discusses how participatory M&E can be applied to CBA based on the theories from M&E, participatory community development, and CBNRM literature. In order to process the results of participatory planning, a community must engage in participatory evaluation (Ledwith & Springett, 2010; Dillon, 2017). In order to ensure that it has the principles it needs to be true to the integrity of CBA, rather than being “an empty ideal,” participatory evaluation requires: “intertwining reflection and deliberation, integrating vision, critique and practical reality and expanding democratic reflection as a tool for transformation,” (Ledwith & Springett, 2010, p 180). Ledwith & Springett (2010) and Forester (1999) suggest that integration of theory informs this process. Theory has to be demonstrably applied to act as a basis for actions. It is through this that the evaluation process can be made fair, inclusive, and work within the reality of systems that exist locally. As mentioned in the section on systems of oppression and participatory approaches, all voices must be heard. And this includes in the evaluation process. The evaluation process is informed by the local stories and contextual details, and by theory to allow for the creation of an
ideal process and setting where all local participants can come together for critical reflection (Ledwith & Springett, 2010; Forester, 1999).

As alluded to earlier in this section, CBA could not use traditional evaluation tools. There is no singular set of indicators from which to measure all CBA process. This related to its content specific nature. There are the foundational principles to be used by each CBA initiative, but the actual project outcomes will be different in each community. The time frames will be different in each community. Implemented changes will be felt differently by groups within specific communities.

The literature in closely-related fields points to the valuing of participatory M&E. With this comes a caveat. M&E is not only important at times of major benchmarks. Evaluating the success of CBA must be continuous. While there is some intrinsic value of going through the participatory M&E process (ex. bringing people together, sharing experiences of CBA implementation), evaluations are only important if the results that emerge are analyzed and learned from. There is no point in spending time and resources on evaluations if the community and facilitators are not willing to use the information that is gathered.

There are no universal indicators for CBA; “…adaptation must be grounded in the context, scale, sector, and nature of the endeavour, all of which vary widely,” (Dillon, 2017, p 9. But knowing this still does make identifying the indicators for CBA any easier. Fraser et al. (2005) used participatory processes to identify indicators for community-based environmental decision-making. While this is different than CBA, it is likely that environmental management would be a component of CBAs programming in a given community. Thus I would suggest that this research on developing indicators is highly valuable to CBA research. The communities that Fraser et al. (2005) worked with came up with long lists of indicators. These community-identified indicators are more comprehensive than top-down organizations could come up with (Fraser et al., 2005). Some indicators are immeasurable. Fraser et al. (2005) found that it is about 10% of indicators emerge as
immeasurable. They still must be taken into account because they represent the values of the community.

Even with this information from CBNRM there are going to be challenges. Sander-Regier et al. (2009) bring light to one of these issues. They suggest that while higher levels of government tend to have the resources, expertise and dedicated staff to administer and manage policies and programs, people engaged at the local community level must wear many hats and dedicate lots of time to ensure that all of the work is done. They do not have innate capacity as other institutions might. Furthermore, often local governing bodies and individuals are volunteers and usually not formally trained in their position of leadership.17 This makes long-term planning difficult. This is even more difficult when the rural or remote community is experiencing low birthrates and outmigration of youth (Sander-Regier et al., 2009).

Time

Time is a theme that is intertwined throughout most case studies and literature about CBA, but not directly addressed. As with the issue of participatory M&E, the problem of time is addressed in participatory paradigm literature, but not in CBA works specifically. The problem with this is that CBA takes time. This theme was introduced briefly in Chapter 2 during the discussion on dominant worldviews and the impact of efficiency. Rather than through the lens of worldviews, here I discuss the fear of taking time as a hurdle that must be overcome in order for CBA to function as it is intended. To clarify, it is not the wasting of time that I advocate for, but rather the ability for people involved in this process to be able to recognize that it is not a waste of time to work with care.

