Incorporating the Findings from the CEMA Indigenous Traditional Knowledge Framework into the Alberta Environmental Monitoring, Evaluation & Reporting Agency: Key Findings and Recommendations

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About the Author

Peter Fortna is the co-owner of Willow Springs Strategic Solutions. Peter is the Vice President of the Wood Buffalo Environmental Association (WBEA), Chair of WBEA's Traditional Knowledge Committee, and former co-chair of the Cumulative Environmental Management Association's (CEMA) Traditional Knowledge Working Group. While acting as the TKWG co-chair, he oversaw the first two phases of CEMA's Traditional Knowledge Framework which will has provided recommendations regarding how traditional knowledge may be incorporated into Environmental Impact Assessments, Environmental Monitoring and Land-Use Planning. Peter holds a BA in History from the University of Calgary, an MA in History from Memorial University of Newfoundland, and a PhD (ABD) in History from the University of Alberta. For a complete list of Peter's experience and publications please visit www.willowspringsss.com.

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Introduction

There is an emerging consensus within scholarly, governmental, and regulatory circles that ITK represents an invaluable resource to be used in planning, impact assessment, monitoring and reclamation, and that ITK needs to "be given the same consideration as scientific knowledge in evaluating potential effects of a proposed project."[1] Despite the challenges of integrating ITK and the Western-scientific tradition that shapes existing planning, assessment, and monitoring protocols, cutting-edge work in the impact assessment and monitoring fields are paving the way for a more considered and profound integration of ITK into planning, assessment, and monitoring regimes.[2] The deeper integration of ITK can fill gaps in scientific knowledge, support cultural and biological diversity, and contribute to social justice and the autonomy and identