Bridging Western and Indigenous Knowledges: Two-Eyed Seeing and the Development of a Country Food Strategy in the Northwest Territories

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ABSTRACT

As governments in Canada usher in a new era of reconciliation, it is essential that they bring together Western and Indigenous (Traditional) knowledge, to ensure equitable representation of the two in the development of public policy. Public policy in Canada is developed within a Western paradigm and Two-Eyed Seeing, the practice of bringing together both Western and Traditional knowledge, offers an approach for agencies to bring in Indigenous voices and ways of knowing into policymaking. Up until now, there has been little analysis of the Two-Eyed Seeing approach in the literature, and limited application of the approach within policy development. In response to these gaps, this research examines how Two-Eyed Seeing can be used to inform a country food policy development process. It seeks to examine how Two-Eyed Seeing has been used in existing research and policy development, and looks to develop a framework to apply Two-Eyed Seeing in a policy process, using the Northwest Territories' Country Food Strategy as a case study.

Based on a systematic literature review, eight publications were identified that operationalized Two-Eyed Seeing. These publications were analyzed based on how Two-Eyed Seeing was applied, highlighting the principles and methods used, such as incorporating Indigenous ceremonies, gathering Traditional knowledge from Elders and connecting findings to Indigenous teachings. The methods used at each phase of research and policy development were identified, providing guidance for the formulation of recommendations for the development of the Northwest Territories' Country Food Strategy. These recommendations stem from the need to highlight the strengths of Traditional knowledge, and included methods such as community consultations through sharing circles, policymakers grounding themselves in culture through ceremony and consulting with an Elder advisory council. This research provides a framework for Two-Eyed Seeing to be operationalized in future policy development processes.

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INTRODUCTION

As governments in Canada usher in a new era of reconciliation, it is essential that they bring together Western and Indigenous (Traditional) knowledge, to ensure equitable representation of the two in the development of public policy. The Government of Canada has called for a new relationship between First Nations, Inuit and Métis peoples and the Crown through a renewed nation to nation relationship. This call has increased efforts to address the challenges faced by Indigenous communities across the country, as governments at all levels bring Indigenous communities into governance decision making and policy making processes. Two-Eyed Seeing, an approach that brings together Western and Traditional knowledge, offers a valuable way to develop new policies in Canada. Popularized by Elder Albert Marshall of the Mi'kmaw Nation in Unama'ki-Cape Breton, Two-Eyed Seeing emerged out of Indigenous teachings on the importance of multiple perspectives, and was brought forward in the recognition that academic research, education and governments operate in a Western framework that need to include Indigenous perspectives. Two-Eyed Seeing therefore seeks to avoid knowledge domination by respecting the differences and strengths of both knowledge systems.

Two-Eyed Seeing has recently been introduced into academia, and the approach has had limited application in academic research. Little analysis of the approach has therefore been undertaken within the literature. Within the grey literature, there is only one documented reference to the approach being applied to develop a governmental policy. There is therefore limited engagement with Two-Eyed Seeing amongst policymakers, and very little analysis of how the approach can help to inform policy within the literature.

In light of these gaps, this research provides an analysis of the Two-Eyed Seeing approach, with the goal of exploring how Two-Eyed Seeing can inform a country food policy.

Country food refers to wild-harvested native animal and plant species, and is integral to cultural continuity and food security for Northern Indigenous Peoples. Food security in Northern Indigenous communities is an increasingly pressing issue given the high costs and adverse health effects associated with store bought (market) foods. Two-Eyed Seeing offers a relevant approach to explore country food systems, as country foods are deeply connected to cultural identity and are reliant on the interconnections between land, people and food. Policy solutions to the challenges faced by country food systems can therefore greatly benefit from the strengths of Western knowledge, which provides a reductionist, quantitative and universalist perspective, and Traditional knowledge, which provides a holistic, relational and place-based perspective.

This research seeks to address its goal by addressing two objectives. The first objective is to examine how Two-Eyed Seeing has been used in existing research and policy development. This requires a literature review of publications on Two-Eyed Seeing and an analysis of the methods and principles of its application. The second objective is to examine how to apply Two-Eyed Seeing in a country food policy process, using the Northwest Territories (NWT) Country Food Strategy as a case study. This requires using the findings from the previous analysis to develop a framework of recommendations of how to apply Two-Eyed Seeing throughout the steps of developing the NWT Country Food Strategy.

This Major Research Paper (MRP) is divided into two parts. Part I addresses the first objective and provides a background on Traditional and Western knowledge, the relationship between the two and the development of Two-Eyed Seeing as an approach. The methods section describes the literature review and the methods of analysis. The results section provides an examination of what has been found, followed by the discussion on the findings and conclusions of the analysis. Part II addresses the second objective and provides a background on policy

development and the food system context that led to the need to develop the NWT Country Food Strategy. The subsequent section provides the framework for applying Two-Eyed Seeing in developing the NWT Country Food Strategy. The conclusion examines the challenges in moving forward and future directions.

PART I – Two-Eyed Seeing in Research and Policy Development

Part I addresses the first objective by examining how Two-Eyed Seeing has been used in existing research and policy development. It begins with background information on Traditional knowledge, and then examines Western knowledge and the relationship between both knowledge systems. This provides background for the introduction of Two-Eyed Seeing, the approach that brings together both Western and Traditional knowledge. The subsequen sub-sections outline the methods and the results of the research. Part I ends with a discussion on the insights gleaned from the results.

BACKGROUND

Traditional Knowledge

Knowledge is not only the empirical information that is known, but is also a system of values and ways of knowing that guide and organize the way people experience and make sense of their world (Dei, Hall, & Rosenberg, 2000). Indigenous knowledge, known as Traditional knowledge, has been developed over thousands of years by Indigenous peoples. Indigenous in this context refers to the peoples that retain knowledge of, and are inherently tied to the land (Kuhnlein & Receveur, 1996). In Canada, Indigenous peoples refer to the first peoples of this land, which consist of three groups – Indian (First Nations), Métis and Inuit, as per section 35 of the Canadian Constitution Act of 1982.

Today, Indigenous scholars, activists and community members are using Traditional knowledge to break free from Western paradigms. Indigenous communities are using Traditional knowledge as a tool for decolonization, and as a way to reclaim their Indigeneity. Academics are revealing the wealth that Traditional knowledge has to offer, including teachings, values and experiences while recognizing the importance of diverse perspectives and the need to challenge the positivist paradigm, in attempts to decolonize scholarship (Battiste, 2005). Educators are also finding ways to bring in Traditional knowledge to provide a more holistic education to students (Bartlett, 2011). Governments too are bringing in Traditional knowledge into governance and policy making processes. This has involved including Indigenous Elders and communities in decision making, and acknowledging the importance and validity of Traditional knowledge (Government of Northwest Territories, 2005). Traditional knowledge is therefore increasingly being brought in to the mainstream, and practitioners from across academia and government are looking for ways to bring in Traditional knowledge, for the betterment of all.

There is currently no universally accepted definition of Traditional knowledge, rather there are a variety of terms and definitions used throughout the literature (Berkes, 2008). This is a product of the history of the study of Traditional knowledge, as it has been largely driven by those outside of and with different interests from Indigenous communities (McGregor, 2009). This has resulted in the study of Traditional knowledge being forced to conform to Western conceptions and principles. For example, Traditional knowledge is often understood as a body of knowledge that is both a product and commodity, that can be easily packaged for consumption (McGregor, 2009). This limits our understandings of a holistic and broad system of knowledge. The variety of terms and definitions to denote Traditional knowledge also convey the belief that

all Traditional knowledge is the same, when there are in fact an array of geographic, cultural and community-based differences (Battiste, 2005).

As Traditional knowledge is complex and dynamic, there is significant controversy over what Traditional knowledge and its many other alternatives entail (McGregor, 2009). Several definitions have however been proposed. Traditional knowledge has been proposed as referring to "the unique, traditional, local knowledge existing within and developed around the specific conditions of women and men Indigenous to a particular geographic area" (Grenier, 1998, p. 1). Berkes (2008) provides a more complex and nuanced definition of what he describes as Traditional Ecological Knowledge, as he defines it as a "cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment" (Berkes, 2008, p. 8). Lastly, a more recent definition from the United Nations provides a broader understanding, as Traditional knowledge is defined as "the knowledge, innovations and practices of Indigenous and local communities around the world" (United Nations, 2014, p. 3).

While these definitions may provide some background to Traditional knowledge, they have been largely developed by or for a Western audience. This is problematic as Eurocentric thought is not able to properly explain or conceptualize Traditional knowledge (Battiste, 2005). Eurocentric research has examined Traditional knowledge through a taxonomic approach, whereby researchers categorize whether a teaching, practice or technology is considered a component of Traditional knowledge. This has created definitions that do not fully encompass the variety of ways of knowing, methodologies and practices that are part of Traditional knowledge. None of these definitions therefore recognize the complexities of Traditional

knowledge, or that Indigenous peoples have their own classifications and approaches to knowledge (McGregor, 2009).

Stemming from the difficulties of defining Traditional knowledge, there are a variety of terms used. Traditional knowledge (TK), Aboriginal Traditional Knowledge (ATK) and Traditional Ecological Knowledge (TEK) are all regularly used throughout the environmental management and the Indigenous studies literature (Assembly of First Nations, n.d.; Berkes, 2008; Inter-Agency Support Group on Indigenous Peoples' Issues, 2014; Popova-Gosart, 2009). Though Berkes (2008) notes that for Indigenous peoples, the term 'traditional' in this context includes cultural continuity and change, the term has been criticized as it implies that the knowledge is static or 'old'. To address the concerns around the use of the word 'traditional', a variety of other terms have emerged including "Indigenous Knowledge" (Brant Castellano, 2000; Grenier, 1998), "Indigenous science" (Hatcher, Bartlett, Marshall, & Marshall, 2009), "naturalized knowledge system" (Lickers, n.d.) and "Indigenous ways of living in nature" (Aikenhead & Ogawa, 2007).

Here the term 'Traditional knowledge' is used to encompass all understandings and alternative terms. First, this term is used widely within the literature, and recognizes that Indigenous knowledge is holistic and cannot be compartmentalized into streams such as "ecological knowledge" (McGregor, 2009). Second, Traditional knowledge is the term used by the Government of the Northwest Territories. The Northwest Territories' Traditional knowledge policy recognizes the importance of Traditional knowledge as a source of information on the relationships of people to each other and to the land, and stresses the need to incorporate Traditional knowledge into government decisions and actions (Government of Northwest Territories, 2005). As this research will be using a policy being developed by the territorial

government as a case study, this paper will use the term Traditional knowledge accordingly. It should be stressed throughout that Traditional knowledge is continually changing through adaptive processes to evolve to modern day realities.

In examining the different aspects of Traditional knowledge, it is much broader than definitions imply and it is rather as Teresa Ryan, a Tsimshian scholar notes, "*living* in the dimension of time" (Ryan, 2008, p. 196). It is a system that is based on ancient traditions, as well as skills, practices and abilities that evolve through time. Knowledge is based on the journey of knowing, and comes from the interaction of the "body, mind, soul and spirit with all aspects of nature" (Cajete, 2000, p. 64). As Battiste and Henderson (2000) note, Traditional knowledge therefore "flows from the same source: the relationships between a global flux that needs to be renewed, the people's kinship with other living creatures that share the land, and the people's kinship with the spirit world" (Battiste & Henderson, 2000, p. 41).

One important aspect in understanding Traditional knowledge is that it is comprised of epistemological pluralism (Whitt, 2009). Epistemology is the theory of what is considered knowledge, and epistemological pluralism refers to the recognition that there are diverse ways of knowing and understanding the world. Traditional knowledge systems are seen as being more subjective than Western knowledge systems, as they are guided by the direct daily experiences with the environment, and the relationship of the natural world to the social world. According to Brant Castellano (2000), there are a variety of sources of the knowledge valued in Indigenous communities. First, there is the knowledge that comes from oral storytelling of the creation of the world and ancestral history. Second, there is knowledge that is acquired through observation. Third is knowledge that is spiritual in origin and gained through dreams, visions and intuitions.

Traditional knowledge also relies on transmission between generations, from Elders to youth through stories, rituals, practices and ceremonies. This transmission is also often highly reliant on family and community relationships. For example, as Battiste and Henderson (2000) write, Mi'kmaw children grow up surrounded by their extended families, learning about values and culture through their relationships with their surrounding community members. Every person within the community is a teacher and as individuals grow older, they are increasingly understood as having special teaching responsibilities towards others. Children are therefore always taught to respect all the adults in their community and their teachings, especially the knowledge that they are offered by their mothers and grandmothers.

