INDIGENOUS MENTAL WELLNESS AND MAJOR PROJECT DEVELOPMENT

GUIDANCE FOR IMPACT ASSESSMENT PROFESSIONALS AND INDIGENOUS COMMUNITIES

Final Report

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Firelight Research Inc.

Indigenous Mental Wellness and Major Project Development: Guidance for Impact Assessment Professionals and Indigenous Communities

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EXECUTIVE SUMMARY

This report provides information and recommendations for assessing impacts to Indigenous mental wellness. This research was commissioned by the Impact Assessment Agency of Canada and completed by Firelight Research Inc. The report findings and recommendations are based on a systematic review of the academic and peer-reviewed literature on Indigenous mental wellness, as well as key informant interviews with Indigenous experts, practitioners, and academics working at the nexus of impact assessment and Indigenous mental health. The information and recommendations contained in this report are intended to inform the Impact Assessment Agency of Canada's methodological guidance for impact assessment practitioners as well as Indigenous communities involved in impact assessment processes.

The *Impact Assessment Act* has expanded the remit of federal impact assessment to include the potential direct and indirect health, social, and economic impacts of major projects, in addition to biophysical impacts. However, little attention has been paid to mental health and Indigenous mental wellness in impact assessment scholarship and practice.

A review of the literature (with a special focus on the Canadian context) and key informants revealed distinct and notable differences between Indigenous and Western conceptualizations of mental health and wellness. While Western approaches are embedded in the "medical" tradition of defining health as an absence of sickness, Indigenous frameworks tend to approach mental health from a wellness lens. This means that mental wellness is not only the absence of illness and infirmity, but also characterised by positive relationships with community, culture, and the broader environment. Holism is stressed, as is balance between a person's mental, emotional, physical, and spiritual dimensions.

Interconnection and holism are further epitomized by the frequent use of the medicine wheel or the circle to illustrate wellness in several Indigenous frameworks. Attention to the social determinants of health is an outgrowth of this more holistic lens. Key informants and the literature converged on the importance of the land to culture, and the importance of culture to mental wellness (e.g., by reducing the severity of impacts to mental wellness). In this vein, it is crucial that impacts to Indigenous mental wellness are considered within the colonial context, both historically and in its modern manifestations. It is within the colonial context in Canada that major projects are developed and proposed, and within which impact assessment processes unfold, influencing the pathways, nature, and severity of impacts.

Major projects are typically large undertakings that have the potential to alter the environment, disrupt community dynamics, change economic outcomes, and impact Indigenous rights and interests. This research found no clear patterns between project type and mental wellness impacts; rather, a variety of mental health outcomes were reported across all project types (e.g., stress, fear, anxiety, post-traumatic stress disorder, anger, solastalgia, loss of self-esteem, loss of agency, depression, etc.).

Although impacts at the scale of the individual are distinctive, this research nonetheless finds that mental wellness impacts from major projects can be organized into four broad categories: psycho-emotional impacts; relational impacts, or impacts to social relationships, dynamics, and identities (e.g., social dysfunction and community divisions, which give rise to other mental wellness impacts); place-based impacts pertaining to those mental values tied closely to the

land and environment (e.g., emotional distress from loss of place connection); and impacts to behaviour (e.g., suicide, violence, substance use).

There are countless ways in which major developments can impact mental wellness. However, this research similarly finds that impact pathways can be organized into three major classes, based on where the impacts primarily originate: on the land; in the community; and at the "planning table".

Effects originating on the land are often the consequence of changes in the environment caused by major project construction, operation, and closure. Environmental changes have generally been the central focus of impact assessments, and include changes to water, air, soil, and other natural resources. These in turn can lead to changes to culturally important places, alienation from the land and resources, loss of confidence in the health and safety of resources, changes to familiar and cherished landscapes, violation of stewardship responsibilities, and interference with the transmission of knowledge and cultural traditions – the proximate sources of mental wellness impacts resulting from project-related changes on the land.

In the community, major projects can create substantial social and economic changes (both beneficial and adverse), many of which have implications for Indigenous mental wellness. Impacts originating in the community include those that result from changes in social cohesion (e.g., conflict over the value of a controversial project, or conversely, improvements from greater economic output, employment, and infrastructure). Shifts into wage work, changes in community demographics from newcomers and remote shift-work, and increased economic prosperity can all bring challenges to family dynamics and community safety, exacerbate pre-existing social and health issues, and strain health infrastructure and services. Crucially, positive mental health effects of projects appear to be strongly associated with community agency and proper collaboration.

Processes of Indigenous engagement and collaboration in impact assessment – the "planning table" – have also been documented as a potential and major source of impacts on mental wellness. The reasons why are easy to understand in light of historical harms perpetrated by colonial institutions on Canada's Indigenous communities. Assessment processes can be triggering as people recall past injustices. Many Indigenous communities have felt a loss of agency and voice in impact assessment processes, leaving people feeling unheard, helpless, angry, frustrated, and depressed. These impacts are especially likely if impact assessment processes are (or are perceived to be) perfunctory, and when community concerns are not being taken seriously or given due consideration.

Despite the clear risks of mental wellness impacts, impact assessment in Canada generally does not explicitly consider mental health impacts of major projects to Indigenous or other populations. Only one example of a study was found that focused entirely on Indigenous mental wellness impacts in the context of impact assessment, underscoring the current lack of focus on Indigenous mental wellness in impact assessment

To move forward in accordance with the new legislation and community interests and priorities, methods to assess impacts to Indigenous mental wellness are required. However, there is no single, standard set of methods and indicators that can be applied to Indigenous mental wellness impact assessment. Each project and each community is unique and must be

assessed on a case-by-case basis. Moreover, good impact assessment practice holds that communities should lead, or at least contribute substantively to studies that pertain to community-specific impacts. This report summarizes nine principles of good practice that can inform project-specific Indigenous mental wellness impact assessment. These principles include:

1. Engage with community members early, be inclusive and respect community protocols and governance structures and processes.
2. Base the scope of the assessment on community-specific Indigenous perspectives of mental wellness.
3. Provide communities with the option and adequate resources to lead a community mental wellness study.
4. Take a trauma-informed approach.
5. Follow the principles of OCAP™ [Ownership, Control, Access, and Possession].
6. Focus on the people who are most vulnerable to project-related mental wellness impacts and take a GBA+ approach.
7. Establish an appropriate baseline and trend over-time assessment.
8. Support Indigenous Nations to develop Nation-specific and project-specific indicators.
9. Work with the community to identify and implement appropriate mitigation, monitoring, and follow-up programs to address and monitor existing and potential mental health impacts.

In measuring impacts, indicators cannot be imposed on communities in a top-down fashion; they must be developed by the communities themselves. Indicators should be developed to capture not only the different determinants of wellness, but also its different dimensions including individual, relational, place-based, and behavioural.

Major project development in many cases can result in real and demonstrable impacts on Indigenous mental wellness. These effects are experienced throughout the project lifecycle – from the announcement of a proposed project, to the impact assessment process, to effects on lands, resources, and communities from construction, operations, decommissioning, and even post-closure of the project. Nevertheless, the assessment of Indigenous mental wellness impacts has not been required in federal impact assessment to date and remains a significant gap in impact assessment practice.

To close this gap and support compliance with new impact assessment legislation, this research recommends that the Impact Assessment Agency of Canada develop or support: detailed guidance for practitioners based on our recommended approach; community manuals for mental health impact assessment in collaboration with Nations that have been involved in identifying, or have knowledge of, project impacts to mental wellness; a database, which includes wellness impacts, indicators, mitigations, and monitoring programs from past impact assessments; and encouragement and support for Indigenous-led mental health assessment methodological development.

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ACRONYMS AND ABBREVIATIONS

BC	British Columbia
COVID-19	Coronavirus Disease of 2019
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EVOS	Exxon Valdez Oil Spill
HIA	Health Impact Assessment
IA	Impact Assessment
IAA	Impact Assessment Act
IAAC	Impact Assessment Agency of Canada
IBA	Impact and Benefit Agreement
MEDLINE	Medical Literature Analysis and Retrieval System (MEDLARS) Online
MHIA	Mental Health Impact Assessment
PRGT	Prince Rupert Gas Transmission
PSIA	Psychosocial Impact Assessment
SIA	Social Impact Assessment
T8FNs	Treaty 8 First Nations
VC	Valued Component
WR-1	Whiteshell Reactor 1

1. INTRODUCTION

1.1 PURPOSE AND STUDY CONTEXT

This document provides best practice guidance for the assessment of Indigenous[1] mental health impacts resulting from major project development. Major projects are those designated for review under the federal *Impact Assessment Act* (IAA) and/or provincial environmental assessment legislation. The guidance contained herein is based on a systematic review of literature on Indigenous mental health impacts and interviews with Indigenous experts, practitioners and academics working in the fields of impact assessment and Indigenous mental health. The information and recommendations contained in this report are intended to inform the Impact Assessment Agency of Canada's (IAAC) methodological guidance for impact assessment (IA) practitioners as well as Indigenous communities involved in IA processes.

This study was commissioned by the Impact Assessment Agency of Canada as a follow-up to a "Best Brains Exchange" on mental health outcomes and impact assessment, convened by the Canadian Institutes of Health Research and IAAC in February 2020. Part of the impetus for this exchange was the need to respond to the expanded mandate under the *Impact Assessment Act* to consider the health, social, and economic impacts – in addition to biophysical impacts – of proposed projects undergoing federal impact assessment. Mental health impacts fall within this broad remit, but to date have received very limited attention in IA scholarship and practice.

Mainstream IA practice tends to view mental health as an individualized and intangible (i.e. not directly observable) phenomenon, and therefore difficult or impossible to assess. IA practitioners have therefore tended to ignore mental health impacts to focus on more easily observable or readily quantifiable impacts, such as sensory disturbance. However, the often-intangible nature of mental health does not make the impacts of project development on mental health any less real. Moreover, mental health impacts are socially patterned (i.e. are experienced at the group-level), with a broad cross-section of Indigenous peoples already subject to high pre-existing mental health vulnerabilities and likely to experience new mental health risks in very similar ways. Indigenous communities have long stressed the importance of considering project-related impacts on feelings of safety, sense of place, and experience of cultural loss, among other mental health factors.

Rigorous, appropriate, and defensible methods to assess the mental health impacts of major projects are required. This report focuses on assessment methods for *Indigenous* mental health impacts, which occur in a unique context and are distinct from non-Indigenous experiences. Grounded in Indigenous perspectives on mental health discussed in Section 3, this report describes the kinds of mental health impacts often experienced by Indigenous peoples as a result of major project development, key principles and processes for Indigenous mental health data collection and analysis, and best practice for developing Indigenous mental health indicators.

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[1] In the Canadian context, the term "Indigenous" refers to First Nations, Inuit and Métis peoples. In this report, mental wellness impacts are considered at the level of the individual Nation or community. Pan-Indigenous impact assessment is not appropriate, as it fails to account for differences between communities, as well as differences between First Nations, Inuit and Métis peoples.

1.2   LIMITATIONS

This report provides a review of Indigenous mental health in impact assessment and recommended principles to guide Indigenous mental health impact assessment practice. It is not a detailed 'how to' manual and it does not contain a single set of indicators that could be applied to all communities. Each Indigenous community is unique and methods must be tailored to individual circumstances, with that community, and verified by that community.

While this report describes Indigenous perspectives on mental health, this description is not intended to encompass the views of all Indigenous communities. The description outlines broad concepts, trends, and themes only; in practice, there are as many different ways of conceptualizing mental health and wellbeing as there are Indigenous communities.

Primary data collection for this report was conducted during the COVID-19 pandemic. Given the pandemic-related crisis experienced in Indigenous communities, participant recruitment was a challenge. Additionally, interviews were conducted remotely over telephone or computer, rendering the research inaccessible or undesirable to some potential participants. Workshopping the results of this report and/or any subsequent methodological guidance with a broader cross-section of First Nations, Inuit and Métis communities would be advisable.

Secondary data collection for the literature review was largely limited to academic publications (see Section 2.1.1). Submissions made by Indigenous organizations and other parties to Canadian IA processes were generally not included. There is a wealth of information available from these additional sources that IAAC may want to consider in further research on this topic.

Finally, while major project development can result in positive mental health effects[2], the literature review and interviews undertaken for this report identified primarily adverse mental health impacts. Further research is recommended to identify and operationalize positive impacts.

1.3   ORGANIZATION OF THE REPORT

The remainder of this report is organized as follows:

> **Section 2** identifies the methods used in gathering and analyzing the data used in this study.

> **Section 3** introduces the concept of Indigenous mental wellness, and some of the factors (determinants) that influence Indigenous mental wellness.

> **Section 4** discusses some of the potential impact pathways by which major projects have had and may have adverse impacts on Indigenous mental wellness.

> **Section 5** delves into some of the assessment methods that have and can be used to assess the impacts of major projects on Indigenous mental wellness.

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[2] In this report, the terms "impact" and "effect" are used synonymously.

Section 6 provides concluding remarks and recommendations for how to use the report's findings.

2. METHODS

2.1 DATA SOURCES

2.1.1 Literature Review

The study undertook a systematic literature review to identify academic, peer-reviewed literature on the topic of Indigenous mental health and major project development. The review focused primarily on the Canadian context, but also included articles outside of Canada (primarily the United States and Australia) to broaden the geographic and regulatory scope. The review sought to answer the following research questions:

a) How is mental health conceptualized from Indigenous perspectives?

b) What is the current state of knowledge about the mental health impacts of major projects on Indigenous populations?

c) What methods are currently used to assess the mental health impacts of major projects on Indigenous populations?

A number of electronic databases were searched to identify relevant literature, including EBSCO, MEDLINE, PubMed Central, ProQuest (Agricultural & Environmental Science Collection, PTSDpubs, Sociology Collection, Sociological Abstracts), PsycINFO, Web of Science, Science Direct and Academic Search Complete. Search terms were selected to identify articles addressing the mental health impacts of major projects on Indigenous populations. Following testing of search terms in the databases with the aim of yielding a maximum number of relevant returns with a minimum number of irrelevant returns, the following search string was selected, linked with Boolean operators:

> (Indigenous OR Aboriginal* OR "First Nation" OR Inuit OR Inuu OR Métis) AND (mental OR psycho* OR trauma OR stress OR emotion* OR perception OR "place attachment") AND ("major project" OR "resource development" OR "resource extraction" OR mining OR mine OR pipeline OR "oil and gas" OR nuclear OR hydro OR "transmission line" OR "impact assessment")

The time of publication selected was after 1990 and the language in which the document was published was English. To further refine results, searches were restricted to terms that occur in the abstract and only for articles. In addition, only scholarly journals were searched. As the Science Direct database limits the number of allowable Boolean operators to eight, the search string for this database was modified as follows: (Indigenous OR "First Nation") AND (mental OR psychological) AND ("major project" OR "resource development" OR "resource extraction" OR "impact assessment"). Three searches were undertaken in Science Direct, including, in turn, "AND Canada," "AND Australia," and "AND United States."

In addition to the academic databases, Google Scholar was searched as well, using combinations of the above search terms for articles that cite selected articles and/or are written by the same author(s). Other article databases compiled by colleagues of the report authors were also reviewed.

Article abstracts were scanned to determine whether or not to select the article for review. To be selected for review, the article needed to meet the following criteria:

1. Focuses on at least one Indigenous population; AND

2. Focuses on an aspect of mental health (i.e., where an aspect of mental well-being is explicitly addressed or impacted); AND

3. An environmental or social change resulting from human activity is discussed.

Application of selection criteria sorted articles into the following categories:

- **selected**: articles that clearly meet all selection criteria

- **rejected**: articles that do not meet all selection criteria

- **unclear**: articles where it is not possible to determine from the abstract whether selection criteria are met

Where articles were unclear, the full article was downloaded and scanned for alignment with selection criteria.

The literature search yielded a total of 2,203 articles. Of these, 48 articles were selected for review (Table 1). Thirteen of the selected articles were determined to have no direct relevance to the research study following further review and were removed, leaving 35 articles with at least some relevance to the study.

Table 1: Literature Search Results

Database	Articles retrieved	Articles not meeting selection criteria	Articles selected for review
EBSCO	89	83	6
PubMed Central	106	106	0
ProQuest	1,100	1,091	9
PsycINFO	102	101	1
Web of Science	325	318	7
Science Direct	444	430	14
Google Scholar	37	26	11
TOTAL	**2,203**	**2,155**	**48**

2.1.2   Key Informant Interviews

Key informant interviews were undertaken to understand the perspectives and experiences of experts, practitioners and community members who hold in-depth knowledge of Indigenous mental health impacts. Potential interviewees were identified through a stratified purposive sampling method (Patton, 2002). Individuals were identified if they were considered to be especially knowledgeable about and/or experienced with Indigenous mental health impacts, and were within one of the following categories:

- Indigenous mental health and community experts;

- regulatory experts;

- environmental and health policy experts; or

- natural resource management experts.

A list of 40 individuals was developed through review of the "Best Brains" exchange participant list, review of authors of articles selected for the literature review, recommendations from key contacts and via networks, and contacts from previous and ongoing studies. Both Indigenous and non-Indigenous individuals were included in the list, with an emphasis on including as many Indigenous participants as possible. This list was prioritized based on review of interviewee background and areas of experience, yielding a final list of 20 potential interviewees. From this list, 11 individuals agreed to be interviewed. The interviewee list (names removed for confidentiality) is located in Appendix A.

A semi-structured interview guide was developed focusing on the interviewee's background, Indigenous perspectives on mental health, mental health impacts from major project development, methods of data collection and assessment, and mental health impact pathways and mitigation. The interview guide was piloted with an expert in impact assessment specializing in Indigenous populations and subsequently refined. Prior to the interview, participants were apprised of the purpose of the study, informed how their personal information would remain confidential and were asked to provide their informed consent (see Appendix B for a copy of the study consent form; all participants signed or verbally agreed to the consent form). Interviews lasted for approximately one hour, were recorded and partially transcribed. Appendix C provides a copy of the interview guide.

2.2 ANALYSIS

2.2.1   Literature Review

The literature was reviewed using a deductive coding scheme in a custom tool developed in Microsoft Excel. Deductive coding refers to a process of categorizing information based on pre-defined categories or 'codes'. Articles were reviewed for relevance to the study topic and summary information was recorded, including Indigenous population(s), study location, source of mental health impacts, identified mental health impacts, impact pathways, indicators, and methodological approach. Articles were coded to capture contextual information, Indigenous

perspectives on mental health, mental health impacts, current mental health impact assessment practice, best practices in mental health impact assessment, and knowledge gaps and recommendations.

