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Impact Assessments in Indigenous Contexts: Promising Avenues for Reflection and Improvement for Health Impact Assessments

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The National Collaborating Centre for Healthy Public Policy (NCCHPP) seeks to increase the expertise of public health actors across Canada in healthy public policy through the development, sharing and use of knowledge. The NCCHPP is one of six centres financed by the Public Health Agency of Canada. The six centres form a network across Canada, each hosted by a different institution and each focusing on a specific topic linked to public health. The National Collaborating Centre for Healthy Public Policy is hosted by the Institut national de santé publique du Québec (INSPQ), a leading centre in public health in Canada.

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Summary

This document is intended for public health authorities who wish to undertake a health impact assessment (HIA) in Indigenous contexts in Canada, practitioners working in the field of impact assessment, and Indigenous organizations that wish to undertake or participate in impact assessments.

Approaches to prospectively assessing the environmental, social and health impacts of policies, programs or projects are increasingly being implemented and standardized in a large number of countries. When these approaches are implemented in Indigenous contexts in Canada, that is, when they involve First Nations, Inuit or Métis, they raise specific issues related in large part to the gap that exists between the worldviews held in these communities and the Western approaches to evaluation that underpin the practice of impact assessment (IA). This discrepancy can be observed, in particular, in relation to conceptions of health, to knowledge systems, to the information used to estimate the effects of a project on communities, as well as to the imbalance in the powers of influence when it comes to decision making.

In order to identify potential strategies for reducing this gap, the National Collaborating Centre for Healthy Public Policy conducted an analysis of articles on this topic after having reviewed the scientific literature published between 1945 and 2019. This analysis led to the formulation of some suggestions for courses of action aimed at adjusting the practice of HIA in Indigenous contexts:

- The use of models of “health” and its determinants adjusted to the cultural context and validated with local communities;
- The use of analytical tools adjusted to Indigenous contexts and validated with local communities;
- Support for the preparation of Indigenous communities in advance of impact assessments, enabling them to develop, for example, baseline information concerning their values, priorities, non-negotiable aspects of their lifestyles, health status, etc.;
- Building of the capacities of Indigenous communities, for example through training opportunities related to impact assessment, aimed at promoting co-management of the processes and increasing opportunities for Indigenous collaboration with external experts.

These courses of action are directed toward the following three areas for improvement:

1. The data collected (concept of health, traditional knowledge, cumulative effects);
2. The overall approach and working method (concept of efficiency, participation, co-management);
3. Institutional contexts (Acts, government policies, organizational resources).

Introduction

The main purpose of health impact assessment (HIA), promoted by the World Health Organization and used in several countries around the world, is to estimate the potential effects on the health of the population of a project or policy and to make recommendations aimed at avoiding or reducing the negative impacts and maximizing the potential positive effects. It is part of the broader family of impact assessments (IAs) that also includes environmental impact assessment, social impact assessment, and integrated impact assessment, used to take all of these effects into account in decision making (see Box 1 for definitions of these IAs). Although they each have their own emphasis, the different types of IA listed adhere to a common conceptual framework in terms of their evaluative approach and their fundamental guiding principles. Among the latter is the importance of adjusting the IA process to the nature of the project being analyzed and the decision-making context (Cole & Fielding, 2007). When the IA framework is used to analyze the potential impacts of policies, programs, or projects on Indigenous communities (in Canada, this refers to First Nations, Inuit, or Métis communities), this adjustment requires that the concepts of health and well-being and the societal visions prevailing in these communities be included. This is particularly critical in Indigenous contexts, as these elements are likely to differ from those that governed the establishment of IA practice generally.

BOX 1 — IMPACT ASSESSMENTS (DEFINITIONS AND TYPES)

Health impact assessment (HIA)

Health impact assessment (HIA) is most often defined as “a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population” (WHO Regional Office for Europe, 1999).

Environmental impact assessment (EIA)

Environmental impact assessment is defined as a process used to analyze and evaluate the impacts that a project may have on the environment. Its goal is to ensure sustainable development that is in harmony with human well-being and the conservation of ecosystems (Toro et al., 2013). Its main purpose is therefore to facilitate the systematic consideration of environmental issues in the decision-making process (Jay et al., 2007).

Social impact assessment (SIA)

Social impact assessment is defined as the process of analyzing, monitoring and managing the social consequences - positive and negative, intended and unintended - of policies, plans, programs and projects. It enables, on the one hand, the assessment of the social impacts of planned interventions and, on the other hand, the development of strategies for monitoring and managing these impacts (Burdge, 2003; Vanclay, 2003).

Integrated impact assessment (IIA)

Integrated impact assessment is a form of impact analysis that aims to integrate within a single conceptual framework all of the potential intended and unintended effects (generally on the economy, society and the environment) of a new government intervention (St-Pierre & Marchand, 2014). It consists of a combination of various methods and practices whose common objective is to integrate the various forms of impact assessment (environmental, economic, social and others) (Milner et al, 2005).

Despite the diversity within and among First Nations, Inuit, and Métis populations, the scientific literature on the use of different forms of IA suggests that their application in Indigenous contexts tends to raise issues common to many Indigenous communities. The difficulties encountered are often related to the mismatch between the realities of these communities and the norms that govern the practice of IA. This discrepancy can be observed, in particular, in relation to conceptions of health, to the data used to estimate the effects of a project on communities, and to the imbalance in the powers of influence when it comes to decision making. In Canada, the federal government, having taken note of these issues, modernized the Environmental Assessment Act so as to recognize the importance of involving Indigenous communities when proposed projects may affect their territory¹.

Given this new Canadian context, the National Collaborating Centre for Healthy Public Policy (NCCHPP), intent on proposing HIA practices that are as optimal as possible, carried out a review of the scientific literature on all IA practices conducted in Indigenous contexts to identify promising courses of action. On the basis of this literature review, the present document was prepared. It addresses the following three questions:

1. How has IA practice been adjusted to respond to the specificities of the Indigenous contexts in which it has been implemented?
2. What promising tools or strategies are appropriate to this context?
3. What lessons are transferable to the practice of HIA in Indigenous contexts in Canada?

The first section of this document briefly presents the selection of articles that made up the body of knowledge used to address these questions. The second section focuses on the main findings drawn from this corpus, including, where possible, the strategies proposed by the authors consulted for countering one or the other of the obstacles observed. The final section summarizes the lessons drawn from the analysis of the articles selected, in order to answer the third question mentioned above².

This document is intended for public health authorities who wish to undertake a health impact assessment (HIA) in an Indigenous context in Canada, practitioners working in the field of impact assessment, and Indigenous organizations that wish to undertake or participate in impact assessments.

¹ For more information, see the website of the new Impact Assessment Agency of Canada:
<https://www.canada.ca/en/impact-assessment-agency.html>.

² In this text the term Indigenous is used generically for ease of reading, although we recognize that the communities discussed in the studies cited, from many countries, are characterized by their own specificities. In Canada, the term Indigenous refers to First Nations, Inuit and Métis.

1 The body of scientific knowledge chosen

Selecting the corpus

An inclusive strategy was used in identifying the scientific literature so as to capture all the information on IA (health, environmental, strategic and social) in Indigenous contexts from 1945 to the present day. The main focus was the various forms of IA and the way they have been used or modified to address the concerns of Indigenous communities.