Yet another important aspect of Traditional knowledge is language. As knowledge is based in oral traditions and histories, Traditional knowledge is intimately tied to and expressed through language (Parrotta & Trosper, 2012, p. 3). As such, language is the "epistemological framework for a reference to place and through time" (Ryan, n.d.). It provides a system through which to name things and to transmit contextual meaning and importance. Indigenous languages are therefore rooted in specific understandings of the world, and Traditional knowledge, in the Western context, must be expressed through the normative language of the dominant culture, though the concepts are rooted in a different normative framework (Turner, 2006). The examination of the word *knowledge*, as Aikenhead and Ogawa (2007) note, provides an informative example. Indigenous languages tend to be verb-based and thus the noun *knowledge* does not easily translate. For example, the closest translation into English from the expression for knowledge from the language of the Nehiyawak (Plains Cree) is *coming to know*. This highlights the importance of the journey towards wisdom that is understood as being integral to Traditional knowledge, and how Indigenous concepts can be difficult to directly translate.

In summary, Traditional knowledge includes an array of "coming to know" processes that are rooted in relationships between people and the natural world. In providing an overview of Traditional knowledge, Battiste and Henderson (2000), note that the structures of Indigenous ways of knowing are as follows: (1) knowledge and belief of unseen powers; (2) knowledge that all things are interconnected; (3) perception of reality that is influenced by linguistic concepts; (4) knowledge that all bonds to people, communities and ecosystems are reinforced by personal relationships; (5) knowledge that specialized knowledge on ethics and morals is taught through tradition; and (6) knowledge that extended kinship passes on teachings through the generations.

Western Knowledge

Western knowledge emerged from the Greek philosophical tradition, and was developed in Europe over the subsequent centuries (Crawford, Wehkamp, & Smith, 2010). European thinkers, particularly after the Enlightenment, began building on their intellectual and scientific thought to develop a complex, systematic and logical system of knowledge. This system of knowledge came to be based on the fundamental premises that nature is 'knowable', and that the physical and metaphysical worlds are independent and distinct from each other (Hatcher et al., 2009). Western knowledge is also based on positivism, which holds that the most trustworthy knowledge can be verified through scientific, logical or mathematical testing. The positivist paradigm that has developed largely relies on scientific inquiry to back up claims about reality.

The process of scientific inquiry relies on scientists and philosophers examining local knowledge, pinpointing problems that require solutions in their surrounding context. This process is based on observations on cause and effect on how the world functions. Hypotheses are developed on the possible explanations on the cause and effect, and evidence is evaluated to accept or reject the hypotheses (Crawford et al., 2010). These predictions are formed into

explanations of what is considered to be truth. Kloppenburg (1991) further expands on this method, noting that "this is the practice of breaking a problem down into discrete components, analyzing these separate parts in isolation from each other, and then reconstructing the system from the interpretations of the parts" (Kloppenburg, 1991, p. 530). Scientific inquiry can therefore provide understandings of phenomena that are not bound by spatial or social context, but are generalizable across time and space (DeWalt, 1994).

Western knowledge, as a whole, is highly reliant on analytical and reductionist thinking, based on objective, quantitative and synchronic data (Tsuji & Ho, 2002). It has facilitated the development of an array of disciplines and a large body of knowledge that is developed by an array of experts: researchers, scientists, philosophers and academics. Facilitated by the expansion of European colonial powers, the Western knowledge system has become dominant across the world.

Traditional and Western Knowledge

While Traditional knowledge has been present for countless generations, it has not always been recognized by the Eurocentric mainstream. The Western scientific tradition has largely failed to acknowledge diverse perspectives or the existence of those that would contradict some of its basic assumptions. For example, the Canadian education system largely provides a colonial understanding of history (Martin, 2012). Students are taught about the building of the colonies and the development of Canada often without the inclusion of the fundamental contributions that have been made by Indigenous peoples. According to the Western perspective, there is therefore only one story of Canada (Martin, 2012).

Within Western knowledge systems, knowledge is also viewed as legitimate only if it can be defined as objective, as per the positivist model. This has led to the West establishing

hierarchies of knowledge, ensuring that Western knowledge is defined as the only truth (Dei et al., 2000). Anything that falls outside of this category is de-legitimized. Traditional knowledge systems, based on more subjective and diverse epistemologies, have therefore been systematically denied, often equated with tradition, superstition and the natural environment. For example, Traditional knowledge is often integrated into environmental management projects and research, but is regularly regarded as supplementary environmental data. Researchers view environmental remediation as requiring technical or scientific solutions, confining Traditional knowledge to matters such as cultural history and knowledge of resources and flora and fauna (Sandlos & Keeling, 2016).

Not only has Traditional knowledge long been sidelined, it has also often been appropriated by Western science. As Posey (2004) notes, Traditional knowledge has been used to inform research and scientific discoveries, however without researchers and practitioners crediting where the knowledge has originated from (Posey & Plenderleith, 2004). This upholds the colonization of Traditional knowledge, as the context and people from which this knowledge comes from are ignored (Martin, 2012). It also forces Traditional knowledge into the confines of the positivist paradigm. For example, when Traditional knowledge is used in environmental decision making it is often forced to become "scientized" to ensure that it is useful to conventional science and its practitioners (Ellis, 2005). For example, research that most commonly uses Traditional knowledge, such as land-use and resource management, tends to reduce the knowledge from Elders and other community members to data points on maps that are then conducive to scientific analysis and manipulation.

Despite these power imbalances, some scholars have argued that Traditional and Western knowledge are quite similar. Tsuji and Ho (2002) note that both Traditional knowledge and

Western scientific knowledge are based on data that comes from the systematic collection of observations. As they discuss, data collection for both knowledge systems is driven by curiosity and the need to understand. Traditional knowledge is therefore not only driven by the need for survival, while science is not only driven by the need for systematic inquiry. For example, some Algonquin communities have a complex taxonomy for snakes even though they are not a species that is relevant to their livelihoods (Tsuji & Ho, 2002). In contrast, scientists are regularly driven by survival, as for example, they continue to search for the cure for cancer. Both Traditional and Western knowledge are also subject to peer and public review, as peers and community members look to replicate and back-up observations. Agrawal (1995) has stated that there is in fact no real difference between the Traditional and Western knowledge, rather that perceived differences are based on political and not epistemological differences. As he argues, differentiation between the two cannot be made as both knowledge systems are highly heterogeneous and dynamic, constantly evolving to new realities over time.

While there are clear similarities between Traditional and Western knowledge, both have distinct ontologies, epistemologies, goals and methodologies, and therefore each have their own strengths and comparative advantages (Bartlett, Marshall, Marshall, & Iwama, 2015). Traditional knowledge draws its strengths from being based on a monist worldview (Aikenhead & Ogawa, 2007). As opposed to the dualistic worldview that is held by Western knowledge, which holds that there is a separation between matter and mind, Traditional knowledge is based on the principle that all things, including the waters, lands, animals and plants, possess a spirit (Tsuji & Ho, 2002). Spirituality therefore enters discourses, and provides a system of knowledge that emphasizes the interactions of cultures and societies with the natural world (Kawagley, Norris-

Tull, & Norris-Tull, 1998). The social needs of people in their changing environment are largely ignored by Western knowledge.

Traditional knowledge is also based in holism, meaning that there is no separation between disciplines such as science, art and religion (Battiste & Henderson, 2000). This provides a dynamic and multidimensional understanding of the world, ensuring that solutions to set problems highlight interconnectiveness and relationships (Bartlett et al., 2015). Western knowledge comparatively provides a much more rigid and disconnected understanding of the world. Finally, Traditional knowledge draws its strength from being place-based (Aikenhead & Ogawa, 2007). Indigenous peoples are intrinsically tied to the land, and Traditional knowledge cannot be separated from the people and the land. This provides insights at the local-level, and can involve a comprehensive understanding of the surrounding natural landscape, and its plants and animals. This again holds in contrast to Western knowledge, which tends to be generalizable across time and space.

In comparison to Traditional Knowledge, Western knowledge also has its strengths. Western knowledge does not tend to change depending on context, meaning that it is transferable over time, space and cultural setting (DeWalt, 1994). This means that concepts and understandings can be applied in a variety of different scenarios, whereas Traditional knowledge tends to be more context-specific. Western knowledge is also based on reductionism, which holds that complicated phenomena can be reduced to simple parts that are conducive to measurement (Aikenhead & Ogawa, 2007). A phenomenon can then be understood through the bringing together of multiple pieces of knowledge. Western knowledge is therefore particularly adept at providing solutions to complex problems, as well as detailed analyses of specific phenomena. Lastly, Western knowledge is highly reliant on quantification (Aikenhead & Ogawa,

2007). Western science holds that all natural phenomena can be measured, making observations objective. Quantification can provide a systematic method to approach problems and in turn, explore explanations.

Bringing together Traditional and Western knowledge can provide an understanding and an analysis that draws on the strengths of both. Using Traditional knowledge can allow for a perspective that is spiritual, holistic, relational, and place-based, with the goal of maintaining co-existence with nature (Aikenhead & Ogawa, 2007). Western knowledge on the other hand can provide a perspective that is reductionist, quantitative and aspires to universality. Bringing together these two knowledge systems, and their differing perspectives and goals, can provide valued and important insight into academic research. They can also be brought together to inform governance, through the process of policy development.

Two-Eyed Seeing

In bringing together Traditional and Western knowledge, the practice in the past has been to integrate Traditional and Western knowledge together. This method however has often led to Traditional Knowledge being simplified to fit with scientific methods and forced into a Western paradigm (Sandlos & Keeling, 2016). Recently however, knowledge co-production has emerged as a more collaborative process of bringing together different knowledge types to understand a problem (Armitage, Berkes, Dale, Kocho-Schellenberg, & Patton, 2011). Knowledge co-production is increasingly becoming accepted best practice in community based research, as academics move away from using Traditional knowledge as a token addition to their work. As part of this transition, an approach called Two-Eyed Seeing has been introduced to offer guidance on how to best bring together Traditional and Western knowledge.

Two-Eyed Seeing emerged from the teachings on the importance of multiple perspectives that is treasured in the Indigenous worldview (Bartlett et al., 2015). It was brought forward into the world of academia by Mi'kmaw Elders Albert and Murdena Marshall from the Eskasoni First Nation to help guide the development of a post-secondary Indigenous science program (Bartlett, 2011). Elder Murdena Marshall, a retired associate professor at Cape Breton University (CBU), saw that despite the high proportion of Mi'kmaw students at the university, participation in science-related fields was limited. A new program, called Integrative Science, was developed to bring in more Indigenous students by increasing the recognition of Indigenous science alongside the Western education system. The process of developing the Integrative Science program and bringing together Western and Indigenous science together was guided by an approach known as Two-Eyed Seeing (Bartlett, 2011).

Two-Eyed Seeing grew from the teachings of the late spiritual leader and chief Charles Labrador of Acadia First Nation of Nova Scotia. More specifically, it was developed from these words: "Go into a forest, you see the birch, maple, pine. Look underground and all those trees are holding hands. We as a people must do the same" (Iwama, Marshall, Marshall, & Bartlett, 2009, p. 3). Elder Albert Marshall, the designated voice on environmental matters for Mi'kmaw Elders in Unama'ki-Cape Breton, offered the principle of Two-Eyed Seeing from these words. As he says, it refers to "learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing and from the other eye with the strengths of Western knowledges and ways of knowing and to using both these eyes together, for the benefit of all" (Bartlett et al., 2015, p. 295). The fluid nature of two eyes that can look back and forth allows one to attain a more complete understanding of the world, while challenging users to ensure that multiple dimensions are included in the analysis (Martin, 2012).

Two-Eyed Seeing seeks to avoid the domination of one knowledge system over another by respecting the differences and strengths of both knowledge systems (Bartlett et al., 2015). The approach was brought forward by Elders Marshall and Marshall and Professor Bartlett with the acknowledgement that there remains a power imbalance between Western and Traditional knowledge within the mainstream. When working in a Western context, such as within the university system, Two-Eyed Seeing should therefore be used to highlight the strengths of Traditional knowledge through methods that focus on Indigenous ways of knowing. The approach then provides a balance between both worldviews, by bringing together different views, skills and people to provide a balanced understanding. Two-Eyed Seeing also helps to contribute to Indigenous cultural renewal, as it stresses the need to include alternative ways of knowing, including spiritual and emotional elements (Hall, Dell, Fornssler, Hopkins, & Mushquash, 2015).