2.2.2   Key Informant Interviews

A coding scheme was developed for informant interviews. The coding scheme was based on the literature review coding scheme, but was modified based on themes emerging from the interviews. Codes included Indigenous perspectives on mental health, Indigenous ways of healing, protective factors, risk factors, methods for community engagement, methods for assessing impacts, impact assessment challenges, impacts, benefits, mitigations, indicators, best practices, recommendations, and knowledge gaps and opportunities.

The analysis was also guided by the professional experience and judgment of Firelight Group staff and directors, who have extensive experience working with Indigenous groups across Canada, including on mental health impacts from major projects.

3. INDIGENOUS MENTAL WELLNESS

3.1 OVERVIEW OF INDIGENOUS MENTAL WELLNESS

Indigenous perspectives on mental health and wellbeing generally diverge from conventional western concepts. The western scientific framing of mental health as a form of illness or disorder, in particular, is an unfamiliar way of thinking that has historically been imposed on Indigenous peoples, many of whom did not hold commensurable beliefs in the pre-colonial setting (e.g., Brazzoni 2013). [3] In contrast, Indigenous perspectives tend to emphasize wholeness and wellness when speaking of mental health – for this reason, we use the terminology "mental wellness" when discussing Indigenous mental health. [4] As an Indigenous health expert explains,

> *[Western understandings of mental health are] very medicalized … [F]rom a Western perspective it's mostly about mental illness. It's definitely not coming from a strength-based perspective. It's about treating that mental illness … and mental health is seen as a separate piece to physical health … and spiritual health… to know that you're connected to others in a bigger way, I think is definitely missing sort of the Western view*. (Public health practitioner 2, December 16, 2020)

Indigenous concepts of health, broadly, tend to be "holistic" in three ways. First, Indigenous frameworks tend to see health as not only physical, but as also intertwined with the mental, spiritual, and emotional factors (e.g., Schure et al., 2013). Mental wellness is understood as the balance among these aspects, as well as the person's connection to their environment (Proverbs et al., 2020). Second, Indigenous perspectives recognize health and wellbeing as determined and influenced by a wide array of social, economic, cultural, and environmental factors. Finally, Indigenous conceptions of wellness tend to think of the individual living "with" their environments (rather than "in" their environment), thereby conceptualizing individual health as a part of, rather than separate from, community and environmental wellbeing.

> *Wellness is seen in a very holistic way. It's the physical, mental, emotional and spiritual well-being … supported by all the social determinants … like access to affordable housing, food security, support systems, health care (and of course culturally safe and anti-racist healthcare), employment, childcare... [British Columbia Association of] Friendship Centres' clients described wellness as a sense of balance, having a sense of purpose, acceptance, the feeling of belonging and they said it is expressed through happiness, joy, laughter. And … it's supported by self-determination, self-advocacy and connection to relations too. So, it's very holistic, very comprehensive... They're all interconnected and not mutually exclusive from the other.* (Public health practitioner 2, December 16th, 2020)

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[3] Western perspectives have recently started to move closer to Indigenous conceptualizations of wellness, with major health institutions (e.g., World Health Organization, Canadian Mental Health Association, US Centers for Disease Control) defining mental health as a state of well-being with emotional, psychological, and social components. Nevertheless, research and practice regarding the multidimensional nature of mental health continues to lag (e.g., Brisbois et al., 2019).

[4] Indigenous perspectives on mental health and wellbeing, and the factors that affect it, are always specific to the community and culture. As such, there is no one definition of Indigenous mental health, nor of the factors that affect Indigenous wellness.

Various Indigenous (particularly First Nations) groups, organizations, and wellness practitioners utilize the traditional medicine wheel as way to conceptualize and foster Indigenous mental wellness (Figure 1; Kyoon-Achan et al., 2018).

Figure 1: The Medicine Wheel for Indigenous Wellness.
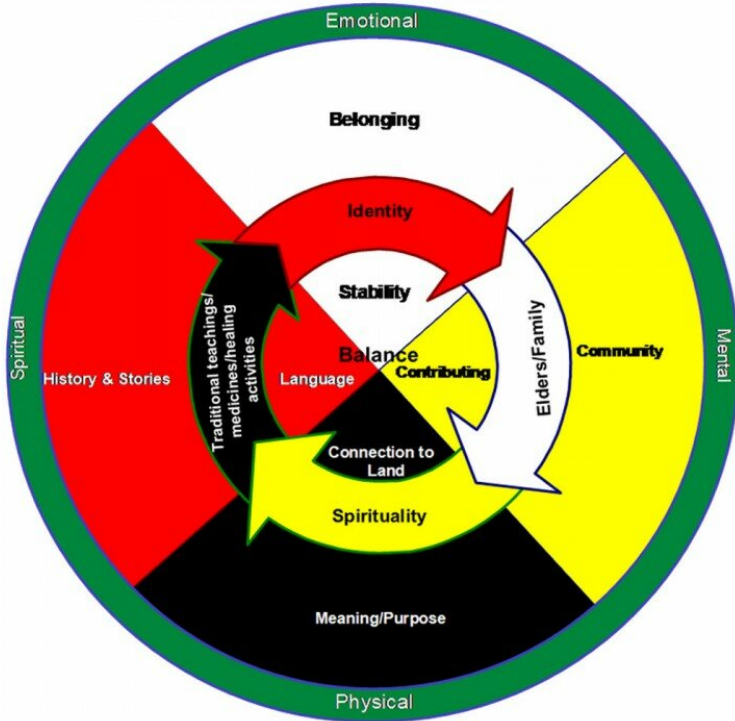
Source: University of Manitoba (Kyooon-Achan et al. 2018)

The medicine wheel emphasizes balance, interconnection, non-linearity, and holism (Jones & Bradshaw, 2015; Rixen and Blangly, 2016). The model highlights key factors that contribute to Indigenous wellbeing; defining elements that give people and communities purpose, foster strong interpersonal connections, support identity and resilience, and facilitate life satisfaction and enjoyment. One Indigenous mental wellness expert explains interconnections among each aspect of the medicine wheel and how an impact to one aspect of the wheel can impact other aspects:

> *When I look at it from an Indigenous holistic perspective, I look at it on the medicine wheel, with physical, emotional, spiritual, and mental... When one piece of that pie is not where the other pieces are, it throws off the holistic constitution of a person. I define mental health as an outlook on life, emotions, feelings, how you think about yourself, how you think about the world, others, relationships. (Community member 1, December 15, 2020)*

The subsections below draw out some of the key features of Indigenous conceptualizations of mental wellness, including social determinants, the colonial context, and the connection between the individual and the community.

3.2   DETERMINANTS OF INDIGENOUS MENTAL WELLNESS

There is now relatively broad acceptance that health (including mental health) is influenced by a wide range of factors.[5] Indigenous communities have unique ways of identifying health determinants, but also generally point to a wide range of factors that influence health outcomes, such as income and social status, education, social support, and access to health services. Figure 2 provides an example of the range of social determinants of health identified by Indigenous communities. Developed by the First Nations Health Council (2015), Figure 2 depicts multiple dimensions of health at different levels, radiating from the individual human within broader social, cultural, economic, and environmental contexts, surrounded by a wide array of social determinant factors.

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[5] Canada identifies 12 such determinants of health, including income, education, childhood experiences, biology, gender, and culture, among others - https://www.canada.ca/en/public-health/services/health-promotion/population-health/what-determines-health.html.

Figure 2: Indigenous Social Determinants of Health
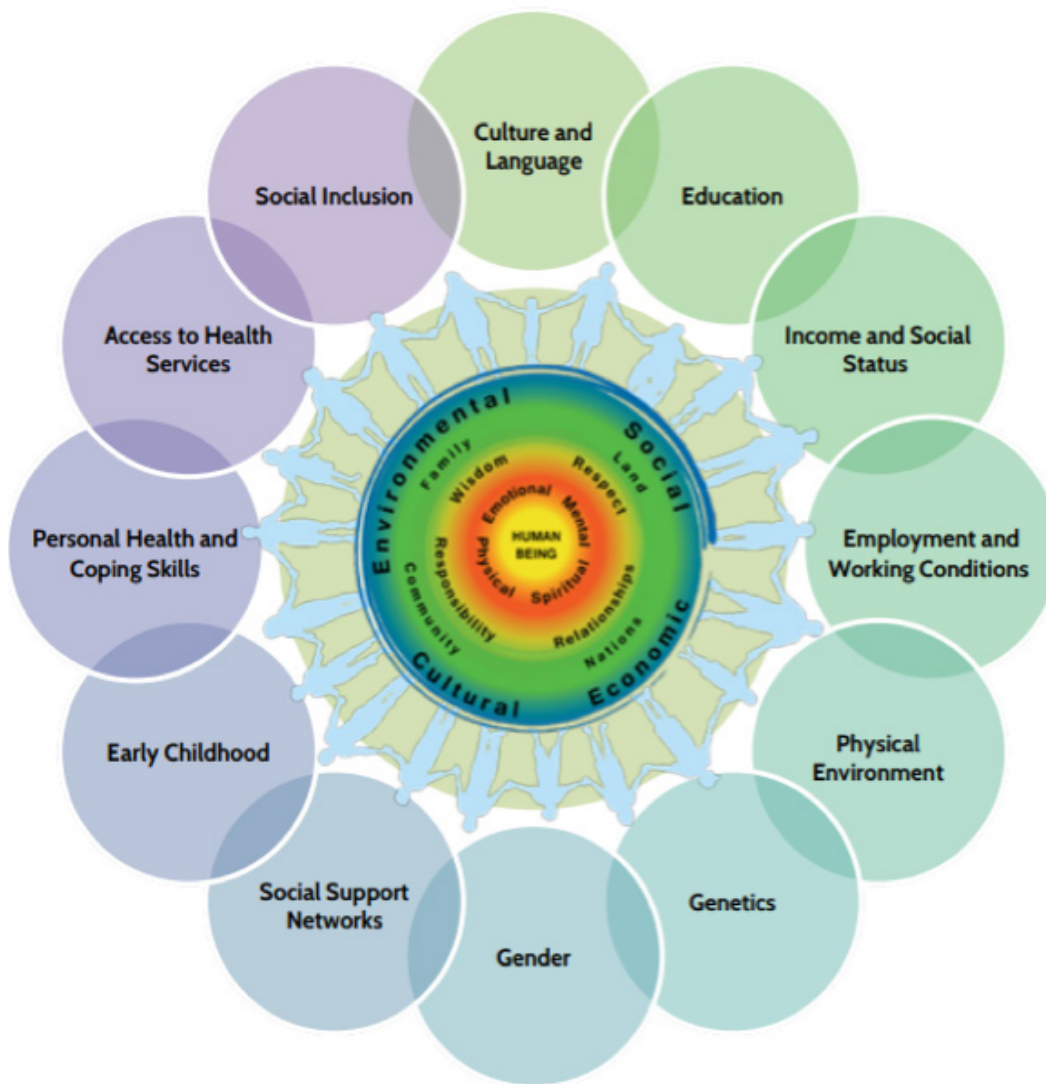
Source: Heggie 2018, adapted from First Nations Health Council 2015.

While many social determinants of health are shared by Indigenous and non-Indigenous populations, the literature highlights the uniquely influential role that connection to the land, culture, and social relationships have for Indigenous mental wellness[6]. For example, Shandro et al. (2017) note that disruptions to cultural practices, access to the land, and a healthy environment can lead to mental stress for community members (including anxiety, depression, stress, and fear), substance use, suicidal ideation, and physical health impacts. Conversely, researchers have noted that when individuals are able to engage in land-based activities and

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[6] Note that determinants of mental wellbeing may vary between First Nations, Inuit and Métis communities.

access traditional foods, physical and mental health improve (Shandro et al., 2017; Booth & Skelton, 2011).

3.2.1   The Role of the Land in Indigenous Mental Wellness

For many Canadian Indigenous groups, a close relationship with the land continues to be a defining cultural characteristic crucial to health, both at the scale of the individual and community (Schure et al., 2013; Jones and Bradshaw, 2015). Consequently, a healthy environment is a requisite condition of a healthy person and community for most Indigenous peoples.

The land influences Indigenous mental wellness in both tangible and intangible ways. Tangible pathways include changes to environmental conditions which directly and indirectly affect Indigenous wellness. For example, changes in the environmental quality of water, air, vegetation, fish, and animals can directly impact the physical health of harvesters as well as those who consume harvested products. Avoidance of impacted areas may result in reduced physical activity and reliance on store-bought foods, resulting in increased risk of diseases such as Type 2 diabetes. Reduced physical condition, in turn, can induce anxiety about one's physical health (Schure et al., 2013) as well as depression regarding one's inability to perform social roles and ceremonial functions.

Changes to the land can also impact Indigenous mental wellness in more intangible ways. Engaging in traditional activities out on the land connects individuals to family, culture, and place in ways that are inherently healing. Moreover, there are spiritual dimensions to Indigenous experiences on the land that may be difficult to capture or express but nevertheless constitute a highly important dimension of mental wellness. As described by a practitioner in the field of Indigenous mental wellness:

> *When people feel well is when they're out on the land. And when people don't feel well is when they're in communities where there is all the social dysfunction and whether there is access to addictions or where there's reminders of trauma. And when they go out to places that are important to their families or that are important to their people, they're drawn into this web of healing that I know for some people I worked with was just the most at peace that I've seen someone and myself as well. I loved to be out at like Willows Lake or going up Rackett River. It was just a beautiful place to be but it was also a place where you were really connected and you could feel, you could feel the harmony and I know that sounds very romanticized but it was part of the like rhythm of daily life of like getting the water going out and like checking the fishnets and then going to look for moose and coming back and just taking care of yourself and the people that were with you and so that was what for me built that first connection between mental health and mental wellness.* (Public health practitioner 4, January 28, 2021)

The literature characterizes connections to the land as described above as "place attachment" or "sense of place" (e.g., Currier et al. 2015). The concept captures the contribution of place to identity, the emotional connections that people establish with particular places, and the attitudes, values, and behaviours people display in response to environmental change (Ey, Sherval & Hodge, 2016; Masterson et al. 2017). An emerging body of literature focuses on the sense of loss, or "solastalgia," that can occur when environmental change disrupts one's sense

of place (Albrecht, 2005; McManus, Albrecht, & Graham, 2014). Indigenous populations may also be susceptible to a similar phenomenon known as "ecological grief" (e.g., Cunsolo & Ellis, 2018). Originally coined with reference to climate-change-induced losses, the concept of ecological grief has grown to encompass mental health impacts related to deleterious environmental and ecological change generally.

3.2.2   The Role of Culture in Indigenous Mental Wellness

Attachment to the land and feelings of loss when special places are altered are not exclusive to Indigenous peoples. However, the quality of those connections is unique due to the role of land in Indigenous cultures, as noted by an expert in Indigenous mental wellness:

> *… Culture is really seen as the foundation to mental wellness … Culture is really … holding everything up [in the model of the First Nations Mental Wellness Continuum Framework. At the centre of this model is] the Indigenous wellness framework focused on hope, belonging, meaning and purpose and wellness itself.* (Public health practitioner 5, January 29, 2021)[7]

Indigenous groups link environmental changes to the ability to practice cultural traditions, with consequences for connections to the land, community, and identity (Rixen and Blangly, 2016; Proverbs et al., 2020). Connection with the land, being able to harvest resources in preferred places and ways (e.g., with family), freedom to travel and access traditional territories without disturbance, teaching cultural knowledge to future generations, and sharing harvested resources are all important to Indigenous wellbeing (Proverbs et al., 2020; Jones and Bradshaw, 2015; Schure et al., 2013).

Highlighting the link between culture and wellbeing, researchers have also found that rates of youth suicide are inversely related to knowledge and use of Indigenous languages and the presence of "cultural continuity" factors (e.g., self-government and self-determination) (Hallett et al., 2007; Chandler and Lalonde 2008).

For many Indigenous peoples, cultural practices are also inherently social practices (e.g., Zurba & Bullock, 2020). Sharing of harvested and hunted foods and medicines, many ceremonial and spiritual traditions, and knowledge transfer are centred around the family and community and their collective wellbeing. Interdependence and the ability to rely on family and friends for support are common social expectations and established social norms. Balance between the individual and the community tends to be emphasized, and integration of the self with the broader social and cultural group is integral to health (e.g., Jones & Bradshaw, 2015).

Consequently, environmental change tends to be viewed by Indigenous communities as a threat to cultural integrity, social relations, and collective identity. As an Indigenous community member explained, "an impact to the land is an impact on all of us" (Community member 2, January 12, 2021). Understanding the connection between individual and community identities helps to highlight mental wellness effects-pathways that may be otherwise overlooked, including fear for the safety of community members, disruptions to social cohesion, and anxiety over the loss of collective memories and knowledge. Importantly, strong and intact cultures can be "protective factors, or resources for resilience that can shield or buffer

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[7] This comment referred to this document: *Assembly of First Nations, Health Canada (2015). First Nations Mental Wellness Continuum Framework. https://thunderbirdpf.org/first-nations-mental-wellness-continuum-framework/

Indigenous populations from negative health threats" (Caxaj et al., 2014, p. 832; see also Billiot & Mitchell, 2019).

3.3   HISTORICAL TRAUMA, COLONIALISM, AND RACISM

Indigenous peoples' experience of colonialism and racism (and attendant impacts on land and culture) constitutes an overarching dynamic that touches all social determinants of Indigenous health. It is therefore not possible to understand Indigenous mental wellness without considering this historical and ongoing context (Truth and Reconciliation Commission of Canada, 2015). Colonialism is a powerful driver of health, social, and economic inequality (Jones and Bradshaw, 2015) and it reverberates through the generations. As described by an Indigenous consultant:

> *From my experience, I see from our colonial history in BC and Canada our elders who have direct experience [with colonialism] and have gone to residential schools, to Indian schools, were a part of the '60s scoop, were directly impacted by colonial policies like the Indian Act. We are impacted in the younger generation, but the older generation has been impacted directly by colonial abuse. Our generation is affected through our DNA. I am not directly impacted, but I am intergenerationally impacted. My mother went to residential schools for four years. We always say that "We didn't go to residential schools, but we lived it at home", we lived it through our parents and elders. It is less of a burden from the older generation. The generations that are two generations removed; they are still impacted but it isn't as directly ... For women, targeted legislative oppression. We are all impacted by colonial violence. It is just through the generations how heavy that burden is.* (Community member 1, December 15, 2020)

The intergenerational effects of colonialism manifest in poor socio-economic conditions, educational achievement, levels of social integration and support, coping skills, and other social determinants of health (Czyzewski, 2011). Moreover, experiences of cultural loss and colonial violence result in historical trauma (Isaacs et al., 2020), which can cause "poor overall physical and behavioural health […], including low self-esteem, depression, self-destructive behaviour, marked propensity for violent or aggressive behavior, substance misuse and addiction, and high rates of suicide and cardiovascular disease" (U.S. Department of Health and Human Services, 2021, para.1). While characterized as "historical," it is important to note that trauma from colonial experiences and their impacts is ongoing and can be resurfaced by current decisions and activities that continue to adversely impact Indigenous peoples.