17 This is not always true, especially as the importance of municipal community engagement offices are becoming more prevalent (Caldwell et al., 2015).
There is a desire based on social, political and institutional norms to achieve outcomes as quickly as possible (Ledwith & Springett, 2010). This desire to meet with success as quickly as possible often drives the actions within processes (Ledwith & Springett, 2010; Born, 2014). This type of action, embedded so deeply in efficiency, leads to processes that “fail to tackle fundamental issues and therefore skim the surface of deep-seated challenges,” (Ledwith & Springett, 2010, p 181). It is the problem of how people and processes perceive temporal limitations that so often leads to the justification of maintaining the status quo –and the justification of processes that do not take care when making decisions (Born, 2014; McKnight & Block, 2010). Ledwith and Springett refer to this tenet-like obsession with efficiency as “time sickness.” They refer to it as such because when addressing wicked and complex problems like climate change this type of problem solving actually does not improve the situation in the long run. Specifically in CBA, there are aspects of the process that require spending time. Such components include participatory paradigms, collective learning, building relationships, creating a community-specific approach. In addition to this, the actual implementation and results take time to emerge (Smit & Wandel, 2006; Adger et al., 2006).

From their decades of experience with working on deepening community, Paul Born and John McKnight have seen that when community development projects prioritize the wellbeing of community members and genuinely implement the process with a participatory paradigm, this coming together of community members brings forth assets that do not emerge in more shallow types of community-based decision making. Included in these emergent tools and assets is the availability of time. By having a process—such as CBA— that places value on individuals’ contributions to the process and ultimately the well-being of the community, individuals become more invested (Born, 2014; McKnight & Block, 2010). Born (2014) argues that many of the types of

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18 Deepening community is a type of community building that focuses on building relationships through fostering positive and rewarding connections between the people, places, and systems within a community. It relies heavily on asset-based community development theories. This is not the same as “weak” or “fear-based” communities where people come together, but are focused more energy coming from fear or hateful stimuli (Born, 2014).
community we are exposed to these days are shallow or weak. For example, when one is a part of the sports team or a club, often the sense of community leaves as soon as we leave the place, or the when the gathering concludes. Born (2014) also says that we have relegated our experiences of community into brief snippets and moments; this is part of the shallowness. While this may sound okay on the surface, it does not lead to long-term satisfaction, or the ability for communities to collaborate and problem solve. He claims by implementing processes that are aimed at improving the wellbeing of the community as a whole—including human relationships, the local ecosystem, and the other systems and networks that influence quality of life— are often welcomed by communities. Born and McKnight have been able to see this desire for deep connection in individuals within communities throughout their careers. Born and McKnight conclude that when they feel valued by their community and connected to their community, individuals come to readily donate their time and assets to the process. To conclude, Born (2014) and Block & McKnight (2010) believe that if the community development process and facilitators work from a participatory paradigm, then the individuals in the community will embrace this slower pace because of the value it places on citizen wellbeing—both in outcomes and throughout the process. Whether this all stands true in CBA can only be determined if this gap in the literature is addressed.

This chapter has provided an introduction to the limitations in the field of CBA, which is attributed largely to the lack of research and discussion on these topics. After identifying each issue, I proposed solutions to these problems based on theories in comparable fields. These have been suggestions, and not an exhaustive exploration into hypothetical remedies. The only way to confirm such ideas would be to do more research. The next chapter continues this theme of acknowledging limitations in CBA (theoretically and practically). Intertwined with this are the CBA principles and practices discussed throughout the entirety of this paper. What emerges in the last section of this paper are creative ideas for what could to come next.
Chapter 6: Conclusion

Recapitulation

Climate change literature illustrates globally-experienced impacts of weather events that are increasing in frequency and severity (NASA, 2018a; Malakoff, D., 1997; Kessler, R., 2011; Jensen, 2000; Jensen, 2004). It is necessary that people affected by climate change build their capacity to adapt if they are to maintain or improve their wellbeing. The purpose of this major paper was to explore both the practice of community-based adaptation to climate change, and to justify CBA as a valid solution to adaptation efforts. Each chapter relates to this overarching thesis of CBA exploration. Each chapter also has a unique identity, with the intent that when the paper is read in its entirety, a holistic theoretical picture of CBA is constructed for the reader.