As Bartlett et al. (2015) discuss, Two-Eyed Seeing is a dynamic process that requires the inclusion of all participants. Elder Albert Marshall makes this clear when he notes that Two-Eyed Seeing is about life, and about "what you do, what kind of responsibilities you have, how you should live while on Earth…i.e., a guiding principle that covers all aspects of our lives: social, economic, environmental, etc." (Bartlett et al., 2015, p. 296). Two-Eyed Seeing therefore cannot be reduced to a list of best practices, but is rather an ongoing journey and fluid process of sharing ideas, ways of knowing, skills and understandings (Hovey, Delormier, McComber, Lévesque, & Martin, 2017).

There are four key essentials related to the journey of Two-Eyed Seeing (Bartlett, 2017). First is co-learning, which refers to learning collaboratively and from one another. Second is knowledge scrutinization, which is the need to see the strengths and weaknesses of both

knowledge systems and how they can come together. It is also needed to break down the fear that many people have around knowledge systems they do not know or understand. Third is knowledge validation, through both scholars and Indigenous knowledge holders, to ensure knowledge is accurate and authentic. Fourth is knowledge gardening, which refers to the need to create opportunities for collaboration, while working according to the needs and desires of local communities.

In the case of Integrative Science at CBU, the developers of the program recognized that in certain situations, the strengths of Indigenous science are required while in others, the strength of Western science are required. As Hatcher, Bartlett & Marshall (2009) note, Two-Eyed seeing is a dance between the Indigenous sciences' "sense of the whole" and Western sciences' "sense of the parts" (Hatcher et al., 2009, p. 146). This means that the study of science is holistic, as well as multidirectional, multisensory and multidisciplinary.

In bringing forward Two-Eyed Seeing, Elders Marshall and Marshall, along with Professor Cheryl Bartlett, developed a visual to aid in the co-learning journey of Two-Eyed Seeing. The visual started simply as two eyes, but developed into an image of two eyes on two connected jig-saw puzzle pieces (see Figure 1). This image development was guided by Elder Albert Marshall, who noted that knowledge from all cultures and worldviews globally, not just Western and Traditional knowledge, can be brought together to help solve complex challenges. This means that more jig-saw pieces can be added, resulting in Four-Eyed Seeing, Six-Eyed Seeing or more. For Elder Marshall, the jig-saw

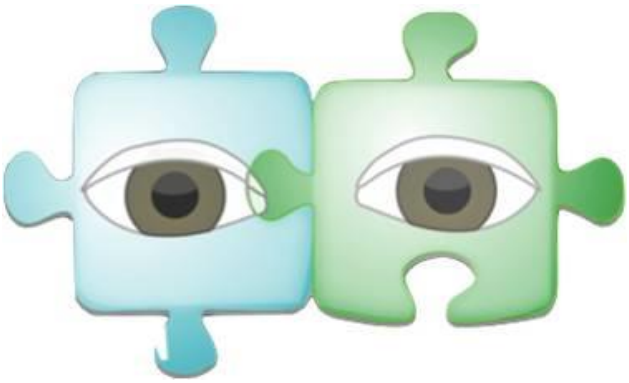

Figure 1 - Two-Eyed Seeing Graphic

Source: integrativescience.ca

image also represents the belief that Traditional knowledge is held by a variety of people, not just one or a few. This emphasizes the multiplicity of knowing, and the need to bring these knowledges together for a more comprehensive whole. The two inter-connected pieces thus represent the need to bring together Traditional knowledge (one puzzle piece) and Western knowledge (the other puzzle piece), for a more complete and holistic understanding of an issue.

METHODS

Literature Review

A systematic literature review of published articles and grey literature on Two-Eyed Seeing was conducted to best understand how Two-Eyed Seeing has been applied in research and policy contexts. Two-Eyed Seeing has only recently emerged as an approach; while no time constraints were used, the search produced literature published in the past decade. The review began with an overview of the Integrative Science website, which has accumulated a variety of publications from initiatives that have applied Two-Eyed Seeing. This returned a variety of government reports and other relevant documents. In expanding on this search, the University of Ottawa and University of Toronto library databases were searched. Searches were carried out using various combinations of the terms “Two-Eyed Seeing”, “Aboriginal”, “Indigenous”, “First Nations”, “Inuit”, “Research” and “Policy”. These various search terms, in addition to the search of the Integrative Science website, returned a total of 66 relevant publications. Of these publications, four are pieces of grey literature, while the rest are articles and book chapters. The term “Two-Eyed Seeing” was further searched using the University of Ottawa library Government Information Search Engine, and both Google and YouTube; however, no additional items were found.

The primary limitation of this research method is that it may not capture all the different ways that Two-Eyed Seeing has been applied. The literature that is available is published academic literature that favours Western knowledge and is based within a Western paradigm. Focusing on the published literature on Two-Eyed Seeing therefore limits our knowledge of how the approach has been applied, as it may have been applied within an Indigenous context, however no documentation would be found in the published literature. To address this limitation, the literature search was broadened to include a variety of different databases, as well as other platforms such as YouTube and Google, with the acknowledgement that this however does not fully address all concerns.

Evaluation of Two-Eyed Seeing Publications

Of the 66 items identified, 41 were retained. Items were retained if they operationalized the concept of Two-Eyed Seeing or brought forward in-depth discussions about the principles behind Two-Eyed Seeing or how it could be applied given a certain issue were reviewed. Publications that only briefly mentioned Two-Eyed Seeing as a concept were not included.

Each of the 41 relevant publications found through the literature review were read and analyzed. Of these 41 publications, eight were found to have used Two-Eyed Seeing in their methodology. Of the eight, the only publication from the grey literature is a draft recovery strategy adopted by the Province of Ontario on the American Eel, as policy makers used Two-Eyed Seeing in the development of the strategy. The other seven publications are scholarly articles, all which used Two-Eyed Seeing in their research methodology.

Following the identification of these eight publications, each of the seven studies and the policy paper were analyzed. In analyzing the seven research studies, distinctions were made between methodology and methods. While often used interchangeably, methodology is distinct

from method. Methodology refers to the research approach and design, and how the research is conducted (Jonker, 2008). Method, however, refers to research tools. This distinction is particularly important in analyzing Two-Eyed Seeing. Methodology refers to the actual process of Two-Eyed Seeing, whereas methods refer to how the approach was operationalized. In analyzing the methods used in Two-Eyed Seeing, further distinctions must be made. In this case, there are both what the author refers to as data collection methods and process methods. Data collection methods refer to those both qualitative and quantitative techniques used to gather information for a study, such as interviews, surveys and observation. Process methods however refer to other types of concrete actions that facilitate the research process but are not related to data collection, such as the reflection and analysis of a researcher's positionality and the participation of researchers in cultural ceremonies. Both data collection methods and process methods are integral to highlighting the strengths of Traditional and Western knowledge through a Two-Eyed Seeing process, and the analysis of how the approach has been applied.

Similar distinctions must be made for the policy paper. Policy-making is often a much more complex process than the research process, and does not tend to have associated methodologies. The policy development process does however use a variety of different methods, including in conducting consultations with stakeholders, identifying possible policy options and determining constraints on what policy actions are feasible (Howlett, 2009). For simplicity, the same terms applied to the research studies (data collection and process methods) will be used. They will though, be defined according to the policy development process. Data collection methods therefore refer to how policy makers gather information and data on the issue at hand, such as through consultations with communities and gathering of stakeholder expertise. Process methods

refer to other methods used in developing the policy, such as policymakers grounding themselves in culture through ceremony.

Informed by the distinctions in methodology and methods, the eight publications were read and analyzed on how they implemented Two-Eyed Seeing (Annex – Table 1). This led to a second analysis of which publications used the same methods in applying Two-Eyed Seeing (Annex – Table 2).

The third analysis evaluated the stage in the research or policy making process at which Two-Eyed Seeing was applied (Annex – Table 3). For this analysis, the research studies were separated from the policy report. For the research papers, each study was divided into three phases: development, implementation and analysis. The development phase refers to the initial stages of research, which includes the formulation of objectives and preparing for the collection of data. The second phase is implementation, which refers to data and information collection. Lastly is analysis, which refers to the analysis of results and the development of conclusions. The data collection methods and process methods were identified for each phase.

In analyzing the policy report, the policy development process was divided into three complimentary phases. The policy development process is highly diffuse and varies from case to case, but some generalizations on how it is formulated can be made. Harold Thomas (2001) identifies the following four phases of policy development: appraisal, dialogue and formulation and consolidation. In the appraisal phase policy actors identify an issue and consider the data and evidence that is available. In the dialogue phase, communication is facilitated between policy makers and stakeholders, including experts and societal representatives. This phase involves consulting with the public and debating various policy options (Howlett, 2009). The formulation phase refers to officials developing policy options and providing feedback on the recommended

options, while the consolidation phase involves decision about how new funding, programs or legislation will be implemented (for simplicity and comparability, the last two phases, formulation and consolidation will be combined). Within these three stages, the distinctions between process methods and data collection methods were made. It should be noted that while these stages represent the phases of developing a policy, this is a highly simplified understanding of the process.

RESULTS

Review of the Literature

Within the Two-Eyed Seeing literature, there are three distinct types of publications. First, there are papers that discuss what Two-Eyed Seeing is, and the intentions and background behind it. These papers are largely written by the core team that helped to bring the approach forward, including Elders Albert and Murdena Marshall and Professor Cheryl Bartlett. These papers focus on the development of the Integrative Science degree program at the University of Cape Breton and the accompanying co-learning journey that brought about Two-Eyed Seeing. These publications offer background and an explanation of the fundamental principles of Two-Eyed Seeing. There are a total of seven of these foundational documents, including book chapters and peer-reviewed journal articles.

Second, there are publications that outline how Two-Eyed Seeing can be used to help guide research and understanding in various fields. Drawing from Two-Eyed Seeing teachings, they advise that Two-Eyed Seeing can offer a way to decolonize research, bring in Traditional knowledge and challenge pre-conceived notions and understandings. These publications are largely informed by literature reviews and offer Two-Eyed Seeing as a way to approach a particular subject. For example, Denny & Fanning (2016) use Two-Eyed Seeing to bring

together Western and Mi'kmaq perspectives on natural resource management to discuss salmon governance in Nova Scotia. There are also a variety of publications from the grey literature in this category, including a teaching guide on how to use Two-Eyed Seeing in the classroom and a natural resource strategy from the Government of Nova Scotia that discusses the importance of using Two-Eyed Seeing in policy making (Kassutiniq, 2010; Nova Scotia Department of Natural Resources, 2011). Lastly, there are a number of publications that operationalize Two-Eyed Seeing as a methodology. These publications provide the basis for the analysis described below.

Two-Eyed Seeing Operationalization in Research and Policy

Publications that operationalized Two-Eyed Seeing within the literature met the following criteria: employment of qualitative or quantitative methods, and explicit mentioning that a Two-Eyed Seeing approach was used. A search of the literature returned eight publications that fit these criteria. Two of these focus on ecosystem management. The grey literature report by MacGregor et al. (2010), a Government of Ontario recovery strategy for the American Eel, is the one policy example identified where Two-Eyed Seeing was explicitly applied. Mantyka-Pringle et al. (2017) uses a Two-Eyed Seeing approach to blend scientific and traditional knowledge to assess the cumulative impacts of stressors on the Slave River and Delta region in the Northwest Territories.

The other six studies focus on health. Rowan et al. (2015) describe using Two-Eyed Seeing for a scoping study that examined cultural interventions to treat addictions in Indigenous populations. Rand (2016) used Two-Eyed Seeing in analyzing Inuit women's stories of HIV and STI prevention and sexual health promotion programming. Whitty-Rogers et al. (2016) took a similar approach in examining Mik'maq women's experiences with gestational diabetes mellitus. Marsh et al. (2016) used Two-Eyed Seeing to examine if the blending of a Western treatment

model with Indigenous traditional healing practices to treat post-traumatic stress disorder and substance use disorders resulted in fewer inter-generational trauma symptoms and substance use disorders. Carter et al. (2017) focuses on how Aboriginal men living balanced lives in a large city narrate a positive Aboriginal identity. Their findings are used to better inform nurses working with Aboriginal clients. Lastly, Bird-Naytowhow et al. (2017) examines how to engage urban Indigenous youth in community-based research, again to better inform health research and initiatives.