Seven databases were searched for articles (PubMed, PsycINFO, Sociological Abstracts, CINAHL, GEOBASE, Web of Science and Scopus) using predetermined keywords (see Appendix 1). The articles identified were classified according to the search topics and the predetermined inclusion criteria (see Appendix 1). Among these criteria are the presence of content concerning the participation of Indigenous communities in IAs; modifications made to the IA process and the tools used in this process; and the role of organizations in charge of conducting IAs and those responsible for practice guidelines, i.e. agencies or other government authorities. These criteria were determinant in identifying articles that would enable the three questions mentioned above to be answered. Of the 111 articles found to be relevant or potentially relevant during the initial review, 31 were retained for analysis on the basis of the abstracts. To these must be added three other references identified by means of a “snowball” search of the bibliographies of the 31 references. Thus, 34 articles were selected for the knowledge synthesis (see Appendix 1).

Limitations

The methodology for identifying the literature relevant to our analysis, although rigorous, carries two significant limitations with regard to answering our questions. The first is inherent in any bibliographic search strategy; namely the possibility that relevant articles may have been missed if the keywords searched for were not included in the titles or abstracts of the articles. The second relates to the choice made in this case to focus on the scientific literature, leaving aside the grey literature. There is no doubt that the latter type of literature produced by government regulatory bodies or by associations, such as the International Association for Impact Assessment (IAIA), which devotes a portion of its resources to IA in Indigenous contexts,³ is also a useful source of information about our subject. It should also be recalled that publication bias is all the more significant in the field of Indigenous health research because the organizations that serve Indigenous communities often have few resources to devote to the publication of scientific articles.

Despite these limitations, we believe that the rich content of the articles analyzed and, especially, the constants observed, enable us to confirm trends and identify avenues for reflection for actors interested in HIA in Indigenous contexts.

³ See: https://www.iaia.org/uploads/pdf/Fastips_12_TraditionalKnowledge.pdf.

2 Principal findings

2.1 An abundant and multidisciplinary body of literature

A clear interest in adjusting IA practice to Indigenous contexts can be observed, and this interest has been growing since the 1990s. The literature reviewed deals mainly with environmental impact assessment (EIA) in the context of the exploitation of mining, forestry, hydraulic or maritime resources. Articles on social impact assessment (SIA) ranked second in terms of the number of publications, followed by those on HIA. The latter two forms of IA (SIA and HIA) are most often integrated into or conducted in parallel with an EIA in order to extend the scope of analysis beyond the effects on fauna and flora to include human and social health (Lawrence & Larsen, 2017). The review of the scientific literature also indicated that the majority of publications concern Inuit communities in Canada and Greenland, and Sami communities in the Nordic countries.

Based on the articles consulted, Canada appears to stand out from other countries that have been the subject of publications on IA in Indigenous contexts for its efforts to consider the social determinants of health in EIAs (Kwiatkowski & Ooi, 2003; Larsen, 2018; McClymont Peace & Myers, 2012). It should be noted that none of the articles identified examine HIAs of public policy, the NCCHPP's primary interest. However, as we shall see, the strategies evoked in the literature on IAs of development projects point toward avenues of interest for this area.

2.2 Evolution of the consideration of Indigenous realities in impact assessments

At the outset, it is important to note that, in general, Indigenous conceptions of health and well-being, while varied, tend to be more holistic than those underlying Western health systems. Over the course of the period covered by the publications reviewed, an evolution in how health is taken into consideration in IAs can be observed, with a broader conception of health emerging over time as social and cultural dimensions are integrated (Hackett et al., 2018; Jones & Bradshaw, 2015; Pinto-Guillaume, 2017). Thus, the conception of health has moved closer to the integrated vision of health that characterizes Indigenous conceptions. This evolution has been accompanied by a growing recognition of the right of Indigenous peoples to be consulted during the development of major projects that may affect their ways of life. The United Nations Declaration on the Rights of Indigenous Peoples, adopted in 2007, appears to have played a major role in prompting governments to require companies to consult with Indigenous peoples when developing projects that affect them (Larsen, 2018). In Canada, the federal government, building on this declaration, has included the internationally recognized principle of free, prior and informed consent, as well as the obligation to recognize Indigenous knowledge, as part of the impact assessment (IA) review process (Impact Assessment Agency of Canada, 2019). Given these requirements, the experience acquired through the practice of SIA over the last few decades is proving to be an important asset since the valorization of information from the field, in particular the valorization of traditional knowledge, is at the heart of this practice (Howitt, 1989; Larsen et al., 2017; Toro et al., 2013; Vanclay et al., 2015).

Thus, historically, we can conclude that improved knowledge about the social determinants of health, along with Indigenous peoples' demands to participate actively in decisions that affect them, have certainly contributed to this positive evolution toward the consideration of holistic health in IA (Kwiatkowski, 2011; Tolazzi, 2015). Nevertheless, the integration of the notion of the social determinants of health in IA is strongly slanted toward a Western viewpoint and several obstacles appear to remain. For the purposes of this analysis, we have classified these into three broad

categories: **data and knowledge system** barriers, **process** barriers, and **institutional** barriers. For each of these categories, we present a summary of the criticisms or issues raised in the articles consulted, and then present the suggestions some have made for addressing these problems.

2.3 Persistent difficulties

2.3.1 REGARDING DATA AND KNOWLEDGE SYSTEMS

Collecting and analyzing available data is at the heart of IA practice. This information is what is needed to estimate the nature and extent of the potential effects of a project or policy on a given population and to formulate appropriate recommendations based on the implementation context. A consistent theme in the literature reviewed is the existence of a gap between the Western conception of assessment, intrinsic to the methodological tools used in IA, and the corresponding Indigenous visions. The size of this gap is made apparent by: 1) the difference in the way health itself is conceptualized, from Indigenous and non-Indigenous perspectives; 2) the value assigned, or not assigned, to traditional knowledge; and 3) the consideration of the cumulative effects of impacts from multiple projects. These three themes are recurrent in the literature consulted and are discussed in detail below.

The concept of health

Although there is diversity among Indigenous conceptions of health, health is often seen as a holistic concept that includes physical, mental, emotional and spiritual well-being, as well as harmonious connections with the land, nature and one's people (see Box 2). Generally speaking, it is based on notions of balance and harmony among all of these elements (Jones & Bradshaw, 2015; Kwiatkowski, 2011). The models of the social determinants of health used in HIAs, although they usually have a broad scope (demonstrating the complex relationships among several social determinants of health), were developed based on a Western worldview, on scientific knowledge derived from this worldview, and on a Cartesian and rationalist form of logic. These models therefore remain limited in their ability to take into account all of the factors that can influence health from an Indigenous perspective (Hackett et al., 2018; Robin et al., 2016). Historically based on risk assessment, the practice of HIA may tend to give precedence to physical aspects of health that are easier to measure, such as life expectancy and the occurrence of diseases and injuries, whereas data on social and family ties, the maintenance of cultural practices, and connection to nature and the land are much more difficult to quantify and, especially, to link to concrete measures (Denny-Smith & Loosemore, 2017; Robin et al., 2016; Westman & Tara, 2019).