Indeed, experiences of institutional and everyday racism, resulting from and in combination with Canada's colonial history, influence Indigenous Canadians' trust in government agencies (including those in charge of impact assessment and ultimate decision-makers) as well as in the broader motives and integrity of major project developers. Even the act of engaging in impact assessment processes can resurface historical trauma for Indigenous peoples, leading Indigenous peoples to experience proposed projects and associated approvals processes as further attacks on their way of life. The impact assessment process can have similar patterns as past and current inequitable relationships and thereby undermine community self-determination and perpetuate traumatic impacts. Moreover, it is often the experience of Indigenous communities engaged in impact assessments that their concerns are repeatedly

being heard but ignored – never fundamentally addressed or respected – leading to a sense of frustration and helplessness (see Section 4.2.3).

In their study of the proposed Northern Gateway Pipeline, Gill and Ritchie (2020) observe how colonialism and historical experiences influence Indigenous peoples' experience of proposed development.

> *Like many Indigenous peoples, the Gitga'at people have endured cumulative sociocultural and psychosocial impacts caused by Western contact, including disease epidemics, overharvesting followed by overregulation of fishing resources, loss of self-determination, and cultural genocide through the Canadian residential school program. […] These cumulative impacts contribute to a pervasive lack of trust in the provincial and federal government. Shipwrecks such as the Queen of the North (2006) and the USAT Brigadier General M.G. Zalinski (1946), which occurred in or near territorial waters, are part of the collective conscious of the Gitga'at people. These incidents are interpreted as risks and threats to the bioregion and their way of life.* (p. 1153)

Finally, the effects of colonialism can negate the ability of culture to buffer adverse mental health conditions for Indigenous peoples. As noted in the section above, the experience of being on the land with family while engaging in cultural activities can be inherently healing, serving as a countereffect to social dysfunction, addiction and "reminders of trauma." However, colonialism can disconnect Indigenous people from traditional understandings of wellness, thereby perversely removing this buffer against impacts of residential schools, forced relocation, etc. As one expert explained,

> *…From my experience, … [mental wellness is] perceived differently by those who are closely connected to culture and those who are more disconnected to culture. … Those who are perhaps coming from more colonized mindset or Western understanding of wellness and maybe have had been more impacted by assimilation policies and Catholicism and residential schools, they might have a different perspective to wellness due to the sort of disconnect to Indigenous cultures and Indigenous ways of doing and being rather than those who are more closely connected to community and culture and know their cultural ways of doing and being and thinking.* (Public health practitioner 2, December 16, 2020)

3.4 SUMMARY

The following points summarize key findings regarding Indigenous mental wellbeing:

- Indigenous mental wellness can be understood as a state of balance among a person's mental, emotional, physical, and spiritual dimensions.

- Indigenous mental wellness is influenced by a wide range of heath determinants, notably individuals' relationships with the land, culture, and community. Mental wellness is therefore characterized not only by an absence of illness and infirmity but also positive relationships with people, culture, and the environment.

- The land is foundational to Indigenous cultures, while strong intact culture can help protect against impacts to mental wellness.

- Indigenous mental wellness and impacts to wellness cannot be understood without consideration of historical and contemporary colonial contexts.

4. IMPACTS OF MAJOR PROJECTS ON INDIGENOUS MENTAL WELLNESS

This section discusses the impacts on Indigenous mental wellness that can occur as a result of major project development and the pathways by which impacts occur. The impacts and pathways identified are not comprehensive as they are based on the literature reviewed and interviews for the study; specific projects will have specific impacts on Indigenous mental wellness.

4.1 INDIGENOUS MENTAL WELLNESS IMPACTS FROM MAJOR PROJECTS

The literature review and interviews conducted for this report identified clear linkages between major project development and Indigenous mental wellness[8]. Major projects are typically large undertakings that have the potential to alter the environment, disrupt community dynamics, change economic outcomes, and impact Indigenous rights and interests. Mining and oil and gas extraction (including hydraulic fracturing, oil spills, and oil and gas pipelines) were identified most commonly in the literature, with hydroelectric power generation and industrial and resource development in general also represented. A variety of mental health outcomes were reported across all project types. Table 2 identifies project type and associated mental wellness effects discussed in the literature. The "types" of mental wellness impacts are further described in Table 3 and below.

Table 2: Major Project Type and Mental Wellness Impacts

Project Type	Mental Wellness Impacts	Source
Mining	Fear Anxiety Depression Anger Solastalgia Loss of self-esteem Loss of agency Feelings of injustice Domestic issues Reduced social cohesion	Shandro et al., 2017 Caxaj et al., 2014 Place & Hanlon, 2011 Caxaj et al., 2014 Jones and Bradshaw 2015 Berman, et al., 2014
Oil and gas extraction	Fear Anxiety Depression Anger Solastalgia	Hirsch et al., 2017 Gerbrandt & Westman, 2020 Gill & Ritchie, 2020 Palinkas et al., 2013 Lane, 2018

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[8] No studies were identified where Indigenous groups were the proponent of the project. Future research is required to determine differences in mental wellness impacts from Indigenous and non-Indigenous-led projects.

	Loss of self-esteem Loss of agency	
Oil and gas pipelines	Fear Depression Suicide and suicidal ideation Solastalgia Loss of self-esteem Loss of agency	Asselin & Parkins, 2009 Gill & Ritchie, 2020 Temryss 2018
Hydroelectric power generation	Depression Suicide and suicidal ideation Disruptions to identity	Windsor & McVey, 2005
Industrial and resource development (general)	Anxiety Depression Disruptions to identity Drug and alcohol use	Baldwin & Rawstorne, 2019 Booth & Skelton, 2011
Cumulative effects	Fear Depression Solastalgia	Brubaker et al., 2011 Parlee & Geertsema, 2012

While Indigenous communities categorize mental wellness impacts according to their own frame of reference, several themes emerge from the literature review that are useful to identify for the purpose of this report. The following impacts stand out as key themes, but this list is by no means comprehensive:

- **Emotional stress**: intense emotional responses to potential or actual project-related changes. Emotional distress could include a mixture of feelings, such as: fear about personal and community health and safety as a result of contamination and community violence; depression resulting from loss and alteration of valued places, resources, and way of life; and anger at proponents and governments for ignoring community interests and rights (among other emotional responses).

- **Solastalgia**: the sense of loss and emotional distress that results from the experience of adverse environmental change. Solastalgia is tied to sense of place: the feeling arises as the result of loss of meaningful connections to the land, family, ancestors, and identity. Solastalgia may arise due to alteration of cultural landscapes and sensory impacts (noises, scents, visual changes, presence of non-Indigenous people, etc.).

- **Loss of cultural identity:** adverse changes in the sense of belonging to a unique culture with meaningful connections to the land. Changes to identity can arise as a result of interference with the ability to carry out traditions, practice language on the land, and share knowledge and skills. Tied to this is a sense of injustice and often powerlessness in the ability to protect collective interests and maintain cultural

continuity. Feelings of meaningful inclusion, control, and empowerment are the inverse of this effect and help to buffer other adverse mental wellness effects.

Table 3: Typology of Indigenous Mental Wellness Impacts Arising from Major Projects

Dimension	Description	Impacts
Psycho-emotional	Negative thoughts and feelings associated with the announcement and development of major projects (e.g., concerns about potential impacts, experiences of changes in the land and in the community)	Emotional stress (acute and chronic), including: Fear (e.g., concerns about safety, contamination) Anxiety (e.g., panic attacks, sleep disturbance) Depression (e.g., sadness, hopelessness) Anger (e.g., sense of betrayal) Loss of self-esteem (e.g., self-worth, self-doubt)
Relational	Negative experience of relationships with others and changes to collective identity as a result of project-related changes (e.g., changes in ability to engage in traditions, experience of lack of recognition of culture and jurisdiction)	Erosion of collective identity (e.g., cultural loss, change in sense of self) and associated feelings, including: Feelings of powerlessness (e.g., loss of agency, inability to protect interests) Feelings of injustice (e.g., continued alienation of land) Concerns about reduced social cohesion (e.g., concerns about social function and disharmony)
Place-based	Experience of loss and disruption due to Project-related changes to important places (e.g., reduced ability or willingness to access a location due to changes caused by a project, reduced quality of experience)	Solastalgia including: Loss of sense of place (e.g., disruption of ability of special places to provide cultural, spiritual and social nourishment)
Behavioural	Maladaptive behavioural responses prompted or exacerbated by Project-related changes, or assessment and decision-making processes (e.g., substance use due to project-related income, loss of social support, norms and values due to population influx)	Suicide (including suicidal ideation) and other forms of self-harm Domestic issues (e.g., familial stress due to role imbalance) Substance use (e.g., alcohol use and addictions)

Based on the literature review and interviews conducted for this report, Table 3 provides a typology of Indigenous mental wellness impacts, including **psycho-emotional, relational, place-based** and **behavioural** dimensions. These dimensions of mental wellness and associated impacts are not mutually exclusive and are provided as a heuristic tool to organize the discussion of Indigenous mental wellness impacts.

The **psycho-emotional** dimension of Indigenous mental wellness impacts refers to negative thoughts and feelings associated with major projects. These thoughts and feelings can be prompted simply by the announcement of the project and also arise through the experience of project-related changes to the land and community. As can be seen in Table 2, the literature focuses primarily on individual impacts of major project development. This may be due to a tendency to conceive of "mental" impacts in individualistic terms. However, as noted in Section 3, Indigenous peoples tend not to make hard distinctions between self and community and may discuss individual and collective health in overlapping ways (Schure et al. 2013). Major projects can impact Indigenous mental wellness on a variety of levels in addition to the individual level.

The **relational** dimension of Indigenous mental wellness impacts refers to changes in collective identity and Indigenous peoples' experience of their role and life circumstances vis-à-vis other groups. The literature notes that major projects can disrupt group identities and sense of self. (Gill and Ritchie 2020, Shandro et al. 2017, Place and Hanlon 2009), Additionally, feelings of lack of trust, betrayal, hopelessness, and loss of agency are described as arising from Indigenous people's engagement with government agencies and project proponents. Finally, impacts to social cohesion arising from divisions within the community (e.g. conflict between those for and against a project), social dysfunction (e.g. alcohol and drug use due to increased project-related incomes), and disrupted social roles and norms (e.g. value erosion due to population influx and inability to perform traditional roles or pass on traditional knowledge) are mentioned.

The **place-based** dimension of mental wellness impacts is receiving increasing attention in the literature, particularly with the concept of solastalgia. However, the concept was originally developed outside of Indigenous contexts and little research has been conducted on the specifically Indigenous aspects of solastalgia (Galway et al. 2020). Sense of loss over particular places for Indigenous peoples refers to more than a generalized 'homesickness' or 'distress'; it also includes loss of, alteration of, disrespect for, or desecration of particular spirit beings, ancestral memories, family connections, Indigenous knowledges, teaching spaces and ways of life.

The **behavioural** dimension of Indigenous mental wellness impacts refers to behavioural responses to project development and/or EA and decision-making processes. Behavioural changes can be considered as lagging impacts, manifesting in maladaptive, self-destructive coping mechanisms. As the impacts described are end-result behaviours that arise from multiple factors influencing mental health including but not limited to an individual project, the behavioural dimension of project-related impacts on Indigenous mental health must be considered with caution. A focus on dysfunction in Indigenous communities, such as substance use, domestic violence, and suicide, can play into existing stereotypes about Indigenous peoples that can themselves serve as a source of trauma and mental stress. Moreover, when not balanced with a consideration of other aspects of mental wellness, the behavioural dysfunction perspective implies that Indigenous peoples have little agency with

respect to major project development and leaves the behavioural responses unexplained and decontextualized from the forces producing them.

The list of Indigenous mental wellness impacts identified in Table 3 is not definitive and is only meant to highlight what has been discussed in the literature and with interviewees. In practice, mental wellness impacts may cascade into one another and across dimensions. Solastalgia and self or collective identity, for example, are closely linked insofar as Indigenous identities are often tied to the land and land-based practices, and solastalgia is emotional distress associated with negative environmental change. Moreover, stress, fear, anxiety, and the other impacts listed above are often secondary outcomes of impacts to solastalgia and identity.

Potential mental wellness impacts must be scoped on a project-by-project basis with Indigenous communities, and understood through an appropriate community-specific cultural lens. Furthermore, an appropriate understanding of the historical and colonial context must be developed to understand Indigenous communities' sensitivity and vulnerability to particular effects. This context influences psychological dispositions, or the "lens," that mediates individual experiences of project development (Billiot & Mitchell, 2019). This includes for example attitudes toward particular types of developments, levels of risk tolerance, community and personal histories with similar risks, etc. (Baldwin & Rawstorne, 2019; Isaacs et al., 2020).

4.2 IMPACT PATHWAYS BETWEEN MAJOR PROJECTS AND INDIGENOUS MENTAL WELLNESS
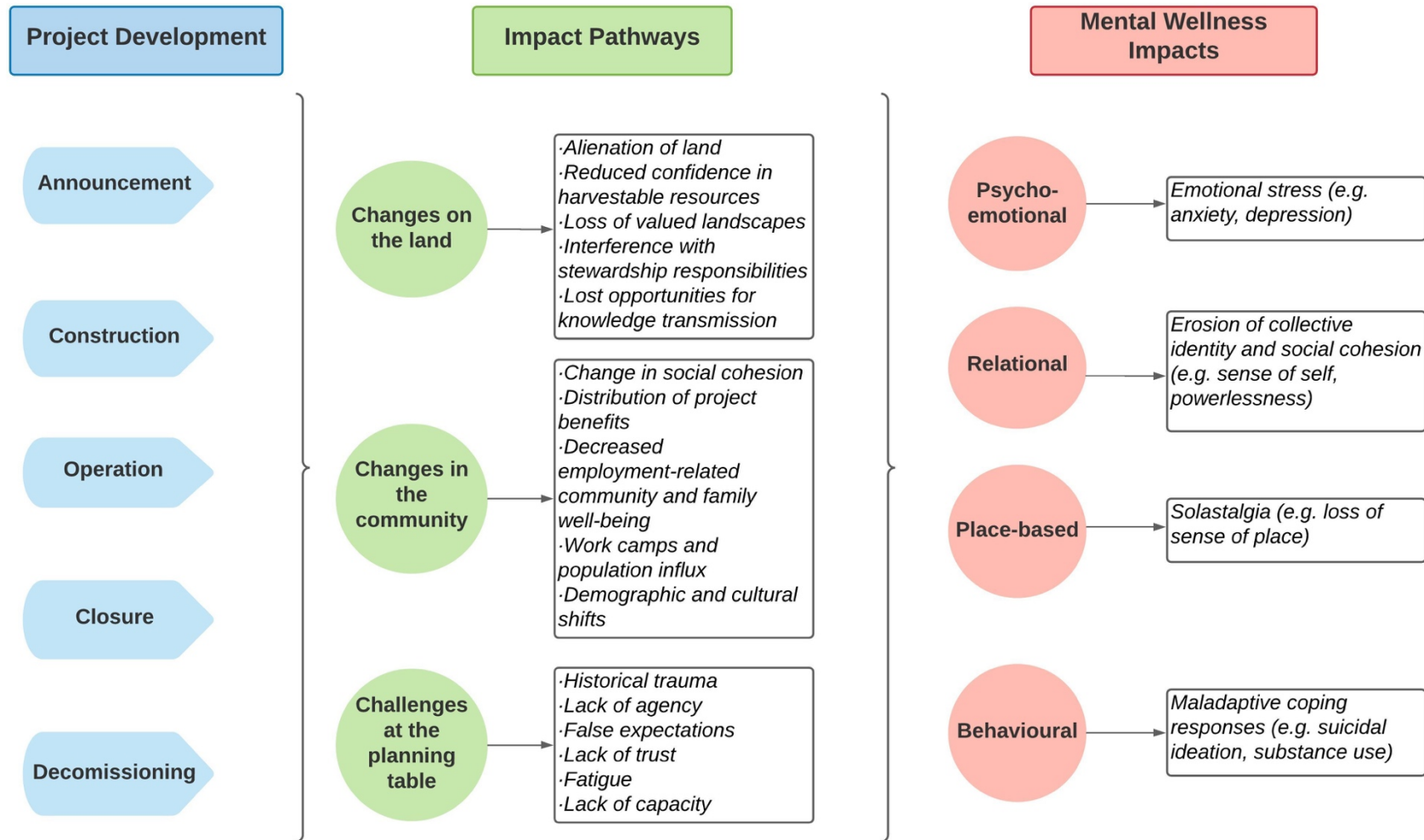
Major projects are complex endeavours comprised of multiple components and activities. The pathways linking major project development to Indigenous mental wellness impacts are similarly complex. As noted above, the precise pathways of effect on Indigenous mental wellness need to be considered on a project-by-project basis, given the particularities of location, project type, and Indigenous community. However, for the purposes of this report, project impact pathways can be loosely grouped into three major classes based on where the impacts primarily originate: on the land, in the community, and at the planning table. While project development can result in both positive and adverse mental wellbeing impacts, the discussion below focuses primarily on adverse effects.

Figure 3 presents a simplified depiction of impact pathways between project development and mental wellness impacts.