Overview of Eight Publications

Table 1 (Annex) provides an overview of all publications found that have used Two-Eyed Seeing. Several patterns emerge that reflect how Two-Eyed Seeing has been used. First, all the authors have similar motivations for using Two-Eyed Seeing. Research and governmental and organizational policy has been defined by colonialism and discrimination, while traditional knowledge and cultural understandings have long been ignored. Two-Eyed Seeing offers a way to move away from a Western paradigm and account for other worldviews, whether it is with the goal of improving personal health or gaining insights on ecosystem stressors. The authors therefore note the importance of bringing back research or policy making to Indigenous communities and drawing on the strengths of Traditional knowledge, and cite Two-Eyed Seeing as a useful methodology to do so.

Second, most of the researchers and policymakers note that they themselves are not Indigenous, and thus Two-Eyed Seeing offers guidance on how to connect with communities and participants. Many of the authors noted that they work in a Western paradigm, and do not necessarily have a comprehensive understanding of Traditional knowledge and Indigenous culture, and thus Two-Eyed Seeing provides a way to overcome this knowledge gap. For

example, Carter et al. (2017) note that Two-Eyed Seeing helped to guide collaboration between the participants' Indigenous knowledge and the Western knowledge of the researcher, who was a non-Indigenous white woman. As part of this discussion on the gap between researchers and policy makers with Indigenous communities, many of the researchers and policy makers noted the fundamental importance that relationships hold in many Indigenous cultures, and the importance of developing relationships between people, and between people and their environment. As Two-Eyed Seeing is a fundamentally relational process, it is therefore used as a way to relate to the communities and ecosystems that the authors are working with. For example, policy makers with the Government of Ontario Ministry of Natural Resources adhered to the agreement recorded in the Wampum Belt known as the Welcoming Belt in developing their American Eel Strategy, a sign of recognizing the importance of equal relationships and mutual respect. This required policy makers to develop relationships with the First Nations peoples they were working with, while taking care to understanding the fundamental underpinnings of both cultures.

Third, the majority of the publications used qualitative methods to apply Two-Eyed Seeing to either research or policy development. Only one study (Mantyka-Pringle et al., 2017) employed Two-Eyed Seeing using quantitative analysis. They used indicators from traditional and scientific knowledge to create a Bayesian Belief Network, a probabilistic model that provides graphical representation of factors of the Slave River and Delta region.

Fourth, most publications worked on a regional or municipal scale. Two of the studies (Mantyka-Pringle et al., 2017 and Marsh et al., 2016) worked at a regional scale, in northern Ontario and the Slave River and Delta region in the Northwest Territories. Four of the studies worked at a municipal or community level, whether is Saskatoon and Toronto, or in smaller

communities in Nunavut and Nova Scotia. Only one publication, by MacGregor et al., (2010), used Two-Eyed Seeing at a provincial level. Rowan et al. used focus groups in 12 National Native Alcohol and Drug Abuse Program (NNADAP) and Youth Solvent Addiction Program (YSAP) treatment centers, though it is unclear where these centers are.

Methods Used

While all the publications, both research studies and policy paper alike, claim to use Two-Eyed Seeing, there is no clear path on how to operationalize the concept. Both the research studies and the policy paper emerge out of a Western context – reliant on Western ways of knowing, values and processes. In applying Two-Eyed Seeing, practitioners therefore looked to bring forward methods to highlight the strengths of Traditional knowledge. Various data collection and process methods were used to accomplish this, some more commonly used than others (Annex - Table 2).

The most commonly used method, used in a total of five publications, is sharing circles. Sharing circles are a practice of sharing information and emotions in a group setting in which all participants, including Elders, are equal (Marsh 2016). Sharing circles fit within the Indigenous paradigm, as they abide by the often cited Indigenous principles of sharing with one another and developing ideas collaboratively. Many authors note that the use of sharing circles created a safe space for participants to share, participate in ceremony and to heal. For example, Whitty-Rogers et al. (2016) used sharing circles with Mi'kmaq women who had experienced gestational diabetes mellitus to hear their stories and assess their experiences with the health care system. The authors noted that the sharing circles lent space for the participants to laugh and talk together, opening up a safe space to talk about their experiences.

Three other methods were used regularly; each was identified in four publications. Indigenous ceremonies were often brought into the Two-Eyed Seeing process, including smudging, sweat lodge ceremonies, community feasts and drumming. Many of the researchers noted that it was important for them to ground themselves in culture through ceremony, acknowledging the importance of the spiritual and cultural dimensions of Traditional knowledge. Ceremony was also brought up as important for participants, strengthening their experiences and creating culturally meaningful and respectful experiences.

Storytelling was also regularly used. Authors noted that storytelling is a highly culturally relevant method, grounded in a millennia of tradition, and a fundamental aspect of Traditional knowledge. In many cases, storytelling was used as a means to share information. For example, Marsh et al. (2016) used storytelling as a way to explain a blended approach to help treat intergenerational trauma and substance use disorders to participants. Four publications also used advisory groups in their Two-Eyed Seeing journey. The advisory groups were made up of Elders, Indigenous community members and/or Indigenous researchers, ranging from three to eight members. Advisory groups met at key periods of the research process and were used to guide research. As many of the authors noted, the advisory groups were essential to ensuring that their processes fit with Indigenous values and practices. It also ensured that a decolonizing approach, and an adherence to Two-Eyed Seeing, were used throughout. For example, Bird-Naytowhow et al. (2017) brought together a community advisory research committee made up of local Indigenous parents, youth and elders to guide the general research and engagement process, and help bring in Two-Eyed Seeing into the process of connecting with local youth.

Apart from these four more widely used methods, there are a variety of other methods that the studies and policy paper used, including consulting communities for Traditional knowledge

and including Elders throughout the process. While each publication had a unique combination of methods in applying Two-Eyed Seeing, trends and patterns emerged in analyzing where in the research or policy development process they were applied.

Analysis of Operationalization

Research Studies

Each of the research studies were divided into three phases: development, implementation and analysis. These research phases were developed by the author. In examining what methods fit into each category, clear patterns on how Two-Eyed Seeing is operationalized in a research setting emerged. First, a variety of methods were applied in the development stage, such as creating a community advisory committee, collaboratively making decisions about the research process and researchers participating in ceremonies. All but one, the study by Whitty-Rogers et al., applied at least one method related to Two-Eyed Seeing. The methods applied in this phase however tended to be more related to process methods. For example, before launching on their study on cultural interventions to treat addictions, the Rowan et al. (2015) research team grounded themselves in culture through participation in ceremony and collaboratively developed principles to guide their research and generate knowledge.

Second is the implementation phase, where researchers and policy makers were most likely to implement methods related to Two-Eyed Seeing. All seven studies operationalized Two-Eyed Seeing through at least one method during this phase of research. In comparison to the other phases, many of the authors also used the highest number of relevant Two-Eyed Seeing methods. The methods that were applied during this phase tended to be data collection methods. For example, Rand (2016) recruited participants through a community feast and employed storytelling sessions to gather information from participants. She also employed a few process

methods, drawing on the Inuit Qaujimajatuquangit (IQ) principles of Aajiiqatigiingniq, or the concept of decision-making together, and on Ikpigusttiarniq, the concept of caring for others throughout her data collection.

Finally, fewer methods were applied during the analysis phase. While during both the development and implementation phases a variety of both data collection and process methods were used, each study only used one to two methods during this final phase, while one study, by Mantyka-Pringle et al. (2017) used none. For example, Bird-Naytowhow et al. (2017), after completing all their research in Treaty 6 territory, ensured that the Saskatoon Tribal Council became the stewards and owners of all the emergent data.

In analyzing these seven research studies, one study is particularly noteworthy. The study by Marsh et al. (2016), compared to the six other studies, provides the most comprehensive application of Two-Eyed Seeing. This study examined the blending of Indigenous traditional healing practices with the Western treatment model Seeking Safety to treat substance use disorders and intergenerational trauma amongst Aboriginal adults in Northern Ontario. First, the authors used the highest number, and most varied methods to apply Two-Eyed Seeing. For example, Indigenous scholars were consulted to provide insight into community protocols, culturally sensitive practices such as using Sweat Lodge ceremonies and opening sharing circles with drumming, sacred songs and smudging were applied, while feedback from participants was used in the analysis of the findings. Marsh et al. (2016) cover many of the methods used by the other studies, as there were few other methods used by other studies in applying Two-Eyed Seeing. For example, Rand (2016) highlighted specific Inuit Traditional knowledge principles, a practice not applied by Marsh et al. (2016).

Second, Marsh et al. (2016) appear to have fully integrated Two-Eyed Seeing in all parts of the research process, using a diversity of data collection and process methods in every phase. The authors note the fundamental importance of relational accountability in doing research with Indigenous peoples, meaning that all parts of the research are connected and researchers are thus responsible for everything connected to the research process. As such, at every step, Indigenous community members and Elders were consulted and Traditional knowledge was always put front and centre. For example, in the development phase of research, the lead author volunteered to teach yoga for the community, ensuring her commitment to relational accountability to the participants. In the implementation phase, ceremonies were conducted while data was collected through sharing circles. During the analysis phase, Elders were invited to help draw conclusions from the collected data, at which point they recognized that different themes could be connected to the medicine wheel. Results were then depicted through the lens of the medicine wheel, visually authenticating the Two-Eyed Seeing process. To fully identify the comprehensive nature of their application of Two-Eyed Seeing, the authors published a secondary additional article on their operationalization of Two-Eyed Seeing in their research (Marsh, 2015). This full integration of Two-Eyed Seeing, and the authors' documentation of the process, is highly unique amongst the research studies, as many did not go as deep, relying only on a few decolonizing methods to actualize their Two-Eyed Seeing processes.

Policy paper

Similarly to the research studies, the American Eel recovery strategy was divided into three phases, though in relation to the policy development process rather than the research process. The three phases are the appraisal phase, the dialogue phase and the formulation and consolidation phase. Two-Eyed Seeing was incorporated into the first two phases. During the

appraisal phase, policymakers focused on applying process methods. First, they made it clear that they were to adhere to the agreement recorded in the Wampum Belt known as the Welcoming Belt. This Agreement, recorded in 1701 between the Indigenous communities and newly arrived French and English, enshrined the need to respect each other's culture, while sharing the obligation to protect and conserve Mother Nature. Throughout the preparation of the recovery strategy, the team ensured that they were abiding by this agreement. Second, Indigenous members of the policymaking team ensured that the whole policy development process was guided by a Two-Eyed Seeing approach.

During the dialogue phase, the policymaking team consulted Indigenous community members on the historic distribution, abundance and importance of the American Eel. The authors do not report how this Traditional knowledge was collected but, it was brought as evidence to inform the recovery strategy. During the formulation and consolidation phase, however Two-Eyed Seeing was not applied.

DISCUSSION

Analyzing these trends from the three tables brings forward a few key insights on how to apply Two-Eyed Seeing. First, the principles of Two-Eyed Seeing must be applied throughout the research or policy development process. There are a variety of principles that authors commit to in applying Two-Eyed Seeing, all inspired by the lessons brought forward by Elders Marshall, Marshall and Professor Bartlett. Four of these principles draw on Bartlett's four key essentials of Two-Eyed Seeing. First is co-learning, which refers to the importance of collaboration. Many of the research studies ensured that they collaborated with the communities and people they were working with. For example, Rand (2016) collaboratively made decisions with the advisory community on data collection, community involvement and recruitment. Second is knowledge

scrutinization, which refers to drawing on the strengths of both Traditional and Western knowledge systems. This means using one or the other where appropriate. For example, Mantyka-Pringle et al. (2017) used both Scientific knowledge and Traditional knowledge indicators in examining ecosystem health – Traditional knowledge was used for indicators such as changes to water flow and fish aesthetics while Scientific knowledge was used for indicators such as water depth and mercury in fish. Third is knowledge validation, which refers to peer review of knowledge, which all authors adhered to. Fourth is knowledge gardening, which means abiding by the needs of local communities. All authors ensured that they consulted with the local community or communities, forming relationships with the people and participants they were working with.

Beyond these four principles, several other principles also emerged from this analysis, including the need to respect the land, waters and people and maintaining an open mind to new perspectives. One principle that emerged as particularly prescient is the need for intentionality. All authors apply Two-Eyed Seeing with purpose, and operationalize the approach with a variety of goals in mind. They note that Traditional knowledge has long been marginalized and the Western mainstream is only now slowly beginning to reconcile with past discriminatory practices. As such, in applying Two-Eyed Seeing, everything within the research and policy-making process must be done with the intention of healing relationships with both people and land, and bringing in new insights that have previously been ignored, creating a more holistic understanding of the issue at hand.