Robin and colleagues (2016) summarize the reasons that can underlie a truncated analysis of a project's impacts on Indigenous health as follows:

1. Public health actors responsible for analysis may find the collection and analysis of intangible data too complex;
2. Agencies that regulate mandatory IAs are not always ready to incorporate new criteria or analytical methods;
3. There is controversy about how best to measure non-physiological aspects of health. For example, how should the magnitude and nature of impacts be calculated;
4. There is a very strong expectation on the part of authorities responsible for establishing impact assessment norms that there be adherence to a standardized approach limited to measurable effects.

Thus, progress has been made in recent decades. There are now practice guides, such as the one developed by the Sami in Sweden and the one developed by the Māori in New Zealand, as well as legal measures facilitating the integration of Indigenous realities into IAs, both in Canada and elsewhere in the world (Pinto-Guillaume, 2017). However, despite this, taking into account dimensions considered essential to Indigenous peoples remains difficult or subject to limits. Defining and measuring health indicators that are representative of the determinants of Indigenous health remains a challenge. Not only does this inability of IAs to truly take Indigenous realities into account risk minimizing the potential effects of a project on the health of Indigenous people (Robin et al., 2016), but it also contributes to their mistrust of HIA approaches, and of IA in general (Kwiatkowski, 2011).

Box 2 — SOME PROMISING STRATEGIES FOR BETTER UNDERSTANDING HOLISTIC INDIGENOUS PERSPECTIVES ON HEALTH

Using the concept of well-being

Drawing on the theory of change, Larson and colleagues (2019) developed an approach that allows population groups affected by a project to identify in advance the factors that they associate with their well-being, to establish their order of importance (prioritization), and to estimate the extent to which these factors will be modified by the project under study. Well-being is positioned here as a value on the same scale of importance as economic value. Jones and Bradshaw (2015) also observed that the notion of well-being is more encompassing than that of health and that it generally allows for the integration of several other concepts that are important to Indigenous people, such as the natural connection to the land. (See Figure 3 in Appendix 2).

Modified grid of the determinants of health reflecting an Indigenous perspective

Elsewhere in Canada, Hackett and colleagues (2018) have focused attention on the Social Determinants Model of Aboriginal Health developed by Reading and Wien (2013),* which is better able to account for the cumulative effects of various development projects on the health of affected populations. This model reflects the complex and dynamic interrelationships among social, economic, political, historical, cultural and environmental forces that can directly and indirectly affect the health of Indigenous people.

* <https://www.ccnas-nccah.ca/docs/determinants/RPT-HealthInequalities-Reading-Wien-EN.pdf>.

Developing health indicators with the affected community

Jones and Bradshaw (2015) propose co-developing with communities indicators of health and well-being of great importance to the communities that could serve as the basis for future impact analyses. Pursuing the same line of thought, Lawrence and his collaborators (2017) developed a community-based impact assessment (CBIA) approach that enables the population to develop its own health indicators, which then become the template with which to analyze the proposed project from a health perspective. The authors suggest that this should take place outside of, but concurrent with, formal IAs, to inform the decisions made at each stage of the assessment process.

Integration of traditional Indigenous knowledge

The corollary of the issue concerning the definition of health is the need to integrate traditional Indigenous knowledge into the body of knowledge used to assess potential impacts and to formulate resulting recommendations (see Box 3). This is a topic that is widely discussed in the literature consulted since it is central to the adjustment of IA practice to Indigenous contexts.

When Howoritz and colleagues (2018)

compared EIAs for mining projects in seven different countries (Australia, Canada, Finland, Greenland, New Caledonia, Norway, and Sweden), they found that limited consideration was given to significant social impacts for the Indigenous peoples concerned, either due to a lack of interest or a lack of accessible data and resources. Generally speaking, two types of methodological difficulties are raised relative to the integration of traditional Indigenous knowledge into IAs: difficulties related to accessing this knowledge; and difficulties

related to combining this knowledge, once obtained, with information of a different nature, particularly data from scientific research (Cole & Fielding, 2007; Tolazzi, 2015).

Traditional knowledge has been defined as “[...] the knowledge, innovations and practices of Indigenous and/or local communities developed from experience gained over the centuries and adapted to local culture and environment”
(Kwiatkowski & Ooi, 2003, p.434)

According to Kwiatkowski (2011), traditional Indigenous knowledge is primarily provided by Elders and is characterized by empirical knowledge, unwritten rules, social norms, customary practices and cultural traditions. It is transmitted within communities to those who are willing to learn it. While some traditional knowledge is easier to collect and catalogue for multiple uses, such as geospatial data on fauna and flora, for example (Heiner et al., 2019) (see Box 3), information of a social and cultural nature is difficult to transpose from one setting to another and from one community to another (Lane & Rickson, 1997).

Also, while the relevance of developing an analytical framework that integrates scientific and traditional knowledge has been demonstrated (Kendall et al., 2017), and shown to benefit all stakeholders involved in an IA, methodological clashes related to the value conferred on different types of information remain a source of conflict (Kwiatkowski, 2011; Larsen et al., 2017). Even once this prioritization of values has been worked out, there remains the methodological problem associated with combining data from two knowledge systems (scientific and Indigenous) to produce a summary of the advantages and disadvantages of a project. This problem is not unique to IA, but within IA, it is experienced more acutely in Indigenous contexts.

Box 3 – SOME STRATEGIES

An analytical framework that integrates scientific data and Indigenous knowledge

Heiner and colleagues (2019) developed an analytical framework that unifies scientific and traditional knowledge about biodiversity by georeferencing information specific to local cultures, such as spiritual sites, traditional fishing locations or access to medicinal herbs, and linking it to information typically analyzed in EIAs. This experiment, carried out in Australia, resulted in the creation of a spatial index, making it possible to situate potential changes based on the proximity of future projects to the sites identified. This process was carried out with the participation of Indigenous people and before a formal EIA was begun, thus allowing communities to proactively assess development proposals and negotiate mitigation measures based on their level of priority.

*** Guidelines for incorporating traditional Indigenous knowledge**

In 2005, the Mackenzie Valley Review Board published a guide to facilitate the incorporation of traditional knowledge in EIAs. See the following link:

http://reviewboard.ca/process_information/guidance_documentation/guidelines.

Consideration of cumulative effects⁴

The need to take into account the effects that accumulate from project to project as successive development projects are carried out in the same territory is a major factor in discussions about good IA practices in Indigenous contexts. Indeed, by analyzing cumulative effects it is possible to take into account detrimental impacts that are considered minor in the context of a given project, but that can become significant as they accumulate over the course of multiple projects. This approach is all the more important in the northern territories, where the exploitation of mining and energy resources is gradually cutting away at the land from which Indigenous communities draw their subsistence products (Horowitz et al., 2018; Lawrence & Larsen, 2017; B. Noble & Hanna, 2015). Discussions about the concept of health and about traditional knowledge indicate that an analysis of cumulative effects should include elements associated with the history of colonialism, racism and social inequalities, in addition to making projections concerning future generations (Larsen et al., 2017; Ross, 1990).