4.2.1 On the Land

Major project development may create substantial changes to the land, including changes in water, air, soil, vegetation, and wildlife, as well as changes in archaeological, paleontological and historical physical sites and materials. From the perspective of Indigenous mental wellness, these changes need to be considered in light of Indigenous peoples' *relationship* with the land, keeping in mind that Indigenous peoples live 'with' rather than 'in or on' the land. Changes in access to culturally important places, loss of confidence in the health and safety of resources, changes to familiar and cherished landscapes, violation of stewardship responsibilities, and interference with the transmission of knowledge and cultural traditions are the proximate sources of mental wellness impacts resulting from Project-related changes on the land.

Figure 3. Major Project Impact Pathways on Indigenous Mental Wellness

Project Development	Impact Pathways	Mental Wellness Impacts
Announcement	**Changes on the land** — ·Alienation of land ·Reduced confidence in harvestable resources ·Loss of valued landscapes ·Interference with stewardship responsibilities ·Lost opportunities for knowledge transmission	**Psycho-emotional** → Emotional stress (e.g. anxiety, depression)
Construction		**Relational** → Erosion of collective identity and social cohesion (e.g. sense of self, powerlessness)
Operation	**Changes in the community** — ·Change in social cohesion ·Distribution of project benefits ·Decreased employment-related community and family well-being ·Work camps and population influx ·Demographic and cultural shifts	**Place-based** → Solastalgia (e.g. loss of sense of place)
Closure		
Decomissioning	**Challenges at the planning table** — ·Historical trauma ·Lack of agency ·False expectations ·Lack of trust ·Fatigue ·Lack of capacity	**Behavioural** → Maladaptive coping responses (e.g. suicidal ideation, substance use)

The subsections below discuss these impact pathways separately, while keeping in mind that changes to the land tend to result in multiple, often intertwining impacts. For instance, change in access to traditional food harvesting sites can also impact knowledge transmission, physical health, interpersonal connections, social roles, and norms and identity. Shandro et al.'s (2017) analysis of the Mount Polley Mine disaster in British Columbia, for example, found that that the tailings dam breach and consequent environmental damage were linked to decreased and discontinued traditional land use activities (e.g., fishing), impacts to traditional diets, changes to land access, loss of familiar and meaningful places due to flood damage, and more. The mine disaster furthermore resulted in emotional stress (anger, sadness, confusion) among local Indigenous communities, and disruptions to community relationships and dynamics both within and between communities.

Alienation of Land and Resources

Alienation of land and resources constitutes a fundamental impact pathway for Indigenous mental wellbeing. Access to the land is essential to support the myriad activities and experiences that sustain physical health, social interaction, spirituality and ceremonial practices, etc., all of which connect to mental wellness. As one public health practitioner explains, disconnection from land – an ongoing form of colonial violence that disconnects people from their culture – results in serious mental health impacts, including effects on sense of purpose and belonging, identity, and self-determination and agency:

> *…Indigenous cultures, knowledge, world views, and systems are so intrinsically linked to the land, so that disconnection from the land [from projects] is quite harmful. That disconnect … can also lead to disconnection to culture and because that sense of purpose and being in belonging is so important and tied to connections to the land… [C]ulture gives people a sense of identity and in itself wellness and so I think the biggest piece is the disconnection to the land. [T]his also impacts self-determination and agency because this land, which was stolen from Indigenous Peoples, is being constantly recolonized in a sense when every time there's a new project on Indigenous Peoples' lands.* (Public health practitioner 2, December 16, 2020).

Changes on the land can also result in impacts at home. Hunters, for example, do not harvest resources for their benefit alone: they hunt for others, to bring healthy country foods home to their family, elders, and others in the community who don't have the time, resources, or ability to hunt, and/or for community functions. The hunter's activity is defined by particular social roles and associated identities, and enables the performance of important social norms, such as sharing and reciprocity. When key harvesting sites are alienated from use, all of these functions go with them. This can be very stressful for individual harvesters, as well as those who depend on them.

> *Mental health is also tied to physical health. I would suspect that people who cannot access country foods on a regular basis is stressful to someone that harvests, eats country foods, and especially as someone that is thinking about their family. If you can't provide for your family … I can't imagine what kind of stress that would cause. So anything that detracts your ability to harvest foods can also contribute to mental health impacts.* (IA practitioner 1, December 2, 2020)

Perhaps the most severe form of alienation from lands and resources is forced displacement. As one of many examples, when the Cheslatta T'En were forced from their homes and their

lands, resources, and spiritual sites that flooded as part of a hydroelectric project, they experienced disruptions to their sense of place and identity and consequent despair (Windsor & McVey, 2005). These effects further led to negative behavioural impacts, including alcohol consumption, suicide, and crime, impacting community dynamics and physical health (Windsor & McVey, 2005).

Reduced Confidence in the Health and Safety of Harvestable Resources

The release of hazardous contaminants into the environment is a key source of Indigenous mental health impacts. Contamination can impact the health and safety of harvestable resources (as measured through western science and as observed through Indigenous knowledge), as well as other valued place characteristics, and violate Indigenous norms and beliefs. Fear of contamination and resource safety, and the potential health implications of consuming or coming into contact with toxins, is frequently associated with anxiety, worry, and sadness (e.g., Parlee & Geertsema, 2012, Health Canada 2005).

In some cases, the physical and mental health impacts of contamination are clearly linked. As one interviewee explains, mercury poisoning at Grassy Narrows led to mental health impacts, including cognitive, emotional, and behavioural issues, including suicide and suicidal ideation:

> *Mercury health issues are both physical and mental. They are cognitive, neuropsychiatric and also motor. Right after the disaster, there was a lot of social disruption in the community, loss of employment, and nobody thought there may be neuropsychiatric symptoms with high level of mercury exposures … Now, what is striking in the results of the community health assessment with respect to mental health is that – because we used the same questions as the First Nations regional health survey [FNRHS] which provided us the means to compare with other First Nation communities – FNRHS found that suicidal ideation and suicide rates were higher in Grassy Narrows compared to other First Nations communities …*
>
> *We saw that, the children of women who ate more fish when they were pregnant had more emotional and behavioural problems. When we saw the children in care at the time of the study, we looked at the question of whether or not this child has ever been in care and the determinants. The first determinant is parents drinking, but then the grandfather being a fishing guide became the second determinant even more important than the grandparent being in residential school.* (Academic, December 17, 2020)

In other cases, the physical sources of mental health impacts resulting from contaminated resources are less clear or not even necessary. Impacts from fear of contamination can equal or surpass the scientifically predicted health risk of contaminants (Place & Hanlon, 2011). For example, loss of trust in resources can lead to avoidance of important traditional foods that are relied on for nutrition, which are then "often replaced with lower quality foods" with implications for physical and mental health (Place & Hanlon, 2011, p. 172). This is captured well in a study of the Lesser Slave Lake Cree by Parlee and Geertsema (2012) that describes how, "for many harvesters, the changes witnessed in the environment have increased their perception of risk or worry that wildlife is no longer safe to eat. This elevated risk has led some to curtail their hunting activities and depend more heavily on store bought sources of meat" (p. 8).

The impacts from physical contamination and loss of confidence in lands and resources go beyond fear, anxiety and diet-related mental wellness impacts. The impacts extend to sense of place, knowledge maintenance and transmission, experience of beneficial social interactions, and spiritual connection with place. Gill and Ritchie's (2020) investigation of the Exxon Valdez oil spill (EVOS) concludes for instance that, "Among Alaska Natives, we found that the 'sense of place' and feeling safe, the symbolic significance of sharing harvested resources, spiritual ties to the environment, and traditional reliance on harvesting renewable resources were diminished by EVOS-related resource losses" (p. 1150).

Loss of Familiar and Valued Landscapes

Project development – including activities such as site clearing, road building, blasting, infrastructure development, as well as the associated noise, dust, odours, and general human and industrial activity – can adversely affect Indigenous peoples' sense of place, or their emotional, spiritual, and cultural connections with particular landscapes. Sense of place is the result of complex interactions between physical, emotional, symbolic, psychological, social, and activity-based dimensions of place. The qualities that are valued in each of these dimensions are, in part, determined and built over time through experiences and culturally transmitted. In this sense, places embody experiences, histories, languages, memories, and emotions (Casey, 1996). Understanding that place is more than a physical space helps to explain why biophysical effects of major projects can be emotionally and psychologically disturbing.

> *What people see on the land is another pathway. Ecological grief or solastalgia. When people are out travelling on the land and they see things that are unnatural to them, outside of their realm of normal experiences and don't look right or clean, and this is obviously something that leads them to not go there but it also has a real mental health impact… In addition to that those areas aren't the way you were taught they should be, it feels like your whole world collapses. I can't imagine the stress that would lead to people not wanting to be on territory as much, leads to the type of many different things. It also leads to coping strategies that are not healthy.*
> (IA practitioner 1, December 2, 2020)

Impacts to sense of place can be acute and occur as the result of specific project impacts, such as destruction of burial grounds (Windsor & McVey, 2005). However, impacts to sense of place must also be considered in the context of wider historical and cumulative erosion of broad landscapes. Cultural landscapes are imbued with meaning and significance, connecting Indigenous peoples with cherished memories, relationships and identities. The loss of such landscapes can impact how Indigenous peoples' understand themselves and create intense psychological distress. Glenn Albrecht (2013), who originated the term solastalgia, defined the term in recent testimony as the:

> *pain or sickness caused by the ongoing loss of solace and the sense of desolation connected to the present state of one's home and territory. It is the 'lived experience' of negative environmental change manifest as an attack on one's sense of place. It is characteristically a chronic condition tied to the gradual erosion of the sense of belonging (identity) to a particular place and a feeling of distress (psychological desolation) about its transformation (loss of wellbeing) (Bulga*

Milbrodale Progress Association Inc v Minister for Planning and Infrastructure and Warkworth Mining Limited [2013] NSWLEC 48, p. 420).

Impacts to sense of place, and resultant grief and sense of loss, can occur as a result of physical alterations to the landscape and sensory disturbance, such as noise and smells. Accidents and malfunctions also pose a serious threat to sense of place. The experiences of the Woodland Cree First Nation in Alberta with a contaminated water spill related to fracking is illustrative. Gerbrandt and Westman (2020) write how the community experienced anger, distress, anxiety, loss of trust, and lost sense of place as a result of the spill, which "[highlighted] the psychological distress people feel due to the changes in their landscape and their sometimes-fraught historical relationships with neighbouring communities" (p. 1).

Violation of Stewardship Responsibilities and Obligations

Indigenous Nations often articulate sacred stewardship responsibilities for the lands and resources within their traditional territories. When project development impacts the health, abundance, and distribution of lands and resources, this not only impacts the ability of Indigenous peoples to engage in successful harvesting activities, but also their ability to fulfil their obligations to the land. Violation of Indigenous stewardship principles, whether based in oral history or codified in contemporary land use objectives, can result in significant emotional and psychological distress and feelings of powerlessness.

This lack of power is also often highlighted and brought to the fore in impact assessment processes, causing further distress (see Section 4.2.3). Caxaj et al.'s (2014) examination of the Mam Mayan of Guatemala shows how stewardship is tied to identity, and how stewardship and spiritual connections to the land are linked to health:

> *Cultural expressions of identity were often articulated through a commitment to protect familial and community relationships to the land, ancestral knowledge and ways of life, and by engaging in environmental stewardship. As others have noted (Izquierdo, 2005; McIvor et al., 2009), although a connection to the land or Mother Earth has been identified as a key aspect of health for diverse Indigenous populations, the threat that resource extraction poses to community wellbeing has received little attention.* (p. 832)

Lost Knowledge and Opportunities for Knowledge Transmission

Indigenous knowledge is acquired, maintained and transmitted on the land. Project development that interferes with Indigenous peoples' ability to access and use the land therefore impact Indigenous knowledge. As shared mental constructs consisting of site-specific information about animal behaviour and relationships, seasonal patterns, skills, values, codes of conduct, etc., impacts to Indigenous knowledge represent direct impacts to Indigenous mental wellness. This can include impacts to feelings of self-efficacy and self-worth with respect to individual expertise and skill.

Moreover, maintenance and transmission of Indigenous knowledge is a key element of culture transmitted through language and relationships between family members and elders and youth. As a result, impacts on Indigenous knowledge also impact identity and the beneficial mental wellbeing effects of social interaction. A practitioner shares a recent experience on an advisory panel:

> *I was listening on a Traditional Knowledge advisory panel yesterday … and an elder from Deline was speaking and he was saying that the inability to access your land and to practice your traditional activities on your land is a real huge impact, it impacts everything. It's like you lose some of the language associated with that land and you lose the ability to spend time with your family and the youth of your community on that land. There are all these add-on effects. Some of which are physical and some of which are mental, I would imagine and a lot of them are probably both.* (IA practitioner 3, January 14, 2021)

Cultural continuity through place-based knowledge transmission is key to supporting Indigenous mental wellness. When project development reduces opportunities for youth to learn skills, place-based knowledge, and values from elders and family members, severe mental health outcomes can result. Research from Chandler and Lalonde (1998, 2007), for example, found that First Nations youth with less connections to their culture have a diminished sense of self and have high rates of suicidal ideation. As one environmental assessment practitioner explained,

> *Cultural continuity, your connectedness to other cultural members or to the land, is tied to lower rates of suicide, which is the worst possible health outcome. It is a shocking but not surprising direct correlation.* (IA practitioner 1, December 2, 2020)

4.2.2   In the Community

Major projects can create substantial social and economic changes (both beneficial and adverse) in primarily Indigenous communities and other communities that Indigenous peoples live in, many of which have implications for Indigenous mental health. Marginalized peoples and subpopulations are especially vulnerable to these changes.[9]

Changes in Social Cohesion

A prime example of how major projects may come to impact Indigenous mental health is through changes in community cohesion. Conflict, divisions, and discord may rise when jobs and incomes are pitched against other values, eroding a sense of community and community cohesion. Communities may split based on which values are prioritized, from income inequality (between those who obtain lucrative jobs and those that do not), length of residence (e.g., between newcomers and old residents), social status, and class differences (Asselin & Parkins, 2009; Caxaj et al. 2014). Indeed, the growth of conflict has been recorded in a number of different case studies in the literature and in the interviews.

> *Lateral violence will usually start … Divides between families when leadership decides to support [the project] but some don't support [the project]. This can have long term impacts within the community.* (Community member 1, December 15, 2020)

> *… part of the risk is that it creates more and more of a divide between the haves and the have nots or that […] just can create expectations. And a sense of dissatisfaction. From*

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[9] We note that there is an increased expectation under the IAA that effects on marginalized sub-populations will be a major focus in federal impact assessment, and recommend that a component of Gender-based Assessment Plus focus on assessing mental health impacts on these sub-populations.

seeing what's elsewhere and it can create risks and disconnects and probably you know, cultural discontinuity for youth as well. (Public health practitioner 5, January 29, 2021)

Interestingly, divisions within the community may begin as soon as the project is proposed. An expert explained her experience with a divisive project that caused tensions within the community and families:

> *… it [a proposed project] completely divided the community. There were some people that wanted it some people that didn't. The majority did not want it and so the minority group that did want it, or did want to at least explore what the positives might be, were basically ostracized from the community, so they were unable to speak, unable to even ask questions, unable to even get information. They were just shut down and so they just went silent. Their mental well-being, I think, through that whole thing, was extremely negatively impacted.* (Public health practitioner 3, January 24, 2021)

Conversely, when a regulatory decision is made in the Indigenous Nation's favour, this can create community cohesion and create positive mental health impacts:

> *They won in the end, [it was] a huge empowerment, huge confidence boost, huge feeling of 'we can do something together, we can be heard, we can make a difference for ourselves'. The end outcome being positive for them was probably one of the biggest mental health boosts they could have actually had as a community because it really brought them together.* (Public health practitioner 3, January 24, 2021)

Recognizing that developments and assessments do not occur in a vacuum is vital. In the case of the Mam Mayan of Guatemala, Caxaj et al. (2014) showed how mining developments were set in a broader context of systemic oppression and racism, and further contributed to disruptions to the social fabric of community, exacerbating the "climate of fear and discord" and "expressions of distress among residents" (p. 824-825), including psychological, emotional, and spiritual effects. Caxaj et al. concluded that "the overarching influence of the mine manifested as community social unravelling" (p. 827). The historical context of colonialism and racism in Canada suggest that similar scenarios will and have occurred in Indigenous communities across Canada.

Project Benefits

The condition of the social environment is often influenced by economic changes and the gain or loss of economic and job opportunities brought about by major developments (see Section 4.2.3), whether from the jobs themselves or side effects (sometimes called "spin off" or "knock on" effects). When projects are done in a good way, there can be long lasting positive impacts. For example, there can be positive effects when Indigenous governments and community members are included in planning and decision-making; when free, prior, and informed consent is achieved; when the proponent invests in community development with effective programs such as wellness programs, cultural revitalization programs, meaningful training programs, land revitalization, etc.:

> *Positive effects holy cow absolutely. Giving somebody a full-time job where they can provide for their family can be a huge benefit. The provision of cultural resources*

from either an impact benefit agreement or revenues or a partnership in a project so people can get back on the land are huge factors and having a sense of ownership or a sense from a Guardian program that you are out there on the land or your community members are out there on the land, that can have huge health benefits not just for individuals but the community at large. (IA practitioner 1, December 2, 2020)

If we're talking about diamond mining, we have had lots of investments from these companies to actually support building [health] infrastructure and to work with communities to ensure that they have access to these resources. So, if you look at addictions and mental health, there's been a lot of funding for land-based healing centres and about half of it usually comes from the GNWT [Government of the Northwest Territories], but the other half of that often comes from these big companies that are here doing resource development and that are trying to increase their social capital and are doing a better job than industry in the past of making sure that they're giving back. (Public health practitioner 4, January 28, 2020)

The interviewees that identified the positive mental health effects of projects all noted the need for proper community control over the assessment process. It is necessary that the project assessment allows community members to fully capture what the possible project benefits are and how project impacts can be mitigated in a culturally appropriate and community-specific manner.