Second, data collection and process methods associated with Two-Eyed Seeing must be applied at each stage of the research or policy development process. This analysis indicates that process methods are largely applied in the first and last phase, but should be applied at every

step. For example, researchers and policy makers should reflect on their positionality as practitioners and consult Elders and Indigenous community members on how to move forward and address the issue at hand throughout the process, while also grounding themselves in culture through ceremony or ensuring a participatory design. This application of process methods throughout can help ensure that practitioners are not merely co-opting or trivializing the approach but rather are dedicated to ensuring both Western and Traditional knowledge are brought together in equal measure.

Analysis from the literature also highlights that data collection methods conducive to Two-Eyed Seeing should also be brought in whenever data collection is required. These data collection methods tend to be informed by culturally relevant practices, such as sharing circles, storytelling and bringing in Traditional knowledge from the community.

Examining the patterns of the application of the data collection methods finds that all but one of the publications used qualitative data collection methods in applying Two-Eyed Seeing. This use of mostly qualitative methods suggests that Two-Eyed Seeing is more conducive to qualitative data collection rather than quantitative methods. Alternatively, it could also suggest that qualitative researchers are more aware of approaches such as Two-Eyed Seeing and are more interested in applying them. The methods of data collection could also be more closely related to the training that qualitative researchers receive, making it easier for them to collect and analyze such data. Quantitative researchers may be unsure how to bring in Traditional knowledge into their work. This implies that quantitative researchers should explore more ways to bring Traditional knowledge into their work. Regardless if qualitative or quantitative methods are used however, data collection methods should be congruent with a Two-Eyed Seeing approach and be applied throughout.

Third, applying Two-Eyed Seeing requires a fundamental change in the way research and policy development is approached. For researchers, this means a need to change the way they think about how they do research. Research in is developed within a Western paradigm, reliant on the reductionist process of the scientific method. Two-Eyed Seeing therefore involves applying a variety of principles, as well as applying methods of collecting data and information that highlight Traditional knowledge. Marsh et al. (2016), who detail their comprehensive application of Two-Eyed Seeing, provide an illustrative example. In applying Two-Eyed Seeing, they ensured that they decolonized their entire research process, bringing in new ways to think about every step they took. This involved building ethical relationships with the communities they worked with, bridging in ceremony wherever relevant and analyzing their findings through Traditional knowledge. As they note, in applying Two-Eyed Seeing in this way, "Researchers are not only part of the creation of knowledge but also part of the transformation that takes place during the research process" (Marsh, Cote-Meek, Toulouse, Najavits, & Young, 2015, p. 9). Changing the way that research is done ultimately changes the way that Traditional knowledge is thought of in research. Two-Eyed Seeing therefore ensures that Traditional knowledge is no longer 'scientized' or viewed as simply supplementary information. This helps researchers, which have historically had strained relationships with Indigenous communities due to research's legacy of colonial practices, to work towards reconciliation.

The policy process must also be fundamentally changed to apply Two-Eyed Seeing. Similar to the research process, policy is developed within a Western framework, reliant on a European-based system of government and government decision making. Applying Two-Eyed Seeing therefore means policymakers must reflect on their policy development process and question how they can decolonize their work and bring in Indigenous voices, which have been

long marginalized by Canadian governments. Policymakers must rely upon methods to bring in the strengths of Traditional knowledge, such as consulting Elders and adhering to culturally-respectful relationship agreements. One important trend that emerged out of this analysis was that Two-Eyed Seeing was largely applied at smaller scales – with individuals, groups and communities. This allows practitioners to connect with communities and participants, and build the relationships that are so integral to the Two-Eyed Seeing process. This is particularly significant for the policy-development process, as it suggests that policy makers must go into communities and connect and build relationships with community members. The findings that they gain out of their community consultations must then be scaled up to the level at which the policy will be applied.

In changing the way that policy is developed through Two-Eyed Seeing, policymakers must also abide by various principles to respect Indigenous ways of knowing. This requires recognizing interconnections, bringing together multiple ways of knowing, respecting diversity and engaging with culture.

PART II – Applying Two-Eyed Seeing in a Country Food Policy Development Process

This section addresses objective two by examining how to apply Two-Eyed Seeing in a country food policy process, using the example of the Northwest Territories (NWT) Country Food Strategy as a case study. It begins with background on the policy process and the importance of country food in the NWT. This is followed by an overview of the NWT Country Food Strategy development process, and why it provides a useful case study to explore Two-Eyed Seeing in a policy context. Recommendations are then made on how to apply Two-Eyed Seeing in the NWT Country Food Strategy development process.

BACKGROUND

Two-Eyed Seeing in Policy Development

As noted, only one application of Two-Eyed Seeing in the development of a policy has been found in the literature. This demonstrates a clear gap in the application of the approach by policymakers, and a need to expand analysis of the approach within the literature. This is especially relevant in the current era of reconciliation.

In examining why Two-Eyed Seeing should be used in policy making, it is important to first expand upon the policy development process. According to Dye (1972), public policy at its most basic is "anything a government chooses to do or not to do" (Dye, 1972, p. 2). More broadly, public policy can be defined as being about "constrained actors attempting to match policy goals with policy means in a process that can be characterized as 'applied problem-solving'" (Howlett, 2009, p. 4). The development of public policy is therefore about identifying problems that could serve as a threat to public welfare, and providing government-led solutions to those problems, often in the form of programs (French, 2017).

The process of developing public policy is complex, and involves actors inside and outside of government making various decisions about the problems that need to be addressed and the means that are required to do so. To make this process generalizable and understandable, scholars have simplified it, breaking it down into a series of discrete stages (Sabatier & Weible, 2014). This move within academia to categorize the policy process led to the development of policy cycles, which acknowledge the public policy process repeats in the same sequence every time. For example, Howlett et al. (2009) provide a model on five stages of the policy cycle: First, there is agenda-setting, which is the process through which problems and issues are brought to the attention of the government; second is policy formulation, which is how policy options are

developed; third is decision making, where governments move forward on a course of action; fourth is policy implementation, which is how policies are put into place and lastly is policy evaluation, which examines how the results of policies are examined.

While the policy cycle model provides a useful method of analyzing public policy, it has been critiqued as failing to recognize the complexity of the public policy process (Sabatier & Weible, 2014). It suggests that developing public policy is a systematic, organized and linear process, when it is rather often reactionary and idiosyncratic (Howlett, 2009). The policy cycle model does however provide an understanding of a complex process that allows for each stage to be examined and put back together for an examination of the whole picture.

Applying Two-Eyed Seeing can be an important addition in developing public policy. Policy in Canada is shaped and dominated by Western perspectives, as the whole process is informed by a Eurocentric paradigm. The government structure within which policy is developed is based on a European style of governance, which is reliant on Western knowledge. The evidence and information used in determining policy options and making the final policy decision are also based in Western knowledge. The whole policy process therefore already draws upon the strengths of Western knowledge. Two-Eyed Seeing, in being brought into this Western context, should then be used to bring Traditional knowledge into the process. As mentioned, this fundamentally changes the way policy is developed. It means bringing in Indigenous methods of information gathering, relying on Indigenous methods of analysis and highlighting the place-based nature of Traditional knowledge. It also means using a holistic and relational perspective. Bringing together both Traditional and Western knowledge through Two-Eyed Seeing can ensure a policy that acknowledges interconnections, is multidisciplinary and brings in spiritual and cultural elements.

Country Food Systems in the Northwest Territories

The Government of the Northwest Territories (GNWT) has recently initiated the development of a Country Food Strategy using a Two-Eyed Seeing approach. The GNWT is dedicated to bringing Traditional knowledge into their policy development, acknowledging Traditional knowledge as a valid and essential source of information (Government of Northwest Territories, 2005). This also provides a useful case study to analyze how Two-Eyed Seeing should be applied in a policy setting.

In Canada's North, food systems are composed of country foods, market foods and locally-grown and produced foods. Country foods (also termed 'traditional', 'wild-caught' or 'wild-harvested' food) refer to locally harvested foods or medicines from the land. They include a variety of meats, fish, plants, berries and eggs from the local environment that have been of important nutritional, cultural and spiritual value for Indigenous populations for thousands of years (Kuhnlein & Receveur, 1996). In contrast, the term market food refers to foods that are brought into communities through global food supply chains, and must be purchased. Lastly, locally-grown and produced foods refer to those foods that are grown in greenhouses and community gardens, and through small scale agriculture (Government of Northwest Territories, 2005).

Country foods remain an integral component of the increased food security and well-being of the peoples of Canada's North. According to the Food and Agriculture Organization of the United Nations, food security exists "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO Agriculture and Development Economics Division, 2006). This mainstream conceptualization of food security however overlooks the

unique relationship between food and Indigenous communities. There are distinctive food security considerations for Indigenous people that relate to the cultural aspects of the sharing, harvesting and consumption of country food (Power, 2008). A food security definition, in the context of the country foods system, therefore needs to include the dimension of cultural food security.

In 2014, the Northwest Territories had the second highest rate of household food insecurity in the country at 24.1%, double that of the Canadian national average of 12% (Tarasuk, Mitchell, & Dachner, 2016). The rate in the Northwest Territories has almost doubled since 2005, when household food insecurity was at 14.2%, and is representative of the rates across Canada's North (Tarasuk, Mitchell, & Dachner, 2016). Similarly to the rest of northern Canada, this high prevalence of food insecurity in the NWT is a result of a confluence of compounding factors. Poverty and the high costs of living play a significant role, as northern communities struggle with low wages and high unemployment ("Toward Food Security in Canada's North: Summary Report," 2015). Market foods are very expensive, given the high costs of transportation and distribution. The most frequently consumed market foods also tend to be of low nutrient density, such as sugar, white bread, corn flakes and soft drinks (Kuhnlein & Receveur, 2007). This trend is especially apparent among young people and women, and has led to widespread health concerns, including high rates of obesity, heart disease and diabetes. A lack of affordable housing, the need for home repair and the prevalence of single-parent households also contribute to high rates of food insecurity (Council of Canadian Academies, 2014).

Among these challenges, food insecurity throughout the NWT is strongly influenced by the decreasing access to and availability of country foods, among other drivers towards a nutrition transition to more market-based diets (Council of Canadian Academies, 2014). Country

food systems face a variety of challenges that have significant impacts on food security. A long history of dispossession, colonialism and cultural genocide has resulted in the loss of the transmission of the knowledge and skills on how to be out on the land, resulting in fewer younger people engaging in the country food system. Climate change is affecting harvest levels for many of the most important species, such as caribou, as migration patterns change and population numbers decline (Wesche, 2010). Melting ice and permafrost has also affected traditional hunting methods. There are a variety of concerns around contaminant levels and shifting perceptions of risk, leading many to turn away from country foods. Finally, the increasing costs of going out on the land and the difficulties in maintaining a financially-viable living from hunting and harvesting, drastically limits the ability for many to participate in the country food system (Council of Canadian Academies, 2014).

The country food system however is a driving force for improving food security and health. Studies have shown that the dietary composition of country foods provide invaluable health benefits as compared to market foods (Kuhnlein, Erasmus, Spigelski, 2009). In the 2001 Aboriginal Peoples Survey, researchers found that 71% of Inuit adults in the Canadian Arctic were involved in the harvesting of country food. In addition, in the 2007 Survey of Living Conditions in the Arctic, 69% of Canadian Inuit were involved in fishing activities, 73% prepared or packed for excursions on the land or water, 59% hunted waterfowl and 11% were involved in trapping (Council of Canadian Academies, 2014). This high consumption of country food has been found to be associated with increased food security. Ford & Berrang-Ford (2009) found that respondents who obtained more than half of their food from traditional sources were significantly less likely to have skipped meals, have eaten less or have not eaten for a whole day in the year of study. In addition, none of those who reported obtaining more than half of their

food from traditional sources reported going a whole day without eating, as compared to 46% of respondents who eat half of their food or less from traditional sources (Ford & Berrang-Ford, 2009).