However, the breadth of such an analysis is at odds with the character of traditional IAs, since by definition they apply to a single policy, program or project, implemented at a given time and within a circumscribed area. The “policy-by-policy” or “project-by-project” approach offers a short-term reductive view and does not lead to a comprehensive overview of potential effects, and particularly of social impacts (Larsen et al., 2017). Nevertheless, there is growing recognition of the importance of including an analysis of cumulative effects when assessing a new project. In Canada, for example, not only is there a strong consensus within the community of practice regarding this issue, but there is also a legal requirement to include this type of analysis in EIAs in Indigenous contexts (Jacob et al., 2018; Muir, 2018). Since IAs are the responsibility of project proponents, who often work in the private sphere, the consideration of cumulative effects requires that government organizations provide proponents with the necessary information, enabling them to take stock of the anticipated or demonstrated effects of projects undertaken prior to their own in the coveted territory (Hackett et al., 2018).

⁴ Note that the notion of cumulative impacts does not simply refer to the sum of the effects of different impacts from the same project; time is also a significant dimension.

According to several of the authors interested in this practice, although the importance of analyzing cumulative effects is now well established, little is known about how the results are being compiled and, more importantly, how they are being used in decision making (Hackett et al., 2018; Jacob et al., 2018; Larsen et al., 2017; Muir, 2018).

2.3.2 REGARDING THE IMPACT ASSESSMENT PROCESS

In addition to discussions about the type of information to be considered in IAs conducted in Indigenous contexts, such as conceptions of health and well-being, traditional knowledge and cumulative effects, publications in this field include discussions about how this information is collected and how it is used in decision making. While the standardization of IA practice has lent rigour and consistency to IA practice internationally, it also acts as a something of a straitjacket, an effect that is amplified by the constraints of the government regulatory approval processes pertaining to IAs (Robin et al., 2016). When applied in Indigenous contexts, this approach therefore requires adjustments, some of which have been the subject of particular attention. From among these, we have selected those relating to the effectiveness of the IA process, to meaningful participation and to co-management.

Different perspectives on the effectiveness of IAs

An example of the different perspectives brought into play when IA is applied in Indigenous contexts concerns the notion of effectiveness. O’Faircheallaigh (2009), who has explored this notion in relation to SIAs in Indigenous contexts in Australia, identifies two different goals that can be associated with such assessments, depending on the practitioner. One practitioner considers SIA to be a mechanism for gaining approval for a project from government authorities. The other, instead, sees SIA as a way of ensuring that the proposed project is woven respectfully into the social and cultural fabric of the environment, which means that the IA process should be able to point to viable strategies for reducing or offsetting negative cultural and social effects and for monitoring them over time. The author considers, like others well before him (see Howitt, 1989), that the first of these goals is primarily that of project promoters, whereas local communities, such as Indigenous communities, are more inclined to adopt the second goal.

To clearly illustrate this difference, Muir (2018), in an effort to better define IA effectiveness criteria, identified the different dimensions of the IA approach that have been analyzed over time, indicating the priorities assigned to them by the various authors consulted. These dimensions and the main analytical criterion associated with each can be summarized as follows:

Table 1 Dimensions of the IA approach

Dimensions of IAs evaluated	Main criterion of effectiveness
Procedural	The IA is carried out in accordance with established principles and methodology.
Efficiency	The process was carried out efficiently, at the lowest cost and within an adequate time frame.
Purpose	The process allowed for an informed decision and the protection of the environment.
Lessons learned	The approach favoured the acquisition of instrumental and conceptual knowledge and learning.
Legitimacy	The assessment process is perceived to be legitimate by stakeholders and satisfactory by the great majority of these.

These distinctions are important because it can be assumed that regulatory bodies and those responsible for producing IA reports are implicitly concerned with the first three dimensions, whereas Indigenous communities assign greater value to the dimensions tied to learning and, above all, to the legitimacy of the process and its results (see The Aashukan Declaration⁵). Lack of clarity regarding the expectations of both parties is often a source of frustration (Muir, 2018) and fosters mistrust of IAs among some Indigenous peoples (Jones et al., 2014; Kwiatkowski, 2011). It is important to clearly define the expectations of Indigenous communities with regard to IAs, on the one hand, to avoid raising expectations too high given that the IA process is carried out within a regulatory framework that remains limited, after all, as regards the need to recognize Indigenous historical rights (Drubule et al., 2018; Larsen et al., 2017); and on the other hand, to be able to modify the process so that Indigenous concerns are truly taken into account.

The stance adopted by those responsible for impact analyses, with regard to the goal of IAs, will influence the nature of the information collected and the consultation methods used, including the time and resources allocated to each of these tasks. O'Faircheallaigh (2009) suggests that when IA is seen as a mechanism for obtaining mandatory government approval for a project, citizen participation could be viewed by organizations responsible for impact assessments as an encumbrance. However, real participation in IA processes is seen by Indigenous people as central to the legitimacy of the decisions made by the authorities (Booth & Skelton, 2011).

Meaningful participation

Meaningful participation is highly associated with the perceived legitimacy of IA processes and the decisions made at the end of the process (Udofia et al., 2017). O'Faircheallaigh (2009), whose particular interest is SIA in Australia, identified four major barriers to Indigenous participation: lack of time allocated to community participation in IA processes, lack of financial resources to support communities in their participation process, little weight given to traditional knowledge, and difficulties collecting information transmitted orally. The same observations were made by Jones and colleagues (2014) in a study of an IA involving a First Nations community in Alaska. Restrictions on the amount of

⁵ The Aashukan Declaration signed during the 2017 conference of the International Association for Impact Assessment in Montréal is available at the following link:
<https://aashukandotcom.files.wordpress.com/2017/04/the-aashukan-declaration.pdf>.

time allotted for consultation within Indigenous communities, which is sometimes practiced in a traditional setting involving the exchange of food or gifts and extends to all groups in the community, leads Kwiatkowski (2011) to observe that traditional ways of doing things fall outside the bounds of Western culture. The efficiency criterion runs counter to the idea of taking the time necessary for participation that respects traditional modes of communication and consensus-building.

The participation of Indigenous communities is directly related to their ability to influence both the process itself and the decisions made within it (see Box 4). It is worth citing here the study carried out by Larsen (2018) in which he draws a relationship between the degree of participation and the level of influence of Indigenous communities, at different stages of the IA process. Having compared five different IA programs (Sweden, Norway, Canada, Australia, and New Zealand), Larsen concludes that effective participation (the ability to influence decisions) is higher during the information gathering and impact monitoring (post-IA) stages than during the scoping (including setting terms of reference) and priority setting (deciding what is important to consider) stages.⁶ For each of these stages, one of four levels of influence was assigned following a review of the IA procedures in place in the countries studied and the analysis of specific cases. The four levels follow a gradation: *no influence*, *limited influence*, *shared influence* (associated with co-management), and *total influence* (associated with community management). Thus, while the influence exerted by Indigenous communities varies according to the scope of the decisions made during the IA process, the decisive stages of scoping and priority setting more frequently escape the influence of Indigenous communities. For Canada, Larsen focused on the situation in the Northwest Territories, and specifically on the operation of the *Mackenzie Valley Environmental Review Board*, which he places in the category of *shared influence*, based on its co-management practices. None of the systems analyzed were assigned the highest level of influence, which is associated with a community-controlled IA process.

Regarding such processes, Noble (2016) identifies eight examples of EIA approaches in Canada that have had some success in addressing the concerns of Indigenous communities through meaningful participation. While the author acknowledges that the cases cited leave room for improvement, he highlights the fact that collaborative EIA approaches that build the capacity of Indigenous communities lead to better results both for proponents and for the communities themselves.