… I think that if the development is designed and carried out with true collaboration and agreements in place so that actual benefits can be realized equitably among communities and individuals then I think there's probably lots of potential for benefits. Major projects can increase local capacity and training opportunities for people … good jobs and a stable economic future. There is probably mental health benefits associated with being autonomous and actively involved in decision making for yourself and your and for your community, you know that goes along with the sense of contributing in a positive way to your life and the life of your family and but again, I think a lot of it is really dependent on how developments are done. – (IA practitioner 3, January 14, 2020

Having an Indigenous guardian program that starts at the early phases of construction and is intensive and is telling people what is happening on the land, how it's impacting the wildlife, vegetation and the water from credible sources can make a big difference there. [can mitigate the fear and anxiety and spread of misinformation, chaos] – (IA practitioner 1, December 2, 2020)

However, the benefits of Project employment on mental wellbeing may be offset by adverse effects from reduced ability to get out on the land. Traditional livelihoods may take a backseat to new jobs in resource extraction (Southcott et al., 2018; Asselin & Parkins, 2009), disrupting both cultural continuity and community cohesion and social networks. Many Indigenous individuals engaged in the "formal economy" often lament the inability to engage in traditional practices and activities due to time restrictions created by wage economy employment, especially when that work is long-term shift work away from the home community.

Decreased Employment-related Community and Family Wellbeing

Employment and the economic investments from projects for can be a blessing for many, bringing prosperity and wealth. However, "enhanced prosperity could be a "double-edged sword" for the wellbeing of people in the community", by creating or exacerbating existing social issues such as drug and spousal abuse (Zurba & Bullock, 2020, p. 303).

> *… when projects come into community there's maybe more immediate positive mental health benefits because for those who have the opportunity to work on a project, they make an income, even the community itself might get some income, but those are short-term positive mental health effects because we live in a capitalist system where you need money to survive but money isn't necessarily wellness … If the funding does go to that [mental health services and cultural activities] that's a potential impact on positive mental health and you know also might give people a sense of purpose and meaning but the projects are so short-term and …. It's not addressing the root causes of mental unwellness which is these big picture things, like colonialism and racism. They bring that short term mental health benefits but there is still those larger impacts occurring in the background and contribute to the long-term mental health impacts.* (Public health practitioner 2, December 16, 2020)

> *Once a project is built, like Mount Polley in Williams Lake, Prince Rupert, when you look at the larger operations and they are operating well - they provide jobs and economic opportunities. When they don't go well, like Mount Polley and the spill, the stress on the community, salmon run has been impacted, cumulative impacts (natural disasters), stress on traditional way of life (like connection to salmon), many people living in poverty if they lose impact to traditional foods this impacts mental health. Disasters exasperate issues within the community.* (Community member 1, December 15, 2020)

A boon of project-related employment may take people away from their families for site work, disrupting family and community relationships, potentially increasing family stress, and instances of domestic abuse and divorce (Asselin & Parkins, 2009; Jones and Bradshaw, 2015). In the words of an IA practitioner who has been working with Indigenous communities for over a decade:

> *What does it [mental health impacts] mean at home? It means thinking about things like, if there are two-week on and two-week off work shifts, the partner at home has a lot of stress and when the parent comes home, then it disrupts the family routines, causes stress, etc. It can have a lot of adverse effects. Families fall apart.* (IA practitioner 1, December 2, 2020)

Individuals who do leave the community for work may be "introduced to alcoholism and drug abuse" (Southcott et al., 2018, p. 396) and may be more likely to use alcohol or drugs to cope with difficult working conditions (Rixen et al., 2016).

Work Camps and Population Influx

New jobs and new economic opportunities (real and perceived) also bring new people. The influx of outsiders, often workers and service providers, that arrive in or near Indigenous

communities can also change community relationships and dynamics (e.g., Southcott et al., 2018; Gibson et al. 2017; Palinkas et al., 2013). Perceptions and feelings of safety in the community and in environments near project sites may be compromised as a result of newcomers, workcamps, and increases in crime and vice (Asselin & Parkins, 2009).

> *…when workers go in from outside, the sex trade can develop. Also, there can be an introduction of substances and that can exacerbate things. … It is mostly guys working in an oil rigs and they may make a tremendous amount of money where suddenly they're very wealthy financially, they get these fast cars and then they you know, sadly drink and drive and crash and may hurt themselves and hurt other people.* (Public health practitioner, December 17, 2020)

> *"…the effects of bringing projects and man camps in the north … [we heard about] the increase risk of violence towards Indigenous women or LGBTQ or two-spirit people, that's connected to higher rates of violence, higher rates of crime, sexual offenses, domestic, gang violence. And then it also increases housing costs for local populations, which increases the need for shelters and homelessness. There's hitchhiking… women entering the sex trade and so all of these things that are related to these extraction projects … Those impacts are not just mental health ... it's all sort of interrelated.* (Public health practitioner 2, December 16, 2020)

> *Mental health, I think often of communities impacted by all season roads, wondering if a new all-season road comes to your community, who does that bring in with it? Are there new people coming in that are unsafe for my children? Are my children going to be driving up to the larger community at all hours of the night, going through the ice or their car breaks down and they freeze to death? You [feel] that loss of control and that can be a huge mental health impact.* (IA practitioner 1, December 2, 2020)

Asselin and Parkins (2009) found that construction of the Trans-Alaska Pipeline System was correlated with increased rates of crime, alcoholism, gambling, and prostitution, theft, and transient residents which "added to a general sense of loss-of-safety in the community" (p. 493). This fear is also connected to an increase in racism and racial discrimination:

> *You're going to see cumulative impacts and project specific impacts. For example, mental health impacts include racism. Racism is an impact pathway: it is something that causes mental health impacts. It comes in the form of government policies, it can come in the form of overt interactions of non-Indigenous people and that can be in everyday life or travelling on the land, which is terrible. And that can be in the workplace. So that sense that you are treated as less than someone else has been present in Canadian society for a hundred years.* (IA practitioner 1, December 2, 2020)

> *The influx of temporary workers are usually white men who haven't necessarily had the opportunity to be engaged in critical conversations about race and might be racist. Being in those environments where you're questioning your own identity and you're ashamed of that, those impacts are huge too.* (Public health practitioner 2, December 16, 2020)

Moreover, major projects, especially linear features (e.g., roads, rights-of-way, pipelines, transmission lines) can facilitate access to previously undisturbed areas. Project workers and recreational land users who discover these new access routes can end up disrupting Indigenous sense of place and safety, for example when out hunting and spaces become relatively crowded.

Increases in local populations (e.g., from workers) and social issues created by major projects often occur in rural/remote areas with limited existing infrastructure and health and social services, straining service delivery for residents. The needs of locals may be harder to meet due to the above, as capacity is stretched and unable to be filled by governments (Southcott et al., 2018), extending to housing, food, education, policing, and importantly, health care services (e.g., Asselin & Parkins, 2009). Deficiencies in health services could exacerbate and make communities less resilient, and mental health impacts more severe.

Once a resource is exhausted and jobs are lost, as is typical in boom-bust cycles of natural resource extraction, a jump in unemployment creates its own set of problems such as in food and income security and changes to family and social dynamics that can impact mental health (Rixen et al., 2016).

Demographic and Cultural Shifts

A more subtle way in which community and family life may be disrupted by major projects is the altering of social norms and values. Evidence from the Mackenzie Valley Pipeline Inquiry (Berger 1977) pointed to how,

> *Increased industrial development would bring about an increased destruction of existing social relations. Welfare dependence would increase as families were torn apart. Likewise, the destruction of the values and beliefs that have held communities together for thousands of years could not help but result in more crime and more violence.* (Southcott et al., 2018, p. 396)

Changing values and norms can also occur through demographic shifts (Asselin & Parkins, 2009). Transitioning values can be uncomfortable and psychologically discordant, and may even lead to stigmatization, for example when individuals take jobs in a project opposed by other community members.

4.2.3   At the Planning Table

Historical Trauma

Major projects in Canada trigger regulatory processes that require Indigenous consultation and engagement. There is some recognition in the literature that regulatory processes can have consequences for the well-being of participants and particularly Indigenous groups that have historically suffered at the hands of colonial institutions. As one Indigenous practitioner explained,

> *From my experience, and in my perspective, it is very triggering for communities when large economic development resource development comes into the community. It triggers a bunch of stuff around our colonial history and issues like sovereignty, self-determination, agency to make decisions on our land, relationships*

in the community, family dynamics, political structures (like hereditary chief structures). The company seems oblivious, and government. So, there isn't support or time for communities to come together to have dialogue to implement their protocols. When the projects come in, it's on a tight timeline, decision-making on a short amount of time, this may be a long time to government and companies. The pressure to make decisions impacts the communities. (Community member 1, December 15, 2020)

Another IA expert explains how the assessment process is often triggering for Indigenous Peoples:

I think it would be a mistake to think there's only certain types of mental health issues that arise from certain projects. I think every project, every action has the ability to produce, to create, stressors that may trigger individuals and result in a decline in their psychosocial well-being ...

As an example, we talk about agency and the ability, the pride, that comes with being responsible to maintain your identity as someone responsible for protecting the land and … something as simple as agency, which is my ability to make decisions, has been taken away from me. I haven't had it. I've actually been tortured for who I am, and I've been marginalized because of the colour of my skin and for all these reasons, you have stripped me from any ability to make any decisions to a point where I've actually internalized it…

Then something happens, that makes me go 'huh, maybe I do have an opportunity here to have a voice'. Then a proponent comes along and tells me this is a one-way street, you tell me that 'these are your three options, pick one'. Well guess what you've actually just triggered me big time and all that trauma in my past that I have not been able to address because of who I am and because of what you subjected me to, I'm now triggered by this simple act that you came into my community and only gave me three options without even asking me who I was. So, can a project trigger that? Absolutely, any project done poorly can trigger all sorts of psychosocial decline in your health, so I don't think we can separate that if it's nuclear it can do this or if it's this, it's very personal and action individual action-based. (IA practitioner 2, December 10, 2020)

Indigenous Peoples often feel disenfranchised from IA and subsequent regulatory processes, which often evoke past experiences with government and settler society. Indigenous communities and community members have a long history of being dispossessed and dislocated from their traditional territory by government programs and development projects. This dispossession includes impacts to territorial sovereignty, whereby Indigenous Nations have limited power over the decisions that impact their lands and resources. Every time a new project is proposed, and the assessment process begins, community members are forced to relive these feelings of dispossession and marginalization:

… the primary effects negative impacts would vary hugely by the type and the scale of the location of the development. In our jurisdiction. I would say that the two most common types of major projects are mines or mining expansion projects and then large infrastructure projects like roads. Because of the nature of the Mackenzie

Valley sometimes those roads are going into areas that have not previously had roads access or they're connecting communities to the road system for the first time. So, both of those open up lots of avenues for impacts… When you look at them [impacts] from a well-being perspective and from a mental health perspective, it's important to understand that they are necessarily cumulative in nature… [Y]ou can't start from … the first day of the project or the first day of the assessment of the project. There's the whole history and life span for individuals and communities that build up to the way they experience impacts.

I think a lot of the impacts to mental health and well-being from projects come from what people have experienced in the past and also what's coming down the pipe … [T]here's lots of anxiety that manifests. If the type of impact or the rate of change or the pace of development is too fast for people to keep up ... just general sense of anxiety is something that happens when major developments come…

I think especially for lots of Indigenous communities, this is particularly important for those that are dealing with intergenerational trauma and legacy effects of previous developments. (IA practitioner 3, January 14, 2021)

Lack of Agency and False Expectations

Community members and leadership often feel forced into non-Indigenous ways of governing and ways of looking at the land, that their knowledge is being used to "tick off some boxes" in the regulatory process, and that their traditional government systems and cultural values aren't taken seriously:

Governments and proponents act like it's the Indigenous communities that can't make decision but in reality, the system does not reflect Indigenous systems of governance. They are forcing a colonial system onto the community. This is all triggering on their health. The capacity dollars don't take this into account. The approach is community dependent. (Community member 1, December 15, 2020)

The perceived justice and benefit of participating in regulatory processes are frequently questioned by Indigenous communities. Many community members have voiced frustration that regulatory processes are futile with regard to changing actual outcomes or being heard. A regulatory practitioner explains,

…any proponent who is able to hire a good consultant will go in and introduce we're here because we want to be transparent … there's all these really good buzzwords so we'll go in and use those buzzwords and say we're here to do things right ... Well guess what I've just done by doing that? I've created an expectation. I've created a little bit of hope. That hope that I've created is so bloody sacred. I cannot emphasize that enough because what you've now done is given yourself a responsibility to do things right. You've raised people's expectations. You created hope and if you don't deliver, you are now directly responsible for their psychosocial health.

So just simple participation in EA process. The ability to be there at a meeting, hear all these really good things that are going to happen and then kaboom everybody's gone. Major, major, major, trigger. (IA practitioner 2, December 10, 2020)

The authors have witnessed community members breaking down in tears or lashing out in anger in meetings and public hearing settings, out of frustration and years of feeling unheard.

The IA process can also create expectations for employment, and if those expectations aren't met the disappointment can trigger an array of emotions and social and health consequences:

> *Before a project is even proposed, people are hearing about it. That can create a lot of buzz: everyone is going to have a job, businesses are going to boom. People are actually investing in opportunities that may not even come. You can start to see a rise in expectation that may not be followed up by actual benefits or at least not to the degree that a community expects. A mental health affect would be that if an expectation is created that never comes to fruition, it would certainly have a mental health impact and it would certainly affect the trust … So making sure that the community is getting realistic information of the scale of the project, the scope of benefits that might actually come to the community. A $5 billion project doesn't mean $5 billion to the community. It means whatever the community can get with its business and workforce capacity and willingness to work at the project if it goes ahead, which then narrows down to a small piece of that pie. Expectation control is important, of adverse effects as well. Initial scoping needs to be very careful to ensure accurate information is getting out to the community.* (IA practitioner 1, December 2, 2020)

Lack of Trust

Often contributing to the frustration and lack of agency that many Indigenous people feel towards regulatory regimes is the perceived disrespect and lack of genuine concern and consideration for what is being communicated, a lack of trust in the effectiveness of proposed monitoring and mitigations, and an absence of control in the process (Place & Hanlon, 2011; Booth & Skelton, 2011). This can have profound impacts on the mental wellness of community members.

> *... racism is not just calling them a name or treating them differently, it's also in the context of not appreciating the governance and stewardship requirements of Indigenous Peoples. If you're a Chief and Council working hard on behalf of your Nation, and you're rebuffed at every table, or you're a lands manager, or someone who stands up at a community session and says, 'here is my peace'. And they say we hear you, that's important to us and then that is never followed up on, that sense of catch and release in impact assessment, where an issue is responded with, 'we hear you, that's important to us', and then later down the line, they hear 'that's outside the scope of what we're doing'. Hearing that over and over again is an impact pathway that would be of an obvious concern.* (IA practitioner 1, December 2, 2020)

Place and Hanlon (2011) studied First Nation perceptions of the IA process that surrounded the expansion of the Kemess Mine and found a mistrust and dissatisfaction with the consultation process, connected to the frustration that "the environmental values and constructions of risk of local populations are neither well understood nor adequately addressed in environmental impact assessment (EIA) and consultative processes" (p. 164). This has detrimental impacts on the health and wellbeing of disaffected local populations (ibid.).

Gill and Ritchie (2020) similarly found that distrust in social institutions and prolonged litigation related to the Exxon Valdez disaster were sources of stress and anxiety for communities, showing how institutions meant to provide due process and limit damage can do the opposite. The experiences of many Indigenous Nations is all too often that their involvement ultimately fails to lead to desired change, leading to mistrust of the impartiality of institutions responsible for overseeing IA and regulatory processes. This, combined with the sometimes-outright hostility of proponents to Indigenous groups, contributes to mental health impacts associated with participation in IA and regulatory processes, such as powerlessness, depression, and anxiety (Booth & Skelton, 2011).

A deficiency of trust can worsen the impacts of project malfunctions and disasters. Indigenous mistrust of experts and officials responsible for disseminating information regarding salmon contamination after the Mount Polley Mine disaster exacted a substantial mental toll. Shandro et al. (2017) described how their research highlighted the mental health effects of this wariness and the knock-on effects for cultural practice, and in essence prolonging environmental dispossession:

> *This project highlights the extent of emotional trauma prompted by real or perceived threat to salmon health that has been exacerbated by a lack of reliable information from trusted sources in the aftermath of the breach. These factors led affected First Nations to cease or significantly reduce salmon fishing during 2014, and for some, this issue remains. This repression of culture holds significant implications for health and well-being.* (p. 93)

Fatigue, Lack of Capacity and Ongoing Uncertainty

The requirements to effectively participate in IA and regulatory processes can furthermore be highly demanding in time and resources, especially for capacity-limited communities. A regulatory expert explains,

> *Then there's the actual fatigue and pressure, 'we need to go to this session because if we don't go to the session then we don't get a voice heard'… and I might have two children in foster care and I might have just lost my other third child and all these things are happening, there's so much in going on in my community, but I really need to go to that session because this is important. What is it all for? There's so many things that go into that fatigue that comes from participating in that [IA] process that I just don't think we have a deep appreciation for.* (IA practitioner 2, December 10, 2020)

Booth and Skelton (2011), in their study of northeast British Columbia, write that "First Nations suffer impacts from the demands of having to participate in the various consultative processes which are to identify impacts to First Nations among other issues. The psychological impacts of ongoing processes are devastating" (p. 696). Importantly one key informant, a consultant for a First Nation, noted that impacts begin "as soon as a project is announced," (Booth & Skelton, 2011, p. 696) from dividing the community into those for and against, and even in anticipation of a project being developed on their lands.