Country foods are also integral to the cultural identity and sustainability of many communities in the NWT and across the North. There are a variety of cultural practices that uphold the country food system. Indigenous peoples have a cultural, spiritual, physical and social connection to the land, and country foods are an integral component of maintaining this relationship. Country foods obtained through traditional methods also hold important value to cultural health, social cohesion and cultural survival. For example, among the Inuit of Baffin Island, to be *Innumariit*, or a 'real Inuit', one must both consume and harvest country foods like seal, while participating in the appropriate rituals of hunting and respecting the land. Those who rely on market foods and do not eat any country foods, especially seal, will never be *Innumariit* (Borré, 1994).

Northwest Territories Country Food Strategy

Country food systems across the NWT are under considerable stress. Despite this, in 2013, 65% of households in the NWT reported that they ate meat or fish that had been obtained through hunting or fishing. In addition, 26.3% of households reported that half or more of their total meat consumption was country food (Government of Northwest Territories, n.d.). In response to the current NWT food system that leaves one in five residents hungry, the 18th Legislative Assembly developed a mandate to improve food security. During a budget speech on February 8, 2018, NWT Premier Robert McLeod proposed to address this need by investing $412,000 in a country food strategy to support the long-term sustainability of country food systems (Hansard: Unedited Transcript, Thursday, February 8, 2018). The GNWT expects to

work with NWT residents to develop a consensus vision and propose actions to guide the creation of country food programming. The NWT Country Food Strategy is further expanded upon in the GNWT's Environment and Natural Resources (ENR) Strategic Plan 2015-2020. They note the need to develop a NWT Country Food Strategy to support a variety of strategic priorities, including the need to develop programming to promote the consumption of country foods and the need to enhance existing programs to support sustainable country food systems ("Environment and Natural Resources Strategic Plan 2015-2020," 2015). The NWT Country Food Strategy would also help to expand entrepreneurial businesses that focus on products from renewable harvesting and help to develop traditional economies in communities across the territory.

To develop a preliminary basis for the NWT Country Food Strategy, a country food forum was organized by the Department of Environment and Natural Resources of the GNWT (ENR-GNWT), in partnership with Tides Canada and the Aurora Research Institute in November 2017. This event brought together Elders, harvesters, researchers, policy-makers, youth and others from across the NWT to discuss the current state of the country food system and develop a vision for future country food sustainability. This forum adopted a Two-Eyed Seeing approach through bringing together multiple ways of knowing and engaging in culturally appropriate practices including ceremony and the creation of culturally appropriate spaces. A variety of themes emerged from the discussions amongst the participants including the need to support people going out on the land, educating youth and conserving lands and waters. The Forum was the initial step in a larger policy development process that will result in a territorial wide country foods strategy.

Using the Northwest Territories Country Food Strategy as a Case Study

Using the NWT Country Food Strategy as a case study provides a particularly relevant example to explore Two-Eyed Seeing. Up to the present, Two-Eyed Seeing has only been applied in health and environmental management contexts. In examining the eight publications that have operationalized the concept, two focused on the environment, while the other six focused on health of communities or testing or informing health initiatives. Country food is found at the intersection of both environment and health, as all food systems rely on natural resources and are affected by environmental changes, while also driving nutrition and diets. Previous applications of Two-Eyed Seeing can therefore provide particularly relevant insight to the development of this policy.

The NWT Country Food Strategy also presents a relevant case study to explore Two-Eyed Seeing in a policy context because addressing the challenges around country food systems could benefit from the strengths of both Traditional and Western knowledge. Country food systems and the challenge of food insecurity are multi-dimensional, relying on the interconnections among people, environment, culture and food. Two-Eyed Seeing can therefore highlight the strengths of Traditional knowledge, including bringing in a more holistic understanding of challenges and insight for solutions. Country foods are deeply connected to culture in Indigenous communities, and a holistic perspective will help to ensure spiritual elements are brought in to analysis, while helping to build a policy that acknowledges various interconnections. For example, residential schools and Canada's colonial legacy has limited the intergenerational transmission of skills and knowledge on how to be out on the land, and Traditional knowledge can help provide guidance on appropriate program responses.

Two-Eyed Seeing, in the development of this policy, can also draw from Traditional knowledge in ensuring a more relational policy development process. Relationships are integral

to country food systems – between hunters, harvesters, communities, animals and the land. Using Two-Eyed Seeing can ensure that the Strategy highlights relationships in developing initiatives, while also encouraging policymakers to develop relationships with communities. Finally, Two-Eyed Seeing can also ensure that Traditional knowledge is used to provide place-based analysis and problem solving. Traditional knowledge can provide specific evidence to inform policy development, as for example, hunters and harvesters can provide relevant information on caribou numbers, breeding and migration patterns to aid in population management (Kendrick, 2003).

Bringing Two-Eyed Seeing into the NWT Country Food Strategy process can also ensure that the policy development process benefits from the strengths of Western knowledge. Western knowledge can provide strong evidence on the causal effects of a treatment on an outcome, for example, evaluating how current programs are working, or on the specific health outcomes related to changes in diet. Western knowledge can also be used to help quantify challenges to country food systems, and associated solutions. For example, quantification can help in the analysis of harvesting and consumption rates, and how they have changed over time and what programs have been effective in increasing these numbers. Lastly, Western knowledge can be relied upon to bring in a reductionist perspective. This allows policymakers to break down complex processes, such as how climate change is affecting country food systems, into individual parts and build it back up to have an understanding of the whole picture. The NWT Country Food Strategy is being developed within a Western framework, and thus will inherently draw on the strengths of Western knowledge.

FRAMEWORK DEVELOPMENT

As noted previously, the policy development process can be divided into three phases that are complimentary to the research process. These phases are inspired by Thomas (2001) and are

the appraisal phase, the dialogue phase and the formulation and consolidation phase. The following framework takes the research phases and the lessons learned and applies them to the relevant policy phases (Figure 2). This framework provides an outline of how Two-Eyed Seeing can be operationalized in a policy development process. This framework is then applied to the case of the NWT Country Food Strategy development process.

Phase I – Appraisal

The first phase of the policy development process is referred to as the appraisal phase. In this phase, policy actors identify an issue and take stock of the available data and information. Here, the government receives input about policy problems and the potential solutions. The GNWT has already launched into the appraisal stage of developing its country food policy. The Legislative Assembly has identified food insecurity as an issue to address and provided funding for the Department of Environment and Natural Resources (ENR) to begin exploring the food security and cultural sustainability challenges around the country food system. Policy makers at ENR have expanded on this, outlining how a NWT Country Food Strategy would align with

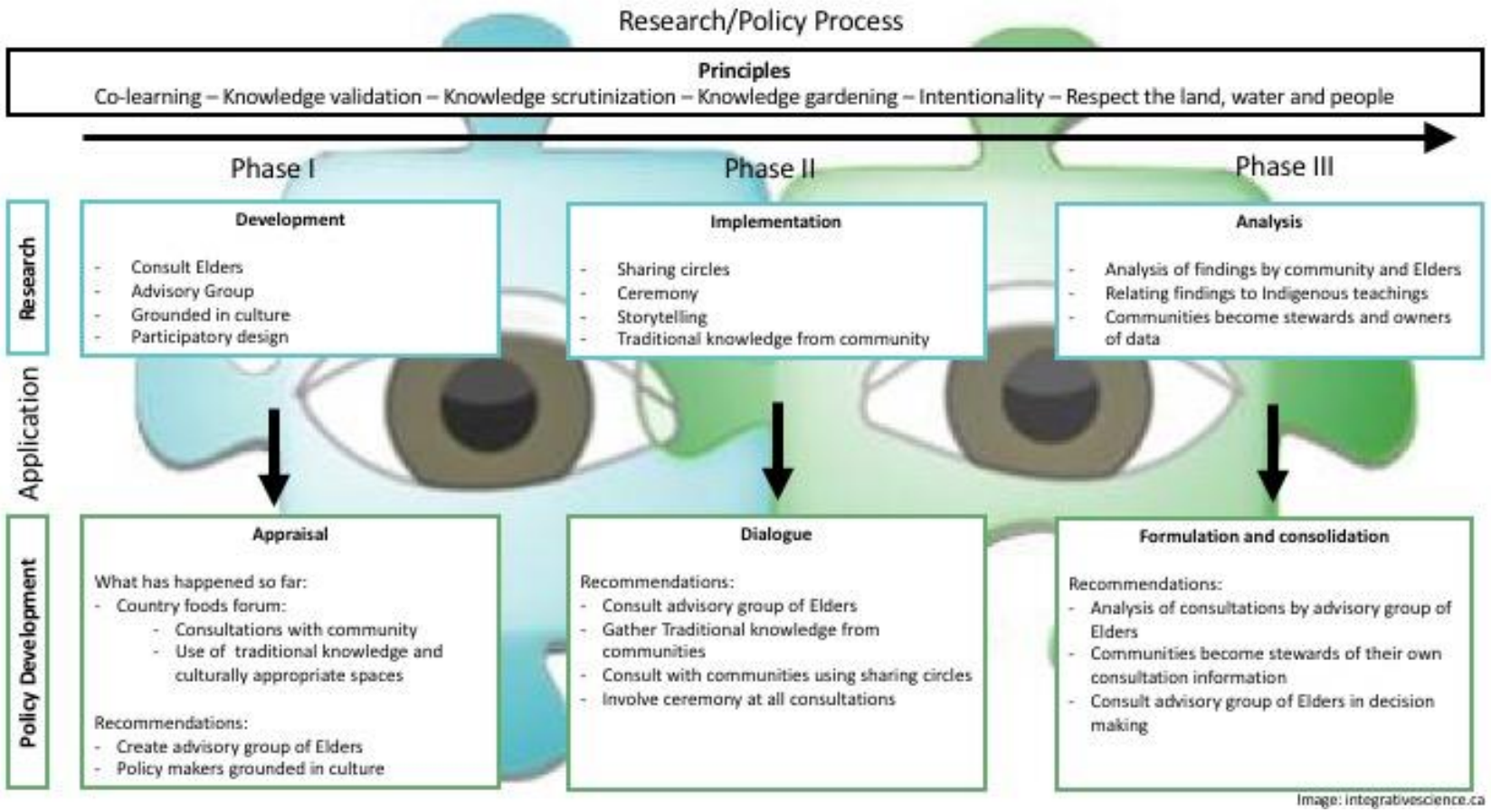

Figure 2 - Two-Eyed Seeing Framework: Application of Research phases and lessons learned to policy development process

departmental strategic priorities. Finally, a NWT Country Food Forum was organized to develop a preliminary understanding of the country food landscape and to recognize the experiences related to country food systems of communities across the territory. As mentioned, the forum itself brought forward a Two-Eyed Seeing approach.

In moving forward through the appraisal stage, several other ways to apply Two-Eyed Seeing can be brought in. The Strategy is being developed within a Western framework, and thus recommendations are provided to draw on the strengths of Traditional knowledge. These recommendations are informed by the trends and patterns observed in the research studies during the developmental stage, and the appraisal stage of the singular policy paper by McGregor et al. (2010). For example, in the analysis of the research studies, the most commonly applied methods in the first phase were to consult Elders, build a participatory research design that involved community members and researchers grounding themselves in culture.

In continuing to develop the appraisal stage of the NWT Country Food Strategy, it is first recommended that an advisory council of Elders be created, which can be used as both a process and data collection method. Advisory councils are a long-established tool in policy development, as often governments create committees of experts to provide advice on ongoing issues, such as the environment and the economy (Howlett, 2009). These advisory bodies provide a venue for experts to offer their views and analysis, or to reframe issues to guide the policy development process. In the case of the NWT Country Food Strategy, Elders from across the territory, including from the seven self-governed communities such as the Dehcho First Nations and the Gwich'in Tribal Council, should be invited to participate. This advisory council should be consulted at the beginning of the information gathering process to first gain insight on how

country food systems have changed over time, the status of current country food systems and the needs of communities. Elders can also help to guide the entire policy development process, while being consulted on bringing in Traditional knowledge. As information and data are gathered to provide an informed landscape of country food systems in the NWT, the advisory council should therefore be regularly consulted on the connections to Traditional knowledge and what this means in moving forward. This will be done in conjunction with bringing in Western research on data and trends of country food systems.