Box 4 — EXAMPLE OF A STRATEGY FOR FOSTERING COMMUNITY PARTICIPATION

Using a community-led IA

Lawrence and Larsen (2017) set up an IA process led by a group from the Sami community in Sweden to give them a voice in discussions concerning a mining development project. Although the experiment took the form of action research, the model used followed the usual steps of an EIA, i.e. the establishment of the current status of the site and an estimate of the anticipated impacts of the implementation of the mining project. Different scenarios were proposed and analyzed by members of the community during various group discussion meetings, held by members of different societal groups. This exercise enabled, among other things, the identification of buffer zones surrounding the areas to be protected, something that had not been considered by the promoters.

⁶ These stages are referred to by Larsen as scoping, evidence generation, significance determination, and follow-up (p. 211).

2.3.3 REGARDING THE INSTITUTIONAL CONTEXT

Several authors who have studied the effect of citizen participation on the final design of a project or policy suggest looking at the decision-making, political and socio-cultural environments in which the decision-making process takes place (Cashmore et al., 2004; Cox & Mills, 2015). In the case of mandatory IAs, the influence of the institutional context on the ability of assessment processes to take into account the considerations of the Indigenous communities affected cannot be overlooked. The articles consulted consider three different aspects of this factor: the regulatory systems put in place by governments, the associated normative values, and the role of organizations responsible for impact assessments.

The legal framework of IA processes

Larsen's (2018) comparative study of five IA systems, cited above, demonstrated that countries where historical Indigenous rights are poorly recognized propose systems that give communities little influence over important decisions related to the impacts of projects under analysis. It is worth noting that, in this study, Canada is favourably positioned relative to the other target countries because its EIA system integrates a form of co-management with Indigenous communities into all four phases of the IA process identified by the authors (scoping of issues, evidence generation, significance determination, and post-IA follow-up). The regulatory system for EIAs in Canada does indeed call for some form of institutionalization of Indigenous participation (Udofia et al., 2017), although in practice it has not been applied with equal diligence across the country. Changes to the regulatory system at the federal level in 2012, which were aimed at accelerating the approval process for projects subject to a mandatory EIA, weakened the involvement of Indigenous communities because limited time was allowed for completing EIAs and there was a lack of available capacity and resources to support the organizations called upon to provide input (Jacob et al., 2018). Since then, the federal government has revised the 2012 Canadian Environmental Assessment Act and, in June 2019, it adopted new laws and regulations under a revised Act, now called the Impact Assessment Act (IAA). These new provisions focus particular attention on respect for ancestral Indigenous rights and clarify the obligations of those responsible for IAs as regards the inclusion of Indigenous concerns in the impact analysis of planned projects on Indigenous territory. Not only are cumulative effects analysis and consideration of traditional knowledge required, but the Canadian Impact Assessment Agency may “delegate any part of an impact assessment to a provincial government or an Indigenous governing body”^{7, 8, 9}. This provision provides for the form of Indigenous participation that Larsen (2018) associates with the highest level of influence, namely, community-owned IA management.

Canada's regulatory modernization makes it possible to fulfill the recommendations for improving IA practices in Indigenous contexts suggested by the authors cited in this paper. However, it is too early to observe the impact of these new guidelines. Some past analyses have revealed a gap between what is prescribed and what is actually applied (Lajoie & Bouchard, 2006; Udofia et al., 2017). Among the causes of the observed discrepancies is the persistence of normative values that permeate assessment processes.

⁷ See: <https://www.fasken.com/en/knowledge/2019/08/the-new-federal-impact-assessment-act>.

⁸ The Government of Canada has a duty to consult, and where appropriate, accommodate Indigenous groups when it considers conduct that might adversely impact potential or established Aboriginal or treaty rights: <https://www.rcaanc-cirnac.gc.ca/eng/1331832510888/1609421255810>.

⁹ For an overview of the impact assessment process under the new Impact Assessment Act of 2019: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/impact-assessment-process-overview.html>.

A question of values

Several of the articles consulted, particularly those dealing with SIA, lay emphasis on the values that underpin the practice of IA and influence the ways in which practitioners work. Thus for Lane and Rickson (1997), Indigenous peoples are more likely to have an influence on final decisions if government authorities and project proponents give social impacts the same level of consideration as economic and environmental impacts. Denny-Smith and Loosemore (2017), for their part, warn of the implicit dominant social values that determine the content of discussions in negotiations with Indigenous communities. As an example, they cite a situation in Australia where negotiations emphasizing job creation and financial compensation failed to resonate with the Indigenous community who saw these incentives as disadvantageous to their ways of life. These authors draw on tension theory, common in sociology, to evoke the risk that pressure from the imposition of dominant, unshared social values may exacerbate resentment and community withdrawal.

Discussion of the dominant values embedded in IA processes leads some authors toward an examination of the existing imbalance of power. Sarkar (2019) argues in his study of Inuit participation in an EIA of a mining project that the power of industry and economic objectives weigh considerably in these types of projects and that they create significant pressure, particularly on resource-dependent communities. In this context, it is taken for granted that industrial development is advantageous even before the impact assessment process begins. This opens the door to bias in favour of the project, as well as to the minimization of potential impacts (Lawrence & Larsen, 2017), and organizations responsible for IAs must be aware of this likelihood (Sarkar, 2019; Westman & Tara, 2019).

Evaluator competence, a responsibility of the organizations in charge of IAs

Organizations in charge of IAs face many challenges: the complexity of impact assessments that take into account cumulative effects and Indigenous knowledge, the danger of bias arising from the dominant values informing regulatory IA processes and conventional wisdom, and the sensitivity required to work in a manner that is respectful of Indigenous traditions. With regard to this, some authors (Jones et al., 2014; Kwiatkowski, 2011) stress that it is the responsibility of organizations in charge of IAs, both public and private, to ensure the competence of experts hired to conduct impact assessments. Jones and colleagues (2014), for example, underscore the importance of an intervention framework that provides emotional safety for consultation participants. For these authors, the involvement of professionals familiar with the local culture and sensitive to intergenerational trauma is essential.

3 What lessons are transferable to HIA in Indigenous contexts in Canada?

Before outlining the elements of our response to the three questions posed at the beginning of this document, we have three observations to make based on the review of the articles selected.

The first is that early in the history of the implementation of regulatory EIAs, concerns emerged about the discrepancy between the proposed processes, along with the analytical tools that accompany them, and the reality of Indigenous contexts. This issue seems to be of concern to authors from all fields of IA, whether their work is tied to social impact assessment, health impact assessment or environmental impact assessment. This discrepancy seems to be rooted in the worldviews of Indigenous communities, which generally differ from what is referred to as the Western worldview, from which IA guidelines are derived. This discrepancy is encapsulated in a remark contained in the article by Kwiatkowski and colleagues (2009) who point out that the distinction between human health impact assessment and environmental impact assessment, commonly made in the literature and in IA practice, finds no corollary in Indigenous contexts, where the two are considered to be part of the same whole.

The second observation is that calls to address these concerns appear to be bearing fruit, judging from recent changes to the regulatory system at the Canadian federal level where the Canadian Environmental Assessment Act has been replaced by the Impact Assessment Act. The latter Act assigns equal importance to environmental, social and health impacts, which more closely reflects Indigenous views, and in doing so, it relegates to the background integrated impact assessments (IIAs), which have emerged in recent years as a way to better account for all the possible effects of development projects. This reform also strengthens mechanisms for the participation of and consultation with Indigenous communities.

The third observation concerns the tenuous presence of members of Indigenous communities among the authors of the articles analyzed. In the majority of cases, Indigenous communities are the subjects of the research projects, with a few exceptions, including the article by Larsen and colleagues (2017), two of whose four authors belong to Sami organizations in Sweden. Moreover, the action research presented by these authors includes an interesting perspective on the dialogues that need to be encouraged between the Sami community and government officials to build shared understanding. However, there are many other ways to undertake research appropriate to Indigenous contexts, beyond the simple inclusion of Indigenous co-authors. For example, the involvement of communities in research projects may be more meaningful than a simple mention in a list of authors.

Health impact assessments are most often conducted outside the context of regulatory IAs and usually on a voluntary basis, the intent being to inform a decision to be made by those responsible for public policies, programs or projects. In such a context, there is no pressure to obtain formal approval from higher authorities. However, whether or not it is integrated into another form of IA, HIA uses the same methodology and applies the same rigorous principles, following the established steps and using standardized tools, such as predefined models of the social determinants of health. In light of the suggestions made in the articles consulted, certain courses of action seem worthwhile considering. We have identified four main focuses.

1. **Models of “health” and its determinants adjusted to the cultural context**

We have seen that the concept of health is inseparable from the spiritual, environmental, community, family and historical dimensions. Thus, it is difficult to represent such an outlook by dividing health into several separate components, even when recognizing that they are

interrelated. Interesting efforts have been made by Kwiatkowski (2011), whose integrated model makes the health of communities the goal to be pursued, and by Hackett and colleagues (2018), who have focused attention on a model of determinants of health reflecting an Indigenous perspective (see Box 2). However, an avenue that seems worth exploring is the path taken by Larson and colleagues (2019) and by Jones and Bradshaw (2015) which involves defining, together with affected communities, the models that correspond to their specific needs. In Canada, models have been developed in recent years to clarify First Nations, Inuit and Métis understandings of health.¹⁰ These models could serve as a basis for discussions aimed at defining an appropriate model together with local communities.

2. Non-standardized tools

Although the overall methodology for assessing potential impacts should involve the use of certain standardized tools to assess recognized indicators, such as those for measuring air pollution or noise, for example, others that are used to assess indicators of a social nature should be specific to local communities. Lane and Rickson (1997) urge us to recall that while many cultural elements are common to all Indigenous communities, these communities are not monolithic in terms of their development aspirations or priorities. The “health” models and value scales discussed above should be validated in each of the communities involved in HIAs.

3. Communities prepared in advance

Several of the articles analyzed mention the benefit to communities of having information about their community before IAs are initiated. Communities called upon to give their opinion on a proposed project will be better equipped to do so if they have developed baseline information on local health status, previous projects or on aspects of their lifestyle that are non-negotiable, for example. Noble (2016) linked the ability of the Namgis First Nation to influence the IA of the Orca Sand and Gravel Project in a way they found satisfactory to the work the Namgis had previously done developing a land use plan based on values and priorities they had identified. Lawrence and Larsen (2017) used a community-based assessment (CBA) approach to enable the Sami community to build the consensus required and to consider possible solutions to the various problems envisioned.

4. Capacity building

The importance of building the capacity of Indigenous communities to participate in IAs effectively and to their satisfaction was proposed on several occasions. In discussing this, Booth and Skelton (2011) point to the complexity of IA processes, the amount of information to be taken into account, and the over-solicitation of input from communities when several project assessments are conducted simultaneously on their territory. Two knowledge development experiences caught our attention. The first is that of Larsen and colleagues (2017), which brought together members of the Sami community and government officials in charge of the IA system in Sweden. Learning occurred on both sides, with officials, for example, gaining a better understanding of the inequalities in terms of decision-making power inherent in the established system. The second example is described by Kwiatkowski and colleagues (2009) and focuses on Health Canada's initiatives aimed at providing IA-related training opportunities to Indigenous communities. The goal of this training is to enable Indigenous peoples to better understand Western science and thus increase opportunities for Indigenous collaboration with external experts, and to place Indigenous peoples at the forefront of efforts to integrate scientific and traditional knowledge.

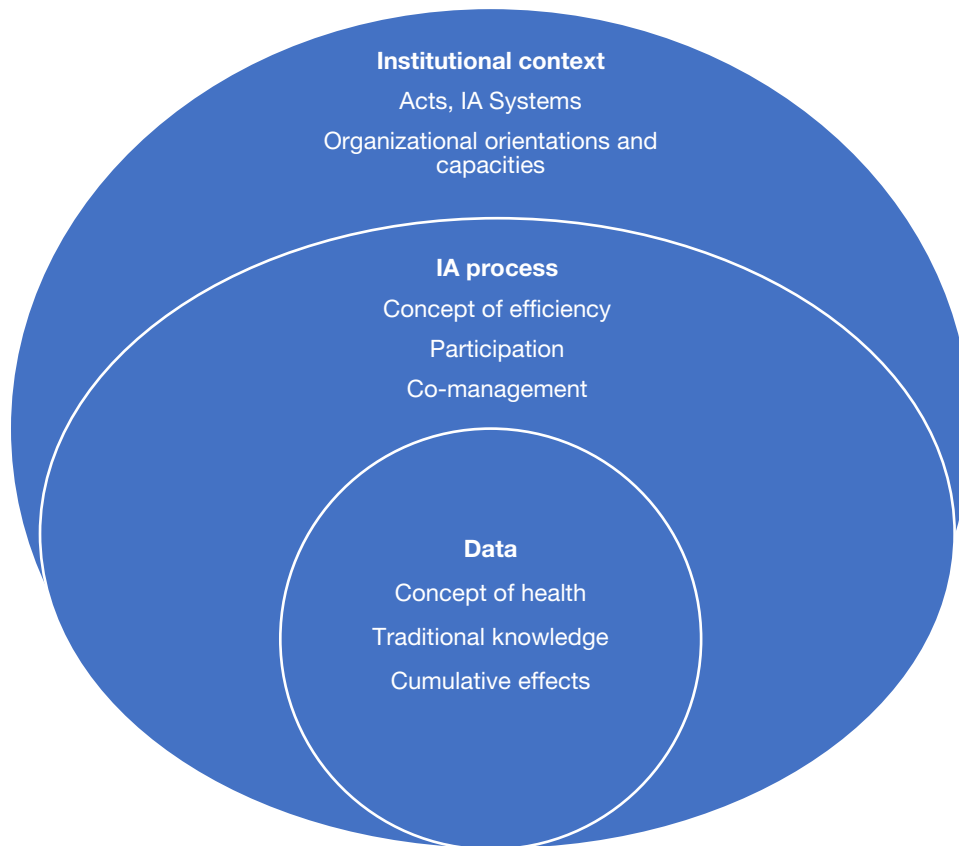
¹⁰ As examples, see: *First Nations Perspective on Health and Wellness* (https://www.itk.ca/wp-content/uploads/2016/07/ITK_Social_Determinants_Report.pdf), and *Social Determinants of Inuit Health in Canada* (https://www.itk.ca/wp-content/uploads/2016/07/ITK_Social_Determinants_Report.pdf).