> *The psychological process of anticipating a potential risk posed by the construction, operation or decommissioning of a development can be associated with mental health and well-being effects within individuals and communities.* (Baldwin & Rawstorne, 2019, p. 382)

As previously noted, mental health effects can begin as soon as a project is even announced or considered, compelling people to consider a future a development. How much individuals can tolerate uncertainty, which is prevalent with regard to project planning and outcomes, is also a psychosocial risk factor for mental health. An Indigenous IA/regulatory specialist highlights how these ongoing fights and processes and have both mental and physical health impacts:

> *I think of a specific incident that was recent. In Gitxsan territory. There was pipeline project. It brought a lot of stress to a hereditary chief. A family was making a claim to a hereditary chief. They set up blockade to assert their rights to the hereditary territory and to protest the PRGT [Prince Rupert Gas Transmission] project and their engagement approach. The hereditary chief's life changed - he started being on the land every year, was getting called to protest… This year he died of a heart attack. He invested the last seven years being involved in these high stress situations. There is real health implications of the mental health impact. The number one killer is stress ... If the project does go forward and gets built, like Wet'suwet'en hereditary chief, I can't fathom the mental health of being faced with so much. The government is sending in the military. All these things need to be factored into mental health.*
> (Community member 1, December 15, 2020)

Whether it is in anticipation of an undesirable project and its effects, the outcomes of an assessment process, the consequences of project failure, or any other dimension of major projects that induce uncertainty, living with risk and fear can lead to psychological stress. Oftentimes this uncertainty is linked squarely with project impacts to cultural well-being, as described by Gill and Ritchie (2011) in the context of the Northern Gateway Pipeline: "The effects of "living in fear" and "living with risk" associated with the possibility that the next tanker trip could be the one that "ends our way of life" are substantial" (p. 1154)*.*

5. ASSESSMENT METHODS FOR INDIGENOUS MENTAL WELLNESS

5.1 CURRENT PRACTICE IN THE ASSESSMENT OF INDIGENOUS MENTAL WELLNESS IMPACTS

Despite the literature indicating that major projects impact Indigenous mental wellness – and despite Indigenous peoples' submissions on this topic in IA processes – impact assessment in Canada generally does not explicitly consider mental health impacts of major projects to Indigenous or other populations (Gregory et al., 2016; Place & Hanion, 2011; Bram and Bronson, 2006; Brisbois et al., 2019; Cajax et al., 2014). As noted by one IA practitioner:

> *Currently mental health is about 0.05% of IA, but you go to a community meeting and it will be about 15-20% of what people want to talk about. (IA practitioner 1, December 2, 2020)*

Human health impacts are routinely assessed in major project assessment and would seem to be a logical place to find assessment of mental health impacts. However, the focus in human health impact assessment has been primarily limited to biophysical health and toxicological risks (Hackett et al., 2018), including a "tendency to focus on regulatory thresholds and quantitative measurements of risk" (Jones & Bradshaw, 2015, p. 86). For example, a review of northern Environmental Impact Assessments in 2006 found that the social determinants of health were relatively neglected, and that the physical environment was the "determinant of health most frequently addressed in project EIA" alongside "physical health, health services and social support networks" (Bronson & Noble, 2006, p. 317).

Only in rare cases have Project IAs considered mental health impacts in more than a cursory fashion, such as the Prosperity Gold-Copper Mine Project in BC and Screech Lake Uranium Exploration Project in the Northwest Territories, and even in these cases it has been argued that mental health impacts did not receive a fulsome assessment (Graben, 2014). In general, Indigenous mental or psychosocial effects continue to be dealt with indirectly and with reference to other project impacts, if at all. The Site C Clean Energy Project Joint Review Panel, for example, noted mental health impacts indirectly and in relation to project-related employment. Indigenous Nations brought forward multiple examples of mental health/psychosocial impacts associated with changes to the land and waters should the Project proceed[10]. The Mental health impacts of the Site C project were the subject of extensive discussion and reporting by Treaty 8 First Nations (Treaty 8 First Nations [T8FNs] Community Assessment Team & The Firelight Group). The Nations noted the impact pathways of the project including impacts to mental wellness. These impacts were largely ignored by the Panel. Thus, while the Site C Clean Energy Project assessment recognized health as multifaceted and adopted a relatively holistic lens, it did not explicitly assess mental health impacts and did not consider the full spectrum of factors impacting on Indigenous mental health as identified by the impacted Nations.

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[10] As reported for example in Treaty 8 First Nations Assessment Team (2012).

The assessment of the Northern Gateway Project also recognized the potential mental health impacts of the project, particularly in relation to project accidents and malfunctions. Comments from Indigenous intervenors highlighted the potential impacts to identity and social structures/relationships, and of anxiety, depressive symptoms, helplessness, and anger. However, while the proponent suggested that psychological stress caused by oil spills could be addressed through counselling, it did not assess the effect (National Energy Board, 2013).

The sole example of a study entirely focused on Indigenous mental wellness impacts within the context of an IA available at the time this report was the *Sagkeeng Anicinabe Psychosocial Impact Assessment ("Sagkeeng PSIA")*, commissioned by the Sagkeeng First Nation in Manitoba and conducted by Narratives Inc. (Sadiq et al., forthcoming) This Sagkeeng PSIA is a part of a wider and ongoing review of the Canadian Nuclear Laboratories' decommissioning plans for the Whiteshell Reactor 1 (WR-1) at the Whiteshell Laboratories.

A key element of the Sagkeeng PSIA that set it apart from standard social impact assessment methods is that the research adopted an explicitly holistic, interdisciplinary perspective that included a focus on psychological, cultural and spiritual impacts and brought together disciplines of sociology, clinical psychology and impact assessment into conversation with Indigenous knowledge. According to one of the researchers involved in the study:

> *Nothing like this has been done before. It's something that's been brewing in our minds for a long time. Bringing these practices together – clinical psychology, sociology and impact assessments – it was a very, very holistic approach coupled with the work that we've been doing with the Indigenous communities. The elders have spent a lot of time and then been very patient with us trying to educate us on that inter-related nature of who people are and how, if you affect, the fish it affects this web of other things.* (IA practitioner 2, December 10, 2020)

The study adopted standard sociological methods including document review and interviews, but also used the services of a clinical psychologist with experience with Indigenous peoples. The clinical psychologist informed the trauma-based aspects of the proposed project's mental wellness impacts, helping to create a safe space for participants and enable the researchers to understand the clinical assessment for trauma.

> *Based on the conversations that we were having – an understanding of people's connections to the land, how this project had impacted them and so on – there were indicators of trauma that the clinical psychologist was able to tap into to then have a deeper conversation specific to the trauma that individuals had experienced.*

> *And the whole idea behind this exercise was to understand what stressors had contributed to the decline in the psychosocial health of the community over the years and then identifying whether those stressors existed in actions that the WR-1 project has undertaken. If there would be those stressors moving forward, and if those stressors continue to exist those impacts will continue to be experienced.* (IA practitioner 2, December 10, 2020)

5.2 POTENTIAL PRINCIPLES FOR INDIGENOUS MENTAL WELLNESS IMPACT ASSESSMENT

There is no single, standard set of methods and indicators that can be applied to Indigenous mental wellness impact assessment. Each project and each community are unique and must be assessed on a case-by-case basis. Moreover, good impact assessment practice holds that communities should lead, or at least contribute substantively to, studies that pertain to community-specific impacts (Principle 5, First Nations Major Project Coalition, 2018). Nevertheless, a number of principles of good practice can be derived from the literature review and expert interviews undertaken for this report. This section lists potential principles that may inform project-specific Indigenous mental wellness impact assessment.

The principles include:

1. Engage with community members early, be inclusive, and respect community protocols and governance structures and processes.

2. Base the scope of the assessment on community-specific Indigenous perspectives of mental wellness.

3. Provide communities with the option and adequate resources to lead a community mental wellness study.

4. Take a trauma-informed approach.

5. Follow the principles of OCAP™ [Ownership, Control, Access and Possession].

6. Focus on the people who are most vulnerable to project-related mental wellness impacts and take a GBA+ approach.

7. Establish an appropriate baseline and trend over-time assessment.

8. Support Indigenous Nations to develop Nation-specific and project-specific indicators.

9. Work with the community to identify and implement appropriate mitigation, monitoring and follow-up programs to address and monitor existing and potential mental health impacts.

Each principle is elaborated upon below.

1. Engage with community members early, be inclusive, and respect community protocols and governance structures and processes.

Mental wellness is a highly sensitive subject not amenable to 'drive by' research methods. Researchers must take the time to get to know and be known by the community. Individuals are not likely to share their thoughts and feelings with people who are viewed as strangers or in processes that feel uncomfortable. This is particularly true where individuals are not informed of how the results will be used and how the practitioner will follow up with the community after the study is complete. Tokens of respect can be helpful when building trust, such as gift giving and/or offering an honorarium in recognition of peoples' time and generosity.

As in all community-based research, it is necessary to identify the right people to talk with. Scoping should be undertaken with the community, following applicable community protocols. Engagement with leadership may involve Chief and Council, but may broaden out to other community leaders, including members of the health department. If it is a small community, it is particularly important to be sensitive to intra-community and intra-family dynamics. Individuals may be reticent to discuss their mental wellness in this context, and it is essential that confidentiality is assured and properly communicated.

2. **Base the scope of the assessment on community-specific Indigenous perspectives of mental wellness.**

It is essential that Indigenous mental wellness impact assessment adopts an explicitly Indigenous perspective of mental wellness. Such a perspective can be informed by the literature and expert insights reviewed in Section 3 of this report. However, these determinations should be community-specific, identified separately for each assessment, and developed through engagement with the community (including with subgroups holding diverse perspectives on mental wellness). The assessment cannot be cursory or rely on western assumptions of mental health. As one research participant noted, mental wellness must be framed in an appropriate, holistic manner rather than in terms familiar to non-Indigenous Canadians:

> *If we frame it [mental wellness impact assessment] just as "mental health," it will by default get attached to how Canada and Canadians perceive mental health, which goes to 'let's now describe an anxiety disorder. Let's now talk about all the other personality disorders which you might have' which is not what mental health well-being [is] – it's, it's broader than that. So, I think the biggest challenge right now is the lack of understanding and recognition, acceptance, of the interconnected, holistic nature of wellbeing.* (IA practitioner 2, December 10, 2020)

3. **Provide Indigenous communities with the option and adequate resources to lead a community mental wellness study.**

Good assessment practice suggests that communities should have the right of first refusal to undertake assessment of impacts that pertain to them, especially on sensitive issues like mental health or health in general. This includes the decision to lead the process or co-lead the study, as well as to choose which experts are involved.

Additionally, community-led or community-endorsed studies need to be adequately funded to be meaningful. One of the primary reasons that fulsome Indigenous mental wellness impact assessments have not been undertaken to date is that funding is not adequate to support such an endeavour. Communities are forced to prioritize their issues and concerns to make the best use of limited resources. As noted by one public health practitioner:

> *Lack of funding is a killer because people have to prioritize what type of information they give to the Review Board yeah and, if you're more concerned about the caribou herd then you would you would direct your focus and your money on that issue and right, you know, maybe not so much on mental health and wellbeing stuff, but so I mean, like participant funding is important for everything.* (Public health practitioner 3, January 14, 2020)

Another IA practitioner noted that it is not unreasonable to requires sufficient funds to cover an adequate study. Allocations of funds to support Indigenous participation in impact assessment processes generally constitute a very small fraction of a proponent's total spend on the assessment process and project development in general.

> *Oh yeah … it [funding for Indigenous studies] is not even remotely close [to what is required]. Like, you don't understand people and you want to throw five thousand dollars at them for the community to understand the whole thing? No, it doesn't work that way. I'd like to see each individual in the community get the same amount of funding that the CEO of the company is investing in their own mental health. That might be a good start.* (IA practitioner 2, December 10, 2020)

4. Take a trauma-informed approach.

Impact assessment processes can be triggering for Indigenous peoples who have experienced personal and intergenerational trauma. A trigger is "a stimulus that sets off a memory of a trauma or a specific portion of a traumatic experience" (Centre for Substance Abuse Treatment, 2014). The trigger does not itself need to be frightening, but only remind the individual of the traumatic incident(s). In this context, it is highly important for the impact assessment practitioner to create a safe environment that avoids and manages triggers to the greatest extent possible. As noted in the Narratives Inc. (2020) Sagkeeng psycho-social assessment, a trauma-informed approach:

> *places emphasis on the physical, emotional, and psychological safety of impacted parties and fosters an environment of agency and empowerment. A trauma-informed approach in an Indigenous setting must include an understanding of the historical and present-day impacts of racism and social and economic marginalization on the life and development of an individual.* (p. 20).

The practitioner should adopt an attitude of honesty, humility and listening when taking time to know and be known by the community. Researchers should work with the community to understand the trauma context and likely triggers. When preparing a safe setting to discuss Indigenous mental wellbeing, the practitioner should identify appropriate individuals to support participants, such as a counsellor, traditional healer, medicine person, elder, or social worker. As one participant noted, "there are ancient ways of keeping people safe" such as "smudging, talking circles, traditional healers" (Community member 1, December 15, 2020). It is also important to include an individual who has the background and understanding of trauma to advise the practitioner about their interactions with community members and provide some type of follow-up mechanism so that participants can access appropriate resources.

All assessment materials should be prepared in a manner that is sensitive to trauma, including recruitment sheets, consent forms, and meeting spaces. With respect to the latter, large community meetings should be avoided with a preference for smaller gatherings that are comfortable for participants, such as small groups of young men, young women, elder men, and elder women. Recognizing the emotional strain that the assessment process can cause, the practitioner should avoid placing undue burdens on participants, for example by exhausting all secondary sources of information before asking any questions.

The assessment process should be designed to not only collect information from participants, but also to empower "community members to find community-driven measures to address historical trauma" and "to identify mechanisms to increase resilience and find and execute

achievable avenues to promote healing (including committing to appropriate resources to enable this)" (Narratives Inc. 2020, p. 84).

5. Follow the principles of OCAP™ [Ownership, Control, Access and Possession].

The knowledge, stories, and information shared for a mental health assessment is sensitive and sacred and should be treated as such. Confidentiality must be assured, and data collection and management must follow the principles of OCAP™ [Ownership, Control, Access and Possession], entailing that the knowledge collected is owned and controlled by the community, not by external researchers or project proponents. It is necessary that researchers are fully transparent about how the data is being collected, stored, and used. This also means protecting informants and the information they provide. When a mental health impact assessment is being planned, the parties may consider collaboratively developing a knowledge protocol that is based on the principles and protocols of the Nation and of OCAP® or an Inuit- or Métis-specific set of principles.

6. Focus on the people who are most vulnerable to project-related mental wellness impacts and take a Gender-Based Analysis Plus (GBA+) approach.

Indigenous communities are internally diverse, consisting of an array of subgroups with different experiences, attitudes, and vulnerabilities. It is important that communities and practitioners map out the subgroups who are likely to experience mental wellness impacts and identify the most vulnerable subgroups. Women and men, for example, may experience different mental wellness impacts from a project and have different levels of sensitivity and vulnerability. It is necessary to ensure adequate representation across subgroups to ensure that the full range of impacts are covered, as well as representation of the most vulnerable subgroups to assess the potential magnitude of effects.

A GBA+ approach can be used to consider differential project-based effects on diverse groups. The approach sensitizes the practitioner to differences by sex and gender, as well as by factors such as age, place of residence, socio-economic status, employment status, and disability.

7. Establish an appropriate baseline and trend-over-time assessment.

Project-specific mental wellness assessment must start with a clear picture of community mental health status in the pre-project circumstance (prior to the announcement of the project), and how this has changed over time. As noted by one IA practitioner:

> *You've had people live under weight of recent history, colonialization, that have been put to socio-economic margins for a long time, treated with racism. You really need to understand that before we look at project specific effects.* (IA practitioner 1, December 2, 2020)

An understanding of trends over time and cumulative stressors on Indigenous mental wellness allows the practitioner to evaluate the vulnerability of Indigenous peoples to project-specific effects. These effects should also be considered in relation to current and reasonably foreseeable projects and activities that also create stressors on mental wellness, in accordance with best practice on cumulative effects assessment, such as Principle #8 of the First Nations Major Project Coalition's (2019) *Major Project Assessment Standard*. One Indigenous mental health expert points out the importance of considering the cumulative context:

Take COVID for example: Someone just lost their job in March right, they were doing really well, but they did have some mental health challenges leading up to it. But they were coping, you know. They were getting the right treatment for it and so on. Now they've lost their job… They're cooped up at home now, they can't see their parents and they also just lost their mom and they can't even go to the funeral and the restrictions say that they have to stay home. Things keep getting piled on and on top of that, liquor mart is still an essential service. So I'm going to now cope by starting to drink more and turns out I also have a violent streak. Now I'm also hitting my wife. Things keep piling, piling, piling on. What was the stressor? What was a trigger? [It's difficult] to understand what is the tipping point. And that's just COVID, so that's just nine [or] ten months [long].

Now imagine that happening all your life. Imagine you're seeing your parents grow up with that [trauma], and now imagine your kokum [grandmother] also telling you those stories about everything that happened. Your life has been about trauma, so your tipping point should have been three decades ago, but you're still somehow managing to come along.

When it comes to cumulative effects of the psychosocial well-being, those are absolutely critical. We're talking about harm here, we're talking about causing intentional harm to people knowing that they are already dealing with so much more. I think cumulative effects within this context, it's a risky conversation because you're getting into liability and it would freak lawyers out big time because you're saying you're basically taking responsibility for past harms. But we need to start thinking about it that way, to think about if I'm going in and if I'm going to trigger someone here, is that trigger going to be the tipping point? I worry about that, am I going to be the reason, is my project going be the reason that someone actually commits suicide? So, I think that's what proponents should worry about just a little bit. (IA practitioner 2, December 10, 2020)

A variety of data sources can be drawn on to establish the baseline and trend-over-time assessment, including individual surveys. If done poorly, surveys have the potential to resurface trauma while providing participants with little to no support. A trauma-informed approach to wellbeing surveys takes a strength-based approach and focuses on happiness rather than pathology. What makes people happy and what makes them well? This approach can establish a baseline and identify past and current stressors while avoiding triggers that arise from direct questions about depressions, anxiety, etc. It can also provide insight into individual and community-level vulnerability and resilience to mental wellness stressors.

It is also important to collect information about the social determinants of mental wellness. This includes information about community resources, community programs, levels of education, employment and income, divorce rates, children in care, levels of participation in cultural programs, etc. While some of this information can be collected from census data and other statistical sources, broad scale data is generally to course to identify useful community-specific information. Local service providers, such as social workers, nurses, health care workers, teachers, RCMP, etc. will have the most useful information.

8. **Support Indigenous Nations to develop Nation-specific and project-specific indicators.**

Mental wellness indicators need to be developed on a project-by-project and Nation-by-Nation basis. Indicators of Indigenous mental wellness should be based on the community's experiences, conception of mental wellness and determinants, and project concerns. The next section elaborates on how to identify indicators.

9. **Work with the community to identify and implement appropriate mitigation and monitoring and follow-up programs to address and monitor existing and potential mental health impacts.**

Measures to mitigate the mental wellness impacts of project development should be trauma-informed and developed, implemented, and monitored by the community. The sense of agency and control that can be fostered through community-based mitigation can itself be protective of mental wellness impacts. The focus should be not only on avoiding or minimizing adverse project-specific effects, but also on restoring and enhancing community mental wellness. Projects can aim to create a positive legacy that sees communities better off than they were before the project was developed. Community members can be involved in a number of ways, from workshopping specific mitigation measures, to providing data, to monitoring effects.