Another recommendation to be applied in the appraisal stage is for policy-makers to ground themselves in culture. Throughout the literature, many of the researchers noted that in their application of Two-Eyed Seeing, it was very important to ground themselves in culture to open themselves to different ways of knowing (Rowan et al., 2015; Marsh et al., 2016; Rand, 2016; Bird-Naytohow et al., 2017). As a process method, this self-grounding in culture was often done through active participation in ceremony, such as smudging, sweat lodge ceremonies and traditional feasts. In moving forward in the policy development process, policy makers involved in the Country Food Strategy should ensure that they are regularly grounding themselves in culture. This means participating in ceremony and cultural events throughout the process, including engaging with country food systems, through the eating of country foods and the participation in harvesting and preparation activities. This grounding in culture may prove a useful way of ensuring policymakers maintain an open mind to different ways of thinking, and more specifically, a useful way for policymakers to connect with spiritual elements. For example, policymakers will be evaluating how current programs are influencing engagement with on the land activities and may look to include cultural and spiritual analyses as well. Engaging in cultural practices can also be an important practice for any other stakeholders

involved in the process, as it can better engage community members and contribute to overall reconciliation and decolonizing practices.

Phase II – Dialogue

The dialogue phase is the second phase of policy formulation. In this phase, discussions between stakeholders and policy makers are held, including consulting with the public. This phase also includes debating and weighing various policy options. As the GNWT has recently begun developing its Country Food Strategy, and policy development is a complex and non-linear process, the Country Food Forum also overlapped into the dialogue phase. The forum allowed for stakeholders from across the territory to voice their concerns and discuss the policy opportunities associated with the country food system. This allowed policy makers to hear from communities and outline what other stakeholders need to be engaged. In moving forward with the dialogue phase, experts, communities and societal representatives will continue to be consulted, allowing program options and funding responses will begin to take shape.

The dialogue phase of the NWT Country Food Strategy can draw on the methods applied in the Two-Eyed Seeing literature. In many of the studies, during the middle or implementation phase, authors brought in a variety of data collection methods congruent with Two-Eyed Seeing. Many researchers used sharing circles in their focus groups, while using storytelling to convey information to participants. Ceremony with participants was also widely brought in, to ensure a culturally respectful environment. Finally, many studies, and the one policy paper, consulted communities for Traditional knowledge to bring in alongside Western knowledge in their projects.

In moving forward with the dialogue phase of policy development, there are several recommendations to apply Two-Eyed Seeing. First, it is recommended that policymakers

continue consulting with the Elders of the advisory council. This will ensure a balance between the use of Western knowledge and Traditional knowledge in the continued development of the Strategy, and the formulation of policy options. Second, it is recommended that the GNWT consult with communities on possible policy solutions to the country food related challenges they face. Communities can offer insight on what is needed to ensure the continued and increased sustainability of country food systems, and the specific resources they require to accomplish this. Consultations can provide Traditional knowledge from the community, drawing on the strengths of it as a place-based knowledge system. This is particularly relevant in relation to country food systems, given the variations of animals, plants and hunting and harvesting practices across the territory.

In conducting these consultations, it is recommended that policymakers use the data collection method of sharing circles. As noted throughout the Two-Eyed Seeing literature, sharing circles fit well within the Indigenous cultural paradigm, and allow for participants to create a shared space, which can facilitate open dialogue with all participants.

Third, throughout these consultations, it is recommended that ceremony with community members is integrated. Similarly to policymakers grounding themselves in culture in the appraisal phase, this integration of ceremony can help to bring in culture into proceedings. It can also help to broaden minds to different ways of thinking, allowing for more holistic and spiritual ways of thinking.

The knowledge obtained through these consultations from across the territory can be gathered to help inform a vision for country food system sustainability policies for the entire territory. As these policy options become clearer and are debated amongst policy makers, it is recommended that they also be put forward to the Elder advisory council. The advisory council

can then also debate and examine the policy options, providing their own advice and recommendations. They may be able to point out various interconnections from the consultation data, drawing on the strengths of Traditional knowledge to find holistic solutions. The advice from the advisory council can then be brought together with the advice of experts and stakeholders. The Western perspective of these individuals may highlight challenges and solutions not previously recorded. Policy options will then be formulated using the strengths of both Traditional and Western knowledge.

Phase III – Formulation and Consolidation

The third and final phase of the policy formulation process is referred to as the formulation and consolidation phase. This phase refers to officials developing policy options and providing feedback on the recommended options. Following a debate on the various policy options, one or more of the policy options are decided on and then implemented. Implementation involve a variety of different funding measures, new programs or new legislation. The policymakers of the GNWT have not yet reached this stage in developing the NWT Country Food Strategy.

Within the literature, the final phase of either the research or policy development process tended not to involve a lot of methods related to Two-Eyed Seeing. Most commonly, Two-Eyed Seeing was brought in through analyzing research findings by Indigenous community members and Elders. These findings were sometimes related to Indigenous teachings and principles. Another method was brought forward by Bird-Naytowhow et al. (2017), who ensured that the community they were working with became the stewards of the collected information and data.

In drawing from these past practices, a variety of recommendations can therefore be made for the NWT Country Food Strategy. First, it is recommended that post-consultation,

communities become stewards of their own consultation information and data. This process method allows communities to decide how the information and data can then be accessed. Communities will also be in charge of all other future decisions regarding the information and data. This could involve communities using the information and data further for themselves in developing their own programs and initiatives around country food. Second, it is recommended that the advisory council of Elders analyze the information and recommendations from the consultations of communities, experts and other stakeholders. Through this analysis, the Elders may be able to relate the information to Indigenous teachings and Traditional knowledge.

Third and lastly, once the policy options are developed, it is recommended that policy makers consult with the advisory council of Elders on decision making. The Elders could offer guidance on the policy options, and provide further insight. They could also help to ensure that the final Strategy is easily communicable to communities across the territory.

Principles

To adhere to a Two-Eyed Seeing approach, principles must be applied throughout the policy development process. Adhering to these principles ensures that policymakers are not merely co-opting or trivializing the approach, but rather are committed to changing the paradigm in which the policy is developed. The principles stem from the work of Professor Bartlett and Elders Marshall and Marshall, and the analysis of the application of Two-Eyed Seeing from the literature. Therefore, in moving forward with the NWT Country Food Strategy, policymakers will need to commit to these principles throughout the appraisal, dialogue and formulation and consolidation phases of their policy development process:

- Co-learning: the need for collaboration.

In the context of the NWT Country Food Strategy this means collaborating with all relevant levels of government, including municipalities and Indigenous governments, to gain help, insight and ensure no policy overlap. It also means collaborating with communities on understanding their current experiences with country food systems, how current programs are helping them and their needs for future programs. Finally, collaboration means engaging with different knowledge holders of both Traditional and Western knowledge, such as Elders on the advisory council as well as scientists, researchers and experts, on various decisions throughout the policy process.

- Knowledge scrutinization: drawing on the strengths of Traditional and Western knowledge. Adhering to this principle in developing a country food policy involves incorporating Indigenous methods into the policy process, as previously recommended for each phase. Policy development is done within a Western framework and therefore it is important to prioritize Traditional knowledge whenever possible. For example, policymakers should rely on Traditional knowledge in gathering evidence on how country food systems have changed over time, and the state of current country food systems. Western knowledge and methods will inherently be used throughout the process.
- Knowledge validation: need peer review of knowledge.

  In committing to knowledge validation, policymakers must ensure that knowledge is validated by peers, ensuring accuracy and authenticity of information. Policymakers could therefore involve the Elder advisory council (as recommended) to ensure validity of Traditional knowledge, while relying on health, environment and food experts and researchers to validate Western knowledge.
- Knowledge gardening: Abiding by the interests and needs of local communities.

In developing the NWT Country Food Strategy, this means consulting with communities on what issues they want addressed, and how existing and new programs might respond.

- Intentionality.

  This involves approaching all aspects of the policymaking process thinking about how Two-Eyed Seeing can be implemented. It requires policymakers to engage in healing relationships with both people and land and bringing in new insights that have previously been ignored.

- Respect of the lands, waters and peoples.

  In bringing forward Traditional knowledge into the policy development process, policymakers must abide by the sacred relationships that people have with each other, and the lands and waters. Acknowledging these special relationships can ensure that all people, as well as the territorial land and waters, are considered in developing policy solutions.

CONCLUSION

As Government of Canada moves towards renewing nation-to-nation relationships with Indigenous peoples, governments at all levels across Canada will be looking to increase representation of Indigenous voices in their policymaking while addressing the needs of Indigenous communities. Two-Eyed Seeing can provide an approach for governments to include diverse perspectives in policy development, by offering a relevant and transformational approach of bringing together Traditional knowledge and Western knowledge, and drawing on the strengths of both, for the betterment of all. Up until now, Two-Eyed Seeing however has rarely been applied in policy development contexts, and there is little analysis of the approach in relation to policy within the literature. Governments and policymakers therefore need to increase their engagement with Two-Eyed Seeing, and further analysis of how the approach is applied should be undertaken.

The first objective of this research was to examine how Two-Eyed Seeing has been used in existing research and policy development. Through a systematic literature review, seven research studies and one policy paper were found that applied the approach, while one policy paper was found in the grey literature. An analysis of these publications found that a diversity of methods was used in applying Two-Eyed Seeing, however several methods were more commonly used than others; these include sharing circles, storytelling and advisory councils. Several principles that were adhered to throughout were also identified, such as co-learning, knowledge validation and intentionality. This analysis found that applying these methods and principles in a Two-Eyed Seeing approach changes the way one engages with either a research subject or policy topic, by challenging the Western paradigm to bring in more diverse perspectives.

The second objective was to examine how to apply Two-Eyed Seeing in a country food policy process, using the NWT Country Food Strategy as a case study. The findings from the analysis of the prior application of Two-Eyed Seeing were taken to provide recommendations for applying the approach in the NWT Country Food Strategy. These recommendations were used to develop a framework for how to apply the approach in each phase of the policy development process. For example, it was recommended that at the beginning of developing the NWT Country Food Strategy, in the appraisal phase, an Elder advisory council be created to help guide decision making, and ensure that Traditional knowledge is always included in the policy process. This framework offers an analysis of Two-Eyed Seeing within a policy process, while also highlighting the benefits of drawing on the strengths of both Traditional and Western knowledge in an exploration of country food systems. In addition, it provides the first framework to guide the application of Two-Eyed Seeing in a policy context.

In offering this analysis of Two-Eyed Seeing, and recommendations on how it can be applied in policy development, this research provides a few contributions to the literature. With prior limited analysis of Two-Eyed Seeing, this research has advanced our knowledge of the approach, in providing an exploration of the principles required for implementation and an analysis of the types of methods used in application. It has also increased our understanding of the approach in policy development. This research provides a starting-point to further develop the analysis of Two-Eyed Seeing in policy development contexts, within the public policy literature.

This research also provides policy contributions, as it has taken the findings of the analysis of Two-Eyed Seeing and offered a framework to apply the approach to a policy development process. These recommendations offer a variety of data collection methods, process methods and overarching principles for applying Two-Eyed Seeing in developing the NWT Country Food Strategy. These recommendations can be extrapolated on to provide guidance for any other future policy development processes.

In applying Two-Eyed Seeing in a policy context, there are however a variety of limitations. First, operationalizing Two-Eyed Seeing in a policy setting provides a variety of challenges, as the approach requires a shift away from the set Western paradigm in which policy is traditionally developed. The structures in which policy is developed may struggle to accommodate Indigenous methods, while Traditional knowledge may challenge the long-held beliefs of policymakers. Ensuring Two-Eyed Seeing is comprehensively and properly applied in policy development may therefore take extra time and resources. Second, Two-Eyed Seeing is an inherently local process, as it requires the development of relationships with communities and individuals. Operationalizing Two-Eyed Seeing over a large geographic space would be a

challenge, as it can be difficult to synthesize the variations in experiences and knowledge gained from community consultations within one analysis. Third, Two-Eyed Seeing has only been applied in addressing issues related to health and environment, or in the case of country food systems, a combination of both. These issues are particularly pertinent for Indigenous communities, as health issues within Indigenous communities have been exacerbated by Canada's colonial legacy, and healthy lands and country food systems hold particular cultural and spiritual significance. Application of Two-Eyed Seeing in other contexts, such as in developing economic policy, and using a more holistic and spiritual perspective, may present a variety of challenges.

This research highlights several avenues for future research. A critical next step is to explore what Two-Eyed Seeing looks like in the implementation of a policy, given that this analysis has only examined the process of policy development. It is also necessary for future research to explore how to evaluate the application of Two-Eyed Seeing in a policy setting for its effectiveness, as there are no clear methods of identifying whether Two-Eyed Seeing has been successfully implemented, or if this application has had the desired effects. Lastly, future research needs to examine how Two-Eyed Seeing can be used to address different policy issues. As mentioned, Two-Eyed Seeing has been applied in a limited number of fields, and thus analysis is required to examine its potential applicability in other areas.