Chapter 1 presents anthropogenic climate change as a problem. The human experience of climate change is introduced, which then situates adaptation as a logical solution.

Chapter 2 identifies the dominant worldview and how its prevalence has impacted the perception of climate change and adaptive action. This section suggests that worldviews are powerful factors that motivate and justify action. Authors explored in this section have varying perceptions of how worldviews are to be changed in order for citizens to engage in CBA. While there were dissenters, there was a common preference for the theory that a worldview shift does not have to occur in order to engender change (Peterson, 2001; Adger et al., 2006; Singh et al., 2007; She et al., 2015). Rather, these authors suggest that it is inclusive conversations, the way climactic information is storied, and the sharing of individuals’ stories that bring communities together. It is further discussed that these methods are essential for fostering transformative action, rather than approaching CBA with the need to change the worldviews of stakeholders.

What I found throughout the readings was that many authors, researchers, and members of CBA institutions used the same themes in their work. CBA clearly has core principles from which
each proponent of CBA functions, but they were not ever articulated in a succinct list. In order to better support this tentative proposal, I use the theories of wicked problems. Once I establish climate change as a wicked problem, I pose that CBA is a prototypical solution to climate change. In Chapter 3 I propose a list of CBA’s six foundational principles, based on their ubiquity in the literature. Four of these principles also reoccur in wicked problem literature. The foundational principles for CBA as a solution to the wicked problem of climate change are: stakeholder involvement, specificity of place, local knowledge, and systems thinking. The last two are not given notable attention in wicked problem literature, but are significant to CBA nevertheless. These are community wellbeing and values, and community autonomy.

As I clarify in Chapter 3, stakeholder engagement is a vital part of CBA. Because of its importance to CBA, I felt it necessary to give it its own chapter. Chapter 4 takes a theoretical look at how stakeholder engagement is— and could be— applied to CBA practices. This chapter is also used to set a standard for the quality of participation that is expected in CBA. I begin this chapter by explaining the importance of a participatory paradigm to CBA’s stakeholder engagement. This chapter explains why appreciative inquiry methods, such as asset-based community development, are used in CBA. What I found was that there is a tendency to use phenomenological theory to inform stakeholder participation in CBA. The combination of a participatory paradigm and phenomenological inquiry results in the collection of local narratives to inform the process. This chapter does not question the importance of quantitative climate data, but rather it uses CBA literature to justify the portion of this adaptive strategy that is community-based.

Chapter 5 identifies gaps that were apparent in the literature. These neglected areas of theory are important because they inform practice. The operational implications of this knowledge gap in the academic literature is also discussed in each section. A limitation of this chapter is that I identified each of these gaps in the literature. This is important to recognize because I have not yet worked in this field. Each of these gaps are identified from my exposure to CBA from the literature,
and I suspect that if I had experience in the field, this list of operational hurdles and neglected topics would be different.

**Limitations of the Research**

When analyzing this paper as a reader, I feel that it is important to stress that the purpose of my writing was to explore CBA. This paper was created out of curiosity and a desire to learn about how rural and remote communities theoretically and practically approached adaptation to climate change. The arguments within this paper are thus limited to my exposure to the literature and personal communication with professionals in the climate change field. I have deliberately focussed more on the theoretical side of CBA, rather that the details of implementation due to my lack of exposure to applied theory in the field.

I do not claim to be a praxis expert in this field, but I feel that both the identification of gaps in the literature, and the creation of the six foundational principles of CBA are significant contributions to the field. These are the main academic contributions from my paper. I also feel that the discussions on worldviews and phenomenology advance the theory and understanding of CBA.

**Personal Reflection & Next Steps**

The obvious next steps would be to build on the theoretical and operational limitations of CBA that were identified in Chapter 5. The implication of such explorations could potentially affect research, policy, and actual community-based change. The grey literature on CBA is being produced at a rapid rate that seems to be exceeding the work of the academic sphere. Perhaps it is not the sole role of academics to push this field further, but a combination of communities, experts, and academics –a praxis approach.