It is not possible to provide a list of mitigation measures, as they will be specific to each project and community. However, some potential types of mitigation measures are suggested below.

- **Therapy**: therapy developed and implemented by trained therapists with specialization in Indigenous trauma may be considered as a measure to mitigate project-specific mental wellness impacts. Communities and individuals would have a choice as to whether and what type of therapy services they wish to access, including whether these are Western-type providers such as a registered clinical psychologist, or cultural and other supports.

- **Cultural and spiritual development**: participation in cultural and land-based activities can be healing for Indigenous peoples. Where these opportunities have been diminished by past and ongoing projects and activities, Indigenous peoples' resilience to mental wellness impacts decreases. Therefore, support for programs that enhance community members' ability to engage in such activities can be an effective mitigation for mental wellness impacts. Support could include programs such as ecological restoration, culture camps, Indigenous guardians, and Indigenous risk communication.

- **Enhanced governance and stewardship opportunities**: while not a direct mitigation for project-specific impacts, designing an assessment process that enables Indigenous Nations to exercise real jurisdiction and decision-making authority in the course of an impact assessment can be highly empowering and protective of adverse mental wellness impacts. As noted by one IA practitioner, "if the community is empowered to govern and steward the land, then it can be a positive mental health [impact]. If they feel isolated, only allowed to 'blow off steam', or they feel that that decisions are made without them, then there will be negative mental health impacts." (IA practitioner 1, December 2, 2020)

- **Project benefits**: the benefits that project development brings to communities such as employment, income, and training can help to create positive mental wellness impacts. However, if community members do not have the ability to take advantage of such benefits, not only do they not receive the mental wellness enhancement, they may find themselves worse off vis-à-vis other communities and individuals, with adverse impacts to feelings of personal wellbeing, self-efficacy, etc. Many barriers to the ability to take

advantage arise from trauma, such as poor coping strategies. Proponents should also invest in training and worker advancement to foster ongoing benefits after project closure.

- **Cultural competency and anti-racism training and policies**: project employment can be the source of positive mental wellness, but can also result in adverse effects due to stress, burnout, racism and incompatibility with cultural practices and responsibilities. Proponents should promote Indigenous women and 2SLGBTQQIA employment at all levels of employment, including senior-level and leadership roles, which is known to foster respect and inclusivity in the workplace (The Firelight Group, Lake Babine Nation, and Nak'azdli Whut'en 2017), and invest in cultural competency and antiracism training to maintain a safe, tolerable, and inclusive environment (National Inquiry into Missing and Murdered Missing Indigenous Women and Girls 2019). Workplaces should be accommodating and supportive, including such things as ceremonial spaces (e.g., sweat lodge, smudging room) and presence of elders.

- **Support reconciliation**: reconciliation between the Crown and Indigenous Nations is not primarily the responsibility of project proponents. However, proponents can engage in such efforts by participating in and/or otherwise supporting things such as healing ceremonies, public apologies, and efforts to restore cultural vitality.

In short, Indigenous communities should be involved in developing and implementing monitoring programs, and in reviewing project monitoring and mitigation programs outcomes. Monitoring programs should be funded and operational for as long as the community deems necessary. This includes actively investing in improving the psychological well-being of the community members and regularly checking in on project impacts. Monitoring should focus on measuring wellness and based on the Nation's definition of wellness. For projects with high potential for adverse mental health impacts, especially where those that are linked to changes to the environment or uncertainty about the environment (e.g., contaminated sites), an independent, Indigenous co-led project oversight committee may be required. This can reduce perceived risk and empower Indigenous communities to be engaged in follow-up work, reducing the sense of helplessness and uncertainty that contributes to negative mental health outcomes in association with many projects.

5.3 INDIGENOUS MENTAL WELLNESS INDICATORS

A number of standard, non-Indigenous-specific indicators are available to measure mental wellness, such as hospitalization rates, prevalence of anxiety and mood disorders, and suicide rates (Mental Health Commission of Canada, 2015). However, such measures may not be appropriate for Indigenous mental wellness impact assessment. First, these measures tend to focus on western conceptions of mental health, such as the presence of mental pathology, which are not appropriate to assess Indigenous mental wellness[11]. Second, the measures may be too coarse to capture project-specific effects. In the context of an impact assessment, indicators must be responsive to project interactions, relevant to the effect being assessed, and measurable with existing data. Third, these standard indicators are "lagging" indicators

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[11] Although indicators of positive mental health may also be drawn on if appropriate in the community context – see the Positive Mental Health Surveillance Indicator Framework here: https://health-infobase.canada.ca/positive-mental-health/

associated with severe adverse outcomes. Thus, they are both next to impossible to predict in advance, and it is really identifying and dealing with (removing, reducing) the initial impacts on mental health that could lead to these adverse outcomes that we want to focus on.

Clearly, mental wellness indicators need to be developed on a project-by-project basis. As noted by Heggie (2018), "a universal definition of Indigenous wellness indicators doesn't hold, as a set of indicators should be unique to each community of Indigenous peoples and their own definition of wellness" (p. 7). Indicators cannot be imposed on communities in a top-down fashion; they must be developed by (or at least with the verified approval of) the communities themselves. One IA practitioner highlights the potentially problematic nature of Indigenous mental wellness indicators:

> *Yeah, I don't like the word indicators at all. I think if we want to work with understanding, you know, it's the psychosocial health of people and their way of being and their spiritual way of being [that are important], [then] we need to get away from colonial expressions of it. I think indicators can be useful. But indicators can also […] sort of hijack the study, if you will, because then you're not going to try and understand what is important to that community, [instead] you're going to go in with the assumption that your indicators that you've come up with is what is important. And again, it's a very top-down approach as opposed to work[ing] with each community to identify their indicators. And you might have prompts at the back of your mind for what you think might be important. But I would really advise the agency to not put out indicators. I just really don't think that's a good idea* (*IA* practitioner 2, December 10, 2020).

Indicators of Indigenous mental wellness should be based on the community's conception of mental wellness and its determinants. Focus groups and workshops can be utilized for this purpose, if considered appropriate by the community. Once the basic concepts are derived, then their responsiveness to project interactions can be considered and measurable indicators can be derived. These indicators should be designed to capture both project-specific effects and broader cumulative stressors (e.g., experiences of racism, colonialism, and past development; Jones and Bradshaw, 2015; Isaacs et al., 2020).

It may be challenging to directly measure the project's impact on Indigenous mental wellness, however defined and operationalized (potential measures could include self-rated mental wellness and/or open-ended measures such as 'our community is healthy when XX' or 'our community is unhealthy when XX'). For this reason, it will be necessary to identify key determinants of mental wellness in each community and assess the extent to which the project affects these determinants. Using this approach, the practitioner can estimate the risk that the project poses to Indigenous mental wellness.

Determinants are likely to align with the broad pathways described in section 4.2. For example, the Project's impacts on community members' ability to use the land would pose a risk to mental wellness to the extent that land use is a determinant of mental wellness. Therefore, it is important to ask community members not only if they use lands and resources that may be affected by the project, but also how important those lands and resources are, how being on the land makes them feel, the contribution of the land to their identity and role in the community, and so on.

Indicators should be developed to capture not only the different determinants of wellness, but also its different dimensions including individual, relational, place-based, and behavioural (see

Section 4.1). Table 4 provides examples of indicator types for each dimension of Indigenous mental wellness. The table is not intended to be used as a definitive list of indicators that can be applied to any community. Rather, it is meant to sensitize practitioners to the types of indicators that may be developed by particular communities involved in particular project assessments. The indicator types provided are broad categories that could be broken down into specific measurable indicators, developed either by communities themselves or selected from existing validated indicator sets (such as the Canadian Community Health Survey, Environmental Distress Scale, Cultural Connectedness Scale[12], etc.), or both. Table 5 presents example indicator types for mental wellness determinants and effects pathways.

Table 4: Example Indigenous Mental Wellness Indicator and Measures by Indigenous Mental Wellness Dimension

Mental Wellness Dimension	Mental Wellness Impacts	Example Indicators	Example Measures
Psycho-emotional	Emotional Stress	Self-rated mental wellness Levels of stress Negative and positive thoughts and feelings Experience of trauma Happiness Life satisfaction Self-esteem Pride Hope/optimism	Closed ended: In general, would you say your mental health is: 1) Excellent, 2) Very Good, 3) Good, 4) Fair or 5) Poor Open ended: Tell me how you felt when you first heard about the proposed project.
Relational	Erosion of collective identity and social cohesion	Sense of belonging to community Sense of agency Self-efficacy Community cohesion Trust	Closed ended: If this project is developed, the ability for me to connect with my culture will be: 1) strengthened, 2) weakened, 3) no different than it is now Open ended: tell me about your connection to the lands and resources where the project is proposed to be built.

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[12] Canadian Community Health Survey: https://www.statcan.gc.ca/eng/survey/household/3226; Environmental Distress Scale: https://www.researchgate.net/publication/227239947_Validation_of_an_Environmental_Distress_Scale; Cultural Connectedness Scale: https://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=4670&context=etd

Place-based	Solastalgia	Sense of place Environmental distress Spiritual connectedness	Closed ended: If the project is developed, I will feel like I've lost a piece of myself: 1) strongly agree, 2) somewhat agree, 3) neither agree nor disagree, 4) somewhat disagree, 5) strongly disagree Open ended: Tell me about how you feel when you're on the land in the area where the project is proposed to be built.
Behavioural	Maladaptive coping responses	Suicide and suicidal ideation Substance use Crime and violence Children maltreatment or neglect	Number of hospital admissions related to suicide, substance use, violence, child maltreatment (prediction based on current rates and correlations established from comparable projects)

6. CONCLUSIONS AND RECOMMENDATIONS

Major project development in many cases can result in real and demonstrable impacts on Indigenous mental wellness. These effects are experienced throughout the project lifecycle - from the announcement of a proposed project, to the impact assessment process, to effects on lands, resources and communities from construction, operations, decommissioning, and even post-closure of the project. Nevertheless, the assessment of Indigenous mental wellness impacts remains a significant gap in impact assessment practice. This is a gap that IAAC has recognized needs filling in order to meet the heightened expectations of the new *Impact Assessment Act* in relation to health impact assessment.

Overall, given the low quality of existing practice and lack of knowledge about how to do good Indigenous mental health impact assessment, the authors recommend that **IAAC consider developing guidance, which could either be appended to the existing Health, Social, and Economic guidance on the Agency's Practitioner's Guide website, or developed as separate topic-specific guidance to practitioners. We suggest including a section for how MHIA should be integrated into each of the five phases of federal IA.**

In filling gaps in current knowledge and practice, it will be important to work with Indigenous communities to adopt Indigenous conceptions of mental wellness. Individualized and pathologized western perspectives on mental health are insufficient to capture impacts on Indigenous populations, who tend to understand mental wellness through a holistic, land-centric, community-based lens. While each community will define mental wellness differently, it is helpful to be aware of different types of impacts that can occur on Indigenous mental wellness, including their individual, relational, place-based, and behavioural dimensions. **We suggest developing a community manual for mental health impact assessment in collaboration with Nations and communities that have been involved in identifying, or have knowledge of, project impacts to mental wellness. The manuals can follow the five phases of IA.**

Major projects can impact Indigenous mental wellness through a variety of pathways. Project-related changes to lands and resources constitute a key pathway, given Indigenous peoples' emotional, spiritual, cultural, and material connection to the land. Where land is alienated, resources are perceived to be unsafe, landscapes are desecrated, and knowledge is lost, mental wellness impacts are likely. Changes in the community, including community discord, unfair distribution of project benefits, population influx, and demographic shifts are also likely to result in mental wellness impacts. The project planning, impact assessment, and decision-making processes can also constitute a key pathway to mental wellness impacts, which merits close attention. When Indigenous Nations have little agency and control in the process, historical trauma, lack of trust, and burnout are likely to arise.

Methods with which to assess project-specific impacts on Indigenous mental wellness should be developed with affected communities. Several principles can inform this process, including the ones identified in Section 5.2. **The authors encourage IAAC to identify and adopt appropriate principles of good practice for Indigenous mental health impact assessment and put them in the hands of practitioners and communities.**

This report has provided example indicator types for Indigenous mental wellness, as well as its determinants and impact pathways. These indicator categories are intended to sensitize practitioners to the types of indicators that may be developed by communities to assess project-specific effects. There is no universal list of Indigenous mental wellness indicators that exists or should be developed. Each community and each project is unique and indicators will need to be determined on a project-by-project basis.

Project-specific Indigenous mental wellness impact assessment is in its infancy, with very few examples to draw on. As more examples are developed over time, there will be an opportunity for cross-fertilization and co-learning to develop robust methods to predict and avoid serious adverse mental wellness effects on Indigenous populations**. In additions to the above recommendations, we suggest that IAAC encourage the development of this field in two more ways: first, IAAC should consider developing an MHIA database or inventory, which includes findings from past EAs/IAs and lists wellness impacts, indicators, mitigations, and monitoring programs. This database will develop over time as the methods and case studies evolve and would scope out all impact assessments that include potential impacts to mental health and wellness.**

Second, IAAC should encourage and support Indigenous-led mental health assessment methodological development by funding and backing up Indigenous-led mental health assessments in IA. This will need to include ethical guidelines for data collection on the human environment given the sensitive nature of the subject.

In summary we recommend IAAC undergo the following next steps to advance MHIA:

1. Develop detailed guidance for practitioners based on our recommended approach.

2. Develop community manuals for mental health impact assessment in collaboration with Nations that have been involved in identifying, or have knowledge of, project impacts to mental wellness.

3. Develop a MHIA database, which includes wellness impacts, indicators, mitigations, and monitoring programs from past EAs/IAs.

4. Encourage and support Indigenous-led mental health assessment methodological development.

6.1 Closure

Please direct any comments, questions or further inquiries to the undersigned.

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REFERENCES AND CITATIONS

Berger, T. (1977). *Northern Frontier, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry.* 3 vols. Ottawa: Mackenzie Valley Pipeline Inquiry.

Bulga Milbrodale Progress Association Inc v: Negative social impacts, Minister for Planning and Infrastructure and Warkworth Mining Limited. (2013) (testimony of Glenn Albrecht). http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2013/20130415_2013-NSWLEC-48-Australia_decision.pdf

Albrecht, G. (2005). 'Solastalgia' a new concept in health and identity. *PAN: Philosophy, Activism, Nature,* (3), 41-55.

Asselin, J., & Parkins, J. R. (2009). Comparative case study as social impact assessment: Possibilities and limitations for anticipating social change in the far north. *Social Indicators Research, 94*(3), 483-497. http://dx.doi.org.ezproxy.library.ubc.ca/10.1007/s11205-009-9444-7

Baldwin, C., & Rawstorne, P. (2019). Public understanding of risk in health impact assessment: A psychosocial approach. *Impact Assessment and Project Appraisal, 37*(5), 382-396, DOI: 10.1080/14615517.2018.1535952

Billiot, S., & Mitchell, F.M. (2019). Conceptual interdisciplinary model of exposure to environmental changes to address Indigenous health and well-being. *Public Health*, *176*, 142-148. https://doi.org/10.1016/j.puhe.2018.08.011

Booth, A. L., & Skelton, N. W. (2011). "You spoil everything!" indigenous peoples and the consequences of industrial development in British Columbia. *Environment, Development and Sustainability, 13*(4), 685-702. http://dx.doi.org.ezproxy.library.ubc.ca/10.1007/s10668-011-9284-x

Brazzoni, C.D. (2013). *Mental health and healing with the Carrier First Nation: Views of seven traditional healers and knowledge holders.* [Unpublished master's thesis]. Simon Fraser University. https://www.csfs.org/research/research-and-development-for-communities

Brisbois, B.W., Reschny, J., Fyfe, T.M., Harder, H.G., Parkes, M.W., Allison, S., Buse, C.G., Fumerton, R., & Oke, B. (2019). Mapping research on resource extraction and health: A scoping review. *The Extractive Industries and Society, 6*(1), 250-259. https://doi.org/10.1016/j.exis.2018.10.017.

British Columbia Association of Aboriginal Friendship Centres. (2020). *Urban Indigenous wellness report: A BC friendship centre perspective.* https://bcaafc.com/wp-content/uploads/2020/11/BCAAFC-Urban-Indigenous-Wellness-Report.pdf

Bronson, J. & Noble, B.F. (2006). Health determinants in Canadian northern environmental impact assessment. *The Polar Record, 42*(4), 315-324. https://ezproxy.library.ubc.ca/login?url=https://www-proquest-com.ezproxy.library.ubc.ca/docview/213836290?accountid=14656

Bronson, J. & Noble, B. (2006). Practitioner survey of the state of health integration in environmental assessment: The case of northern Canada. *Environmental Impact Assessment Review, 26*(4), 410-424. https://doi.org/10.1016/j.eiar.2005.11.001

Carney, M.R. & Freedland, K.E. (2000). Depression and medical illness. In L.F. Berkam & I. Kawachi (Eds), *Social Epidemiology* (191-212). Oxford University Press.

Casey, E. (1996). How to get from space to place in a fairly short stretch of time. In S. Feld & K. Basso (Eds.), *Senses of Place* (pp. 13-52). School of American Research Press. http://escasey.com/Article/How_to_Get_from_Space_to_Place_in_a_Fair.pdf

Caxaj, S.C., Berman, H., Ray, S.L., Restoule, J.P., Varcoe, C. (2014). Strengths amidst vulnerabilities: The paradox of resistance in a mining affected community in Guatemala. *Issues in Mental Health Nursing, 35*(11), 824-834. DOI:10.3109/01612840.2014.91962

Centre for Substance Abuse Treatment (2014). Chapter 3: Understanding the impact of trauma. *Treatment improvement Protocol (TIP) series, no.57.* (14-4816). In Substance Abuse and Mental Health Services Administration [SAMHSA]

Chandler, M.J. & Lalonde, C. (2008). Cultural continuity as a moderator of suicide risk among Canada's First Nations. In L. Kirmayer & G. Valaskakis (Eds.) *Healing traditions: the mental health of Aboriignal peoples in Canada (pp 221-248).* University of British Columbia Press. https://web.uvic.ca/psyc/lalonde/manuscripts/2008HealingTraditions.pdf

Czyzewski, K. (2011). Colonialism as a broader social determinant of health. *The International Indigenous Policy Journal, 2*(1). http://ir.lib.uwo.ca/iipj/vol2/iss1/5

Cuerrier, A., Turner, N., Gomes, T.C., Garibaldi, A., & Downing, A. (2015). Cultural keystone places: conservation and restoration in cultural landscapes. *Journal of ethnobiology, 35*(3), 427-448. https://doi.org/10.2993/0278-0771-35.3.427

Cunsolo, A. & Ellis, N.R. (2018). Ecological grief as a mental health response to climate change-related loss. *Nature Climate Change 8,* 275-281. https://doi.org/10.1038/s41558-018-0092-2

Ey, M., Sherval, M., & Hodge, P. (2016). Value, identity, and place: unearthing the emotional geographies of the extractive sector. *Australian Geographer, 48*(2), 153-168.