In moving forward from this research, next steps should be undertaken to examine how Two-Eyed Seeing is actually implemented in the development of the NWT Country Food Strategy. An analysis should be completed to examine the steps and methods policymakers use in operationalizing the approach. Further down the road, Two-Eyed Seeing should be included in

the evaluation of the policy implementation, to provide further guidance on best practices, challenges and opportunities in applying the approach in a policy setting.

While this research can provide guidance to apply Two-Eyed Seeing in the development of the NWT Country Food Strategy, and may be expanded upon to provide insight into other policy development processes, it must be acknowledged that this research is inherently limited by its setting within a Western paradigm. This research confines Two-Eyed Seeing into a distinctly Western construct – by using published literature, analyzing the approach within a public policy setting and offering a framework of the approach that categorizes it into distinct methods. The positionality of the author, as a non-Indigenous woman, also affects how Two-Eyed Seeing has been presented. Therefore, while this research may provide a useful and meaningful way for others in Western contexts, including researchers and policymakers, to engage with Two-Eyed Seeing, it restricts how Two-Eyed Seeing is meant to be approached: as an ongoing journey and a fluid process of bringing together different ways of knowing and understanding.

In acknowledging the limitations of its analysis within a Western context, Two-Eyed Seeing offers an exciting approach to highlight Indigenous voices in policy development. As we move forward, Two-Eyed Seeing should increasingly become a best practice in developing policy within Indigenous communities. To work towards ensuring that the approach is not trivialized or co-opted, this means shifting towards a system where both Western and Indigenous paradigms are equally represented. This can provide opportunities for governments to adhere to their reconciliation commitments and truly develop a renewed nation-to-nation relationship.

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ANNEX - TABLES

TABLE 1 – Overview of Eight Publications

Categorized as:	Title	Authors	Case Study	Methods Used	Scale	How Two-Eyed Seeing Was incorporated
A	Draft recovery strategy for the American Eel in Ontario (2010)	MacGregor et al. (Government of Ontario)	Recovery policy to guide the strategy to re-establish the American Eel through its native Ontario range	-Not discussed	Ontario-wide	-used Indigenous Traditional knowledge -Indigenous members of the recovery team -used Indigenous knowledge to learn about historical distribution of the American Eel in Ontario
B	A scoping study of cultural interventions to treat addictions in Indigenous populations: methods, strategies and insights from a Two-Eyed Seeing Approach (2015)	Rowan et al. (University of Saskatchewan)	A scoping study to inform a tool for measuring the impact of culturally based addictions treatment services, and how Two-Eyed Seeing was used	Performed a scoping review process, elements of the scoping study were joined with results from community focus groups with staff at treatment centres	-A scoping study/literature review -Focus groups in 12 National Native Alcohol and Drug Abuse Program (NNADAP) and Youth Solvent Addiction Program (YSAP) treatment centres	-created a shared space by: developing principles by which project was intended to function, active participation in ceremony and forming a large interdisciplinary and intercultural scoping study team -in a lit review, used search terms from an Indigenous perspective -Two-Eyed Seeing instrumental in leading from a systematic review to a scoping study -in extracting data, used both Western and Indigenous evaluation criteria -results categorized in the four main areas of Indigenous wellness
C	Indigenous healing and seeking safety: A blended implementation project for intergenerational trauma and substance use disorders (2016)	Marsh et al. (Laurentian University, Boston University)	Explores the blending of Indigenous traditional healing practices and the Western treatment model “Seeking Safety”, in the treatment of substance use disorders and intergenerational trauma amongst Indigenous individuals in Northern Ontario	Conducted sharing circles with 24 Indigenous men and women twice a week over a 13 week period, a qualitative thematic analysis performed on data collected from semi-formal interviews	Local Northern Ontario	-used various Indigenous, culturally-based methods and ceremonies: sweat lodge ceremonies, smudging, drumming, sharing circles, sacred bundle, traditional healers, Elder teachings -took recommendations of Elders on research process, e.g. used culturally relevant method of storytelling -Elders helped analyze data -used advisory group -through interviews and discussions, four central themes emerged, and were connected to teachings and the medicine wheel

D	Inuit women's stories of strength: informing Inuit community-based HIV and STI prevention and sexual health promotion programming (2016)	Rand, Jenny (Dalhousie University)	Gathered information to inform programming to improve the sexual health of Inuit women	Nine storytelling sessions took place with 21 Inuit women aged 18-61 years, which were audio recorded and transcribed verbatim; Atlas.ti aided in organization of data for collaborative thematic analysis within three participatory analysis sessions with 13 participants	All storytelling sessions in one community	-Drew on Inuit Qaujimajatuquangit (IQ) principles, such as working together for the common good, decision-making together etc. -An advisory group formed and consulted -recruitment conducted through a community feast -Storytelling sessions, began by sharing food
E	Indigenous women's experience with gestational diabetes mellitus: A participatory study with Mi'kmaq women in Canada (2016)	Whitty-Rogers et al. (St. Francis Xavier University, University of Alberta)	Research study used to explore and gain insight on the impacts of gestational diabetes on Mi'kmaq women	Conversational interviews conducted with nine Mi'kmaq women, and talking circles; hermeneutic phenomenology used for data analysis	Participants from two Mi'kmaq communities	-Collaborative discussions and talking circles used as part of participatory action research -Two-Eyed Seeing helped to influence analysis by providing the ethical space for conversation to occur between participants and author
F	Bridging science and traditional knowledge to assess cumulative impacts of stressors on ecosystem health (2017)	Mantyka-Pringle et al. (University of Saskatchewan, Gov't of NWT)	Used an adapted Bayesian Belief Network to understand ecosystem health in the Slave River and Delta Region	Developed a Bayesian Belief Network using field data, interviews, models and expert judgement	Across Slave river and delta	-Traditional knowledge indicators were used -Information gathered through one-on-one interviews with 11 Elders from local communities - Had facilitated group discussion on the indicators with Elders and local harvesters
G	Urban First Nations Men: Narratives of Positive Identity and Implications for Culturally Safe Care (2017)	Carter et al. (Ryerson University and University of Toronto)	Explored how Indigenous men in Toronto with balanced lives narrate their positive Indigenous identity	Used a narrative approach to conduct semi-structured interviews	All participants from Toronto	-Used narrative approach, including Anishnaabe Symbol-Based Reflection -Informed interview questions -Interpreted data through holistic practices -Had advisory committee consisting of Indigenous people

H	Ceremonies of Relationship: Engaging Urban Indigenous Youth in Community-Based Research (2017)	Bird-Naytowhow et al. (University of Saskatchewan, First Nations University, University of Manitoba, Western University)	Examined understandings of meaningful youth engagement in research to find sources of resilience and positive health strategies that can inform early intervention theory and policy to promote Indigenous youth wellness	Engaged youth through photovoice methodology and interviews	Participants all from city of Saskatoon	- Had a community advisory research committee comprised of Indigenous youth, parents and Elders was established to guide and drive the research -Had storytelling sessions, which reflected the four seasons -Conducted interview questions according to the Medicine Wheel, as it pertained to each season -Participated in ceremony -Youth got to participate in what knowledge was used, data owned by Saskatoon Tribal Council

TABLE 2 – Methods Used Associated with Two-Eyed Seeing	
Methods Used	Publication that incorporated method (see Table 1 for categorization)
Used Traditional Knowledge from communities	A, F
Elders present	F, C, B
Sharing circles/Group discussions	F, C, E, B, H
Indigenous ceremonies (e.g. sweat lodges, smudging)	C, D, H, B
Application of Indigenous principles	D, B
Connecting to Indigenous teachings (e.g. Medicine Wheel)	C, B, H
Storytelling	C, D, G, H
Advisory group	D, C, G, H
Elders/community members helped analyze data and findings	C, B

TABLE 3 – Analysis of Operationalization			
Publication	Research Phase I: Development	Research Phase II: Implementation	Research Phase III: Analysis
Marsh et al. (2016)	- Situating oneself as a researcher – gives opportunity to demonstrate that they are committed to open and honest communication, inclusion and community connectedness and respect - Two Elders guided the traditional and spiritual healing practices of the research - Indigenous scholars were consulted to provide insight into community protocols - Elders were consulted once a week for 1 year with goal of learning more about the communities - An Indigenous advisory group was established to help guide the research process o Consulted them directly about research process - First author volunteered to teach yoga at the N'Swakamok Native Friendship Centre to develop relational accountability with the community	- Tobacco offered as a gift to all research participants - Sharing circles - Facilitators of the sharing circles were Indigenous - Facilitators were also trained to ensure they included traditional healing methods - Culturally sensitive practices used in the sharing circles o Ceremonial openings and closings, offering of tobacco to participants, having an Elder present, using Sweat Lodge ceremonies, opening the circles with drumming, sacred songs and smudging - Storytelling also used in sharing circles - Participants were invited to bring Sacred bundles - Information on "Seeking Safety" was conveyed verbally - A traditional feast was held at the onset of the sharing circles and at the end of the program	- Feedback from participants was deemed important - Elders saw that data could be depicted in medicine wheel conceptual model
Rowan et al. (2015)	- Created a shared space by developing research principles by which the project was intended to function	- Identified relevant studies by applying an Indigenously-led perspective and Western-based vehicle to search and screen the literature	- Consulted with stakeholders

	- grounding themselves in culture through active participation in ceremony - Identifying research question: formulated through integrating Indigenous knowledge shared at full team meeting	- Study selection: Indigenous knowledge influenced switch from systematic review to scoping study to ensure openness - Charting the data: Use Western and Indigenous criteria to label and extract data - Ran focus groups with 12 National native Alcohol and Drug Abuse Program and Youth Solvent Addiction Program treatment centres o Elder spoke with each treatment centre about meaning of Indigenous wellness	
Rand (2016)	- Decisions were made collaboratively with the advisory community and primary researcher regarding data collection, honorariums, timelines, community involvement, means of communication, recruitment and applications for funding - IQ informed aspects of the initial design of the research project: Participatory design reflected IQ principle of collaboratively working together for a common good (Piliriqatigiingniq)	- Concept of decision-making together (Aajiiqatigiingniq) - Concept of caring for others (Ikpigusttiarniq) o The aim of the study to examine what determines sexual health - Recruitment through community feast - Storytelling sessions	- Concept of serving a purpose and serving your community (Pijitsirniq) o Long term goal of informing policy and community
Mantyka-Pringle et al. (2017)	- Traditional knowledge indicators were chosen: 22 qualitative	- TK was gathered through interviews with Elders - Invited local harvesters and Elders to participate in workshops	
Whitty-Rogers et al. (2016)		- Used participatory action research principles, such as participation, collaboration and empowerment	- Two-Eyed Seeing helped to influence analysis by providing the ethical space for conversation

		activities, which are deeply rooted in Indigenous philosophies - Collaborative discussions and talking circles used as part of participatory action research	to occur between participants and author
Carter et al. (2017)	- Researcher spent time narratively exploring and reflecting on her way of knowing with her committee - Researchers established an advisory committee consisting of three Indigenous people	- Narrative approach – stories – semi-structured interviews - One interview used Anishnaabe Symbol-Based Reflection – asks participants to reflect on a concept and to choose a symbol that represents the concept to them - Interview questions were guided by sharing knowledge between researcher and participants	- Interpreted data through holistic content and holistic form
Bird-Naytowhow et al. (2017)	- A community advisory research committee comprised of Indigenous youth, parents and elders was established to guide and drive the research - Discussions on roles of both ways of seeing	- Acknowledged the four seasons and invited youth to participate in talking circles and storytelling in each season - Interview questions across the seasons pertained to the relevant season-based teachings of the medicine wheel - Created safe spaces to have discussions – through regularly sharing meals, attending sacred fires, sweat lodge and overnight camping - Tobacco offered to participants in exchange for their stories - Participants smudged before all activities - Letting youth choose how and what data are collected	- Research done in Treaty 6 territory, so Saskatoon Tribal Council became stewards and owners of all emergent data

Project	Policy Phase I: Appraisal	Policy Phase II: Dialogue	Policy Phase III: Formulation and Consolidation
McGregor et al., Government of Ontario (2010)	- Indigenous members of the recovery team - Policy makers adhered to the agreement recorded in the Wampum Belt known as the Welcoming Belt	- Community members consulted - Traditional knowledge used to inform strategy	