Conclusion

There is widely shared concern about the importance of modifying IA processes prescribed by governments or organizations responsible for policies and projects, such that they become more responsive to Indigenous specificities. In Canada, it follows that these modifications must address the specificities of First Nations, Inuit and Métis, and the particularities of the communities affected, in collaboration with whom they should be developed. The topics under discussion in the documents consulted mainly address the need to reconcile, within IA processes, a worldview stemming from Western culture and those stemming from Indigenous cultures. This is an unavoidable necessity if we are to prevent externally imposed IAs from becoming additional instruments of colonialism (Jones & Bradshaw, 2015; Lawrence & Larsen, 2017). Concern about how to adjust IA systems to Indigenous contexts also stems from the need to reduce the gap in health status between Indigenous and non-Indigenous peoples. The multiplication of projects in northern territories or far from major urban centres can help improve living conditions. However, it can also cause lasting harmful effects and amplify social and health inequalities. IAs are a means by which to address these issues head-on and to provide Indigenous and non-Indigenous communities and governments with useful knowledge that can prevent the unanticipated negative impacts of projects and policies, while maximizing their positive impacts.

The review of the articles selected for this analysis highlighted the elements that need to be modified for IA systems to effectively integrate the concerns of Indigenous communities. We have seen that changes must be directed toward the area of data collection so that all aspects of Indigenous peoples' health, as well as traditional knowledge, can be taken into account in impact analyses. Changes must also be made to the overall approach and work method so that they are flexible enough to allow for the time and resources needed to foster meaningful participation and, ideally, co-management of the process. Improvement in these two areas of IA is only possible if institutional contexts - laws, government policies, and organizational resources - provide the necessary conditions for such changes. The interrelation between the three areas for improvement is shown in Figure 1.

Figure 1 **The three areas for improvement of IA**



In Canada, recent changes to the IA system at the federal level provide a favourable institutional context for the improvements suggested by our analysis. This would therefore seem to be an opportune time to follow up on some of the avenues suggested in the articles consulted and to continue building knowledge about promising strategies. But much of the answer to the questions, which we have attempted to answer by means of this scientific review, will be provided by First Nations, Inuit and Métis.

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Appendix 1

Methodological approach

The methodological approach used to carry out this work consists of two steps:

- **Step 1:** Review of the scientific literature on the practice of impact assessment in Indigenous contexts
- **Step 2:** In-depth analysis of articles identified by the literature review and synthesis of knowledge found

Step 1: Review of the scientific literature on the practice of impact assessment in Indigenous contexts.

A search strategy for finding scientific articles related to the topic was developed. The search terms selected are presented in table 2. They were tested in English and in French with the support of librarians from McGill University.

Table 2 Guiding concepts used in the search strategy

1 st Key concept	2 nd Key concept	3 rd Key concept
MeSH keywords, topical terms, and words in titles/abstracts related to various forms of impact assessment (IA)	MeSH keywords, topical terms and words in titles / abstracts related to the population studied: Indigenous communities	MeSH keywords, current terms and words in titles/abstracts related to the countries studied
<p>Terms that must be captured via the search strategy include:</p> <p>Impact Assessment (IA); Health Impact Assessment (HIA); Environmental Impact Assessment (EIA); Strategic Environmental Assessment (SEA); Social Impact Assessment (SIA); AND Indigenous Health.</p>	<ul style="list-style-type: none"> ▪ First Nations, Métis and Inuit in <u>Canada</u> ▪ Native Americans and Alaska Natives in the <u>United States</u> ▪ Inuit in <u>Greenland</u> ▪ Sami in northern <u>Sweden</u>, <u>Norway</u>, and <u>Finland</u> ▪ Indigenous Peoples of <u>Australia</u> ▪ Māori in New-Zealand 	

This review of the scientific literature was conducted using the following seven databases: PubMed, PsycINFO, Sociological Abstracts, CINAHL, GEOBASE, Web of Science and Scopus. The inclusion and exclusion criteria used in this bibliographic search are presented in table 3:

Table 3 Inclusion and exclusion criteria

Criterion	Included	Included	Excluded
	Relevant	Potentially relevant	
Population/ Country	First Nations, Métis and Inuit in <u>Canada</u> ; Native Americans and Alaska Native communities in the <u>United States</u> ; Inuit in <u>Greenland</u> ; Sami in northern <u>Sweden</u> , <u>Norway</u> , <u>Finland</u> ; Indigenous Peoples of <u>Australia</u> ; Māori in <u>New Zealand</u> .		All other populations/ all other countries.
Language	English, French, and Scandinavian languages (Greenlandic, Danish, Swedish and Norwegian).		All other languages.
Quantitative study	Articles assessing the relationships between health, social or environmental impact assessments (HIA, SIA, EIA), or strategic environmental assessment (SEA) and Indigenous health.	Articles on the health of Indigenous populations related to exposures.	Articles not assessing the relationships between impact assessments and Indigenous health or the health of Indigenous populations related to exposures.
Qualitative study	Articles on impact assessment as related to Indigenous health.		Articles not addressing the relationship between impact assessment and Indigenous health.

The bibliographic search was conducted in March 2019 and generated 1110 scientific articles after deduplication across the databases (see table 4). Based on the inclusion criteria, 111 articles were deemed relevant or potentially relevant.