I have some of my own ideas for potential personal next steps in this field. Throughout this paper I have had many ideas come up that did not make it into the body of the paper. Curiosity
would spin into multi-hour tangents into the book racks and down rabbit holes of articles. Over time I learned to set these ideas aside in order to make better progress with writing. They are bright little lights though, and the passion they filled me with inspired me to keep going with this topic. Even though they have no place in the main content, I would like to take this opportunity to tip my hat to these little lights—to these little ideas making a ruckus in the corners of my brain. I have formatted them into titles of hypothetical papers or projects:

**Fully embodying the grassroots nature of community-based adaptation: an accessible web-based platform**

Throughout the writing of this paper there was a question that kept popping up in my mind, *shouldn’t there then be a way for grassroots adaptation activity to take place without the complete reliance on others to come in and instruct them on the process?* Something that seems appropriate is an accessible open-sourced platform for communities to learn from and share experiences. There is mention of facilitators and researchers collecting data and sharing it amongst themselves so they may refine the process. But this transfer of information is from one expert to another. It still maintains this hierarchical authority of specialists. This seems to be contradictory to the participatory paradigm on which CBA sits. While specialists will still be necessary, the main thing I feel is missing from CBA processes is an accessible platform for locals to visit and to contribute to. It is a relatively radical suggestion, but based on the information collected for this paper, I believe it could be a way to improve the future of communities who wish to participate in CBA. I believe there should be a platform upon which communities can share information. With such advocacy of grassroots movement through adaptation processes in the literature, it seems like this is a logical step to take. The creation of such a platform is something I would be personally interested in pursuing after graduate school.

**Painting adaptation: portraits of communities impacted by climate change**

Visual mediums are the method of communication I feel most comfortable with. Throughout the case studies I read, I could imagine vivid images of the stakeholders in the CBA
effort (farmers, pastoralists, families, business owners, home owners, etcetera). An idea that stayed with me the entire time is to do a series of paintings about people adapting to climate change from all over the world in attempt to raise awareness of its importance. It is through art that I feel most comfortable with interpreting and sharing stories. It seems also like this would be a way to make CBA accessible to all people. It would be my version of a global narrative. To better provide a structure for what I suggest I would like to provide a couple of examples that keep floating around in my head. The case study done by Pelling (2011) in the Quinta Roo region in Mexico stuck with me, where the tourist sites were built up and restored after climate change-induced extreme weather events, but the lower income Mexicans were not brought into the conversation. I imagine a painting of a heartbroken but determined local staring at reconstruction of a hotel while standing amongst debris from nearby homes that was never cleaned up. There are countless others. A woman standing at the edge of her property line, watching as lake Ontario eats away at the soil, stairs down to the lake already washed away in the 200-year storm event that now seems to happen every other summer. A person working on a team to replant native riparian and wetland species at the edge of a river. A student hunched over their laboratory table, inspecting their new collection of drought tolerant seeds. A man working on his home’s new grey-water system, saving water by rerouting the sink’s plumbing to fill the toilet. A farmer working on their floating gardens in Bangladesh. I think the presentation of climate change adaptation shown as individuals interacting with the process would be a great way to communicate its importance.

**Where is nature?: challenging the anthropocentrism of CBA**

As established in Chapter 1, climate change is anthropogenic. It is caused by human activity. Adaptation and mitigation are ways that our species is trying to save itself from our own destructive behaviours. I understand that fairness and justice are important to CBA, as is ensuring the wellbeing of all stakeholders. What I do not understand is that almost all CBA authors I have read neglect to mention nature as a stakeholder. If the adaptive efforts cause more ecological devastation, but suit
the needs of the people, is that really a just or fair outcome for the earth? Is it making progress in the long run?

Me first: The impact of individual wealth on willingness to participate in CBA

My major paper has metastasized!: how to prevent your masters from taking over your life

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