Ferrer, R. & Klein, W.M. (2015). Risk perceptions and health behavior. *Curr Opin Psychol, 1*(5), 85-89

First Nations Health Council. (2015). *Our engagement story on the social determinants of health and wellness 2015-2018.* First Nations Health Centre. https://fnhc.ca/wp-content/uploads/FNHC-Our-Engagement-Story-on-the-Social-Determinants-of-Health-and-Wellness-2015-2018.pdf

First Nations Major Project Coalition. (2018). *Major project assessment standard: member-developed principles, criteria and expectations to guide major project environmental assessments.* https://www.fnmpc.ca/core-documents-1

Geddes, B. (2015). *Measuring wellness: an indicator development guide for First Nations.* First Nations of British Columbia, held in trust by Ktunaxa Nation Council.

Gerbrandt, J.L., & Westman, C.N. (2020). When a pipe breaks: Monitoring an emergency spill in the oil sands and documenting its erasure of indigenous interests in land. *The Extractive Industries and Society*, 7(4), 1301-1308. https://doi.org/10.1016/j.exis

Gibson, G., K, Yung, Chisholm, L., Quinn, H, Lake Babine Nation, & Nak'azdli Whut'en. (2017). *Indigenous communities and industrial camps: promoting healthy communities in settings of industrial change.* Firelight Research Inc.

Gill, D., & Ritchie L. (2020). Considering cumulative social effects of technological hazards and disasters. *American Behavioural Scientist, 64*(8), 1145-1161. doi:10.1177/0002764220938112

Graben, S. (2014). Resourceful impacts: harm and valuation of the sacred. *University of Toronto Law Journal, 64*(1), 64-105. DOI: 10.3138/utlj.0224

Hackett, P., Liu, J., & Noble, B. (2018). Human health, development, legacies, and cumulative effects: environmental assessments of hydroelectric projects in the Nelson River watershed, Canada. *Impact Assessment and Project Appraisal, 36*(5), 413-424. DOI:10.1080/14615517.2018.1487504

Hallett, D., Chandler, M.J. & Lalonde, C. E. (2007). Aboriginal language knowledge and youth suicide. *Cognitive development, 22*(3), 392-399. https://doi.org/10.1016/j.cogdev.2007.02.001.

Health Canada (2005). Addressing psychosocial factors through capacity building: a guide for managers of contaminated sites. https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/contaminated-sites/addressing-psychosocial-factors-through-capacity-building-guide-managers-contaminated-sites.html

Heggie, K. (2018). *Indigenous wellness indicators: Including urban Indigenous wellness indicators in the healthy city strategy.* Social Policy and Projects, City of Vancouver. https://sustain.ubc.ca/sites/default/files/2018-62%20Indigenous%20Wellness%20Indicators_Heggie.pdf

Hirsch, J.K., Smalley, B.K., Selby-Nelson, E.M., Hamel-Lambert, J.M., Rosmann, M.R., Barnes, T.A., Abrahamson, D., Meit, S.S. GreyWolf, I., Beckmann, S., LaFromboise, T. (2017). Psychosocial impact of fracking: A review of the literature on the mental health consequences of hydraulic fracturing. *Int J Ment Health Addiction, 16*(4), 1–15. https://doi.org/10.1007/s11469-017-9792-5

Isaacs, D.S., Teehee, M., Green, J., Straits, K.J.E., & Ellington, T. (2020). When psychologists take a stand: Barriers to trauma response services and advocacy for American Indian

communities. *Journal of Trauma and Dissociation, 24*(4), 468-483. DOI: 10.1080/15299732.2020.1770148

Jacquet, J. & Stedman, R. (2013). The risk of social-psychological disruption as an impact of energy development and environmental change. *Journal of Environmental Planning and Management, 57*(9), 1285-1304. https://doi.org/10.1080/09640568.2013.820174

Jones, J. & Bradshaw, B. (2015). Addressing historical impacts through impact and benefit agreements and health impact assessment: Why it matters for Indigenous well-being. *Northern Review, 41*, 81–109. https://doi.org/10.22584/nr41.2015.004.

Kubzandky, L.D. & Kiwachi, I. (2000). Affective states and health. In L.F. Berkam & I. Kawachi (Eds), *Social Epidemiology* (213-241). Oxford University Press.

Kyoon-Achan, G., Philips-Beck, W., Lavoie, J., Eni, R., Sinclair, S., Avey, K., Ibrahim, N., & Katz, A. (2018). Looking back, moving forward: a culture-based framework to promote mental wellbeing in Manitoba First Nations communities. *Internal Journal of Culture and Mental Health, 11*(4), 679-692. DOI: 10.1080/17542863.2018.1556714

Lane, T.M. (2018) The frontline of refusal: Indigenous women warriors of standing rock. *International Journal of Qualitative Studies in Education, 31*(3), 197-214. DOI: 10.1080/09518398.2017.1401151

Masterson, V., Stedman, R., Enqvist, J., Tengo, M., Giusti, M., Wahl, D., & Svedin, U. (2017) The contribution of sense of place to social-ecological systems research: a review and research agenda. *Ecology and Society, 22*(1), 49.

Marcon, A., Nguyen, G.,, Rava, M., Braggion, M.G., & Zanolin, M.E. (2015). A score for measuring health risk perception in environmental surveys. *Sci Total Environ, 527-528*, 270-278.

McManus, P., Albrecht, G., Graham, R. (2014). Psychoterratic geographies of the Upper Hunter region, Australia. *Geoforum, 51*, 58-65. https://doi.org/10.1016/j.geoforum.2013.09.020.

Mental health commission of Canada. (2015). *Informing the future: mental health indicators for Canada.* https://www.mentalhealthcommission.ca/English/resources/mhcc-reports/mental-health-indicators-canada

National Energy Board. (2013). *Considerations: report of the joint review panel for the Enbridge Northern Gateway Project Volume 2*. Government of Canada. https://www.ceaa.gc.ca/050/documents_staticpost/cearref_21799/97178/Consideratio ns_-_Report_of_the_Joint_Review_Panel_for_the_Enbridge_Northern_Gateway_Project_(Vol ume_2).pdf

Noble, B. & Bronson, J. (2006). Pracitioner survey of the state of health integration in environmental assessment: the case of northern Canada. *Environmental Impact Assessment Review, 26*(4), 410-424. https://doi.org/10.1016/j.eiar.2005.11.001

Palinkas, L., Petterson, J. Russell, J., & Downs, M. (1993). Community patterns of psychiatric disorders after the exxon valdez oil spill. *The American Journal of Psychiatry, 150*(10), 1517-1523. DOI:10.1176/ajp.150.10.1517

Parlee, B. L., Geertsema, K., & Lesser Slave Lake Indian Regional Council. (2012). Social-ecological thresholds in a changing boreal landscape: Insights from Cree knowledge of the Lesser Slave Lake region of Alberta, Canada. *Ecology and Society, 17*(2), 20-33. http://dx.doi.org/10.5751/ES-04410-170220

Patton, M.Q. (2002). *Qualitative research and evaluation methods:* Integrating theory and practice. Sage Publications. https://study.sagepub.com/patton4e

Place, J., & Hanlon, N. (2011). Kill the lake? kill the proposal: Accommodating First Nations' environmental values as a first step on the road to wellness. *GeoJournal, 76*(2), 163-175. http://dx.doi.org.ezproxy.library.ubc.ca/10.1007/s10708-009-9286-5

Proverbs, T. A., Lantz, T. C., Lord, S. I., Amos, A., & Ban, N. C. (2020). Social-ecological determinants of access to fish and well-being in four Gwich'in communities in Canada's northwest territories. *Human Ecology, 48*(2), 155-171. http://dx.doi.org.ezproxy.library.ubc.ca/10.1007/s10745-020-00131-x

Rixen, R., Blangy, S. (2016). Life after Meadowbank: Exploring gold mine closure scenarios with the residents of Qamini'tuaq (Baker Lake), Nunavut. *The Extractive Industries and Society, 3*(2), 297-312. DOI:10.1016/j.exis.2015.09.003.

Sadiq, S., Abdulrehman, R., Smith, C., & Rojas, A. (forthcoming). *Sagkeeng Anicinabe Psychosocial Impact Assessment.* Narratives Inc and Sagkeeng First Nation.

Schure, M.B., Kile, M.L., Harding, A., Harper, B., Harris, S., Uesugi, S., & Goins, R.T. (2013). Perceptions of the environment and health among members of the confederated tribes of the Umatilla Indian Reservation. *Environmental Justice, 6*(3), 115-120. Print.

Shandro, J., Jokinen, L., Stockwell, A., Mazzei, F., & Winkler, M.S. (2017). Risks and impacts to First Nation health and the Mount Polley mine tailings dam failure. *International Journal of Indigenous Health, 12*(2). DOI:10.18357/ijih122201717786

Siegrist, M. & Visschers, V.H. (2013). Acceptance of nuclear power: the Fukushima effect. *Energy Policy, 59*, 112–119

Southcott, C., Abele, F., Natcher, D., & Parlee, B. (2018). Beyond the Berger inquiry: Can extractive resource development help the sustainability of Canada's arctic communities? *Arctic, 71*(4), 393-406. http://dx.doi.org.ezproxy.library.ubc.ca/10.14430/arctic4748

Slovic, P. (2012). The perception gap: Radiation and risk. *Radiation Protection Dosimetry, 68*(4), 165-180.

Taylor, M. (2012). *Review and evaluation of research literature on public nuclear risk perception and implications for communication strategies.* Consultancy Project for the Australian Uranium Association.

http://www.minerals.org.au/file_upload/files/reports/7.5D_Download_Report_Nuclear_Risk_Perception_Literature_Review_Report_Final.pdf

Truth and Reconciliation Commission of Canada [TRC]. (2015). Final Report of the Truth and Reconciliation Commission of Canada: Honouring the Truth, Reconciling for the Future. Volume One, Summary. James Lorimer & Company Ltd. Available online at https://united-church.ca/sites/default/files/Executive_Summary_English_Web.pdf

Treaty 8 First Nations [T8FNs] Community Assessment Team & The Firelight Group. (2012). *Telling a story of change dane-zaa way: a baseline community profile of Doig River First Nation, Halfway River First Nation, Prophet River First Nation, and West Moberly First Nations.* BC Hydro.

United States [U.S.] Department of Health and Human Services. (2021). *What is historical trauma?* https://www.acf.hhs.gov/trauma-toolkit/trauma-concept#:~:text=Historical%20trauma%20is%20multigenerational%20trauma,violent%20colonization%20of%20Native%20Americans

Vanclay, F. (2002). Conceptualising social impacts. Environmental Impact Assessment Review, 22, 183–211. DOI:10.1016/S0195-9255(01)00105-6.

Windsor, J. E., & McVey, J. A. (2005). Annihilation of both place and sense of place: The experience of the Cheslatta T'en canadian First Nation within the context of large-scale environmental projects. *The Geographical Journal, 171*, 146-165. https://ezproxy.library.ubc.ca/login?url=https://www-proquest-com.ezproxy.library.ubc.ca/docview/231420604?accountid=14656

Zurba, M., & Bullock, R. (2020). Bioenergy development and the implications for the social wellbeing of Indigenous peoples in Canada. *Ambio, 49*(1), 299-309. http://dx.doi.org.ezproxy.library.ubc.ca/10.1007/s13280-019-01166-1

APPENDIX A: INTERVIEWEES

Academic. December 17, 2020. Interview with Neurophysiology Academic. Firelight Research Inc. Location: Remote.

Community member 1. December 15, 2020. Interview with Indigenous community member. Firelight Research Inc. Location: Remote.

Community member 2. January 12, 2021. Interview with Indigenous community member. Firelight Research Inc. Location: Remote.

IA practitioner 1. December 2, 2020. Interview with Impact Assessment (IA) Practitioner. Firelight Research Inc. Location: Remote.

IA practitioner 2. December 10, 2020. Interview with Impact Assessment (IA) Practitioner. Firelight Research Inc. Location: Remote.

IA practitioner 3. January 14, 2021. Interview with Impact Assessment (IA) Practitioner. Firelight Research Inc. Location: Remote.

Public health practitioner 1. December 8, 2020. Interview with Public Health Practitioner. Firelight Research Inc. Location: Remote.

Public health practitioner 2. December 16, 2020. Interview with Public Health Practitioner. Firelight Research Inc. Location: Remote.

Public health practitioner 3. January 24, 2021. Interview with Public Health Practitioner. Firelight Research Inc. Location: Remote.

Public health practitioner 4. January 28, 2021. Interview with Public Health Practitioner. Firelight Research Inc. Location: Remote.

Public health practitioner 5. January 29, 2021. Interview with Public Health Practitioner. Firelight Research Inc. Location: Remote.

APPENDIX B: CONSENT FORM

IMPACT ASSESSMENT OF AGENCY CANADA

INDIGENOUS MENTAL HEALTH AND IMPACT ASSESSMENT

Declaration of Informed Consent and Permission to Use Information

I (name) _____, on this day (complete date) _____, give permission for Firelight Research Inc. to interview me for the Indigenous Mental Health and Impact Assessment project.

I understand that this study is being conducted by Firelight Research Inc. in collaboration with the Impact Assessment Agency of Canada (IAAC). The purpose of the study is to:

1. understand the challenges facing Indigenous communities with respect to mental health in impact assessment (IA);
2. review the current practice of evaluating project impacts on the mental health of Indigenous Peoples in the assessment process; and
3. provide recommendations on how best to undertake Indigenous mental health assessment and meaningfully engage with Indigenous Peoples on these issues.

By agreeing to participate, I indicate my understanding that:

(a)   I consent to have my words and responses recorded in notes, and using audio recording equipment.

(b)   I am free to not respond to questions that may be asked and I am free to end the interview at any time I wish.

(c)   Firelight Research Inc. will securely hold onto the recordings and notes collected through my participaiton, however, they will only be used for the purpose of this project.

(d)   I consent to have my name included in the report.

For more information, please contact Tania Salerno at tania.salerno@thefirelightgroup.com

Signature of participant   Date

_____   _____

APPENDIX C: INTERVIEW GUIDE

IMPACT ASSESSMENT OF AGENCY CANADA

INDIGENOUS MENTAL HEALTH AND IMPACT ASSESSMENT

Participant Interview Outline

INTRODUCTION

We are interviewing community experts, practitioners and academics to better understand the types of mental health and well-being impacts that arise in Indigenous communities when a project is proposed.

Our goals for this project are to:

1. understand the challenges Indigenous communities face with respect to mental health in impact assessment (IA) and at every stage of a project;

2. review the current practice of evaluating project impacts on the mental health of Indigenous Peoples in the assessment process; and

3. provide recommendations on how best to undertake Indigenous mental health assessment and meaningfully engage with Indigenous Peoples on these issues.

The research is funded by the Impact Assessment Agency of Canada (IAAC). IAAC intends to use the results of this research to develop guidelines for proponents and communities to be able to assess Indigenous mental health impacts of major projects. One of the primary outcomes of the research will be a set of recommended best practices for collecting and assessing Indigenous mental health and a list of example Indigenous mental health indicators for communities and proponents to be able to monitor and respond to.

In the interview we are going to be drawing on your knowledge and experience to discuss Indigenous perspectives of mental health, project impacts to mental health, the impact assessment process, data collection methods, and measures proponents and regulators can implement to prevent or minimize mental health impacts.

BACKGROUND

1. What experience do you have in Indigenous mental health and/or impact assessment?

2. Which community or area are you from? Which community(s) do you work with?

INDIGENOUS PERSPECTIVES ON MENTAL HEALTH

3. How do you or the community(s) that you work with understand health and wellbeing?

4. How does mental health fit into this understanding?

5. Does the idea of mental health differ among different groups of people (e.g., women, elders, youth)?

IMPACT ASSESSMENT (IA) PROCESS

6. What do you consider are the primary <u>negative</u> mental health impacts caused by major projects? Do you have any project-specific examples?

7. What are the primary <u>positive</u> mental health impacts caused by major projects?

8. Based on your experience, do impact assessment (IA) processes adequately consider and assess mental health impacts of major proposed projects?

9. What are the primary challenges faced by Indigenous communities when bringing forward concerns about mental health impacts into the IA process?

10. How could IA processes be improved to adequately consider and assess mental health impacts of proposed major projects?

METHODS OF DATA COLLECTION AND ASSESSMENT

11. What would you say are the best approaches for working with Indigenous communities to assess mental health impacts of major proposed projects?

12. What methods would you suggest are most useful for collecting data and assessing impacts on mental health from major projects? (qualitative interviews, quantitative surveys, anticolonial research designs, etc.)

13. What mental health indicators do you think should be considered in impact assessments, especially in projects with impacts to Indigenous Peoples? (i.e., indicators that have the potential to be indicative of broader mental health conditions)

    a. How would you know that a mental health impact, or a mental health crisis, was occurring in your community?

    b. What do you think is important for proponents, regulators, or community members to monitor and keep an eye on during an impact assessment or project activity? (i.e. suicides, hospitals seeing more alcohol abuse, etc.)

MENTAL HEALTH IMPACT PATHWAYS AND MITIGATION

14. When would you say that mental health impacts first arise in relation to a major project?

15. Have you seen any long-term mental health impacts of major projects?

    a. Did these impacts continue after the project? If so, how long?

16. Are there any factors that make Indigenous populations more or less vulnerable to mental health impacts?

17. Are there any factors that help to protect or buffer Indigenous populations from mental health impacts?

18. What types of measures can be implemented to avoid or minimize mental health impacts from major projects?

CLOSING

19. Is there anything we have missed or that you want to emphasize?

20. Is there anyone who you would suggest we talk to for this research?