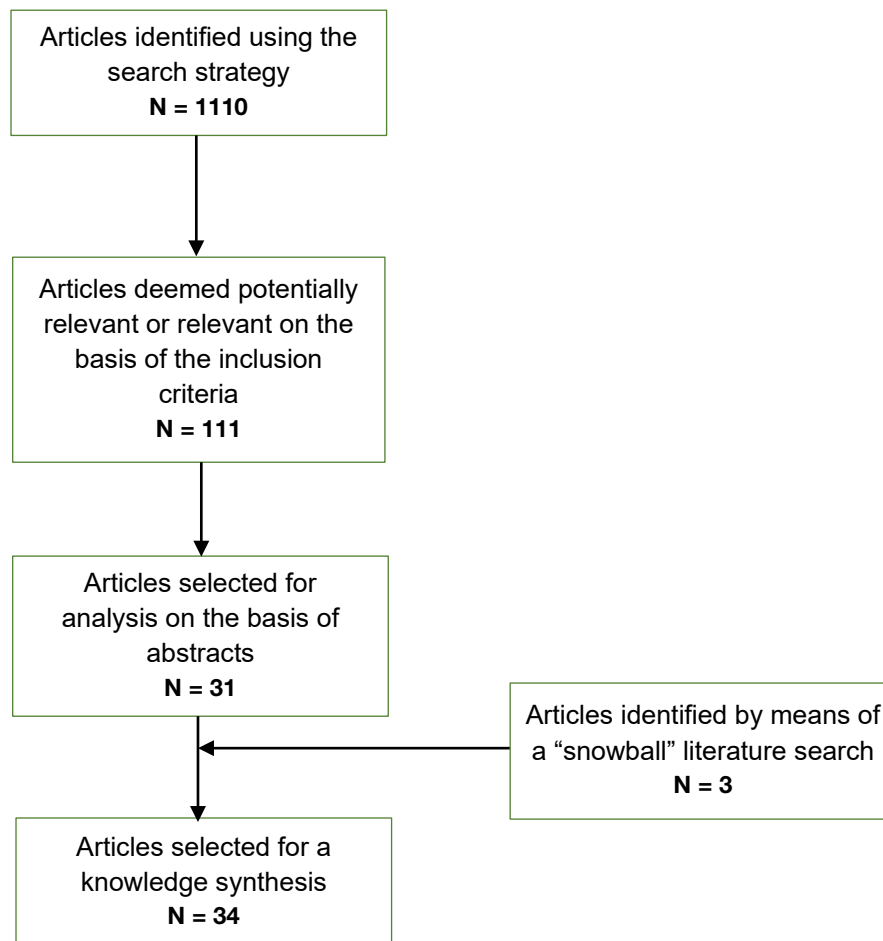
Table 4 Database search results

Databases	Date of search	No. of results before deduplication	No. of results after deduplication in the database	No. of results after deduplication across databases
PubMed	27-03-2019	722	715	715
PsycINFO	27-03-2019	8	8	8
Sociological Abstracts	27-03-2019	107	101	97
CINAHL	27-03-2019	5	5	5
GEOBASE	27-03-2019	103	103	78
Web of Science	27-03-2019	80	80	62
Scopus	27-03-2019	241	240	145
TOTALS		1266	1252	1110

Step 2: In-depth analysis of articles identified by the literature review and synthesis of knowledge found.

Of the 111 articles found to be relevant or potentially relevant in the initial review, 31 were selected for analysis on the basis of abstracts. To these must be added three other references identified by means of a “snowball” search of the bibliographies of the 31 references. Thus, 34 articles were selected for the knowledge synthesis. Figure 2 illustrates the process of selecting articles for the analysis of IA practice in Indigenous contexts and the identification of potential areas for the improvement of HIA.

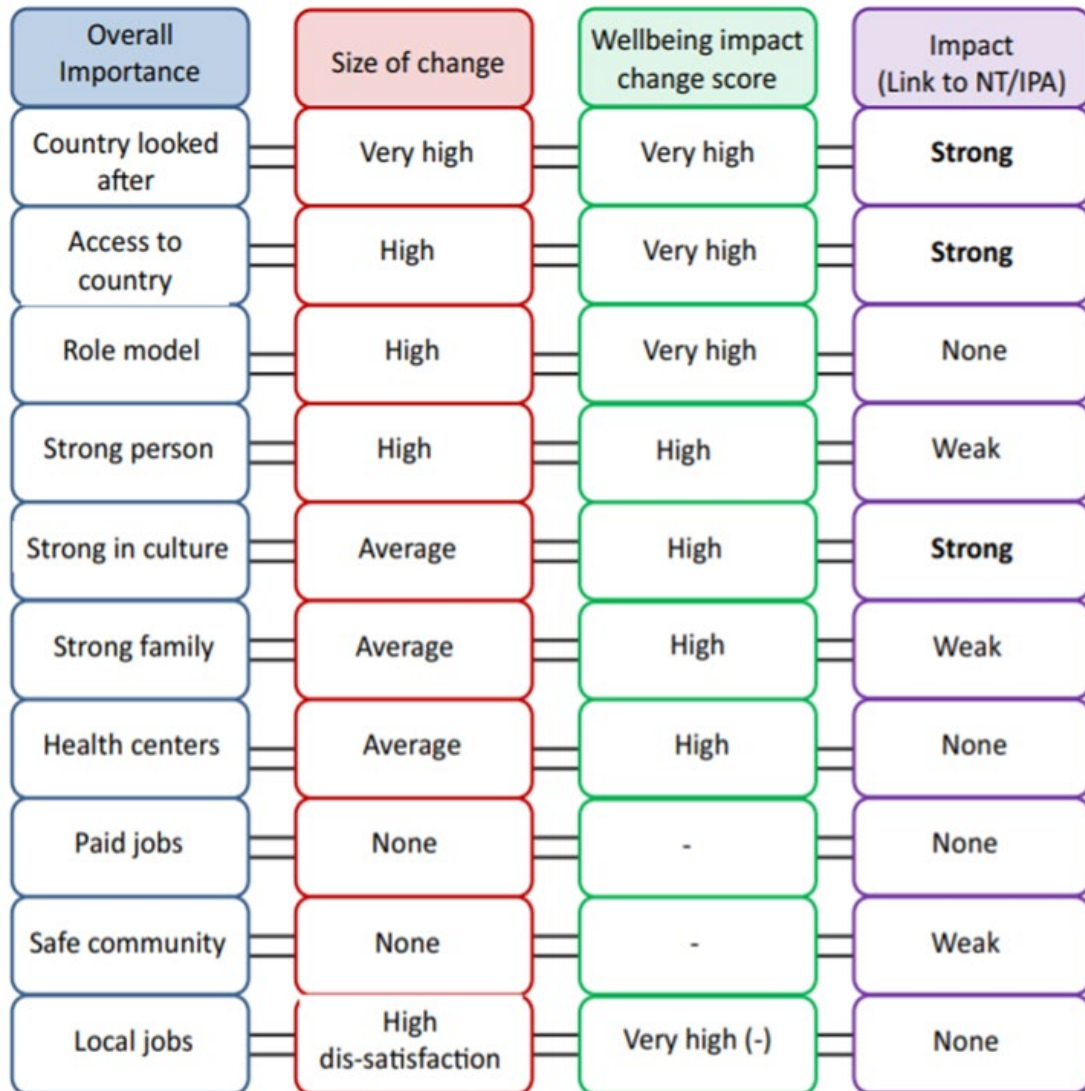
Figure 2 Article selection process (scientific literature)



Appendix 2

**Example of a framework for analyzing potential impacts
and a model of determinants of Indigenous health**

Figure 3 Framework for analyzing potential impacts on the determinants of well-being – Australian example (Larson et al., 2019, p. 95).



NT: Native Title; IPA: Indigenous Protected Area

Table 5 Comparison of the health determinants model used in Canada and the social determinants of Indigenous health model developed by Reading and Wien (2013) (adapted from Hackett et al., 2018, p. 421)

Health Canada's Health Determinants	Social determinants of indigenous health
<ul style="list-style-type: none"> ● Income and social status ● Physical environments ● Employment and working conditions ● Education ● Social support networks ● Healthy child development ● Biology and genetic endowment ● Health services ● Personal health practices and coping skills 	<p>Proximal determinants:</p> <ul style="list-style-type: none"> ● Health behaviors ● Physical environments ● Employment and income ● Education ● Food insecurity <p>Intermediate determinants:</p> <ul style="list-style-type: none"> ● Health care systems ● Education systems ● Community infrastructure, resources and capacities ● Environmental stewardship ● Cultural continuity <p>Distal determinants:</p> <ul style="list-style-type: none"> ● Colonialism ● Racism and social exclusion ● Self-determination

A more recent list of social determinants of health for Indigenous peoples is also provided below (Greenwood et al., 2018):

- Health behaviors
- Physical environments
- Employment and income
- Education
- Food insecurity
- Health care systems
- Education systems
- Community infrastructure, resources and capacities
- Environmental stewardship
- Cultural continuity
- Colonialism
- Racism and social exclusion
- Self-determination
- Spirituality
- Relationships to land
- Geography
- History
- Culture
- Language
- Knowledge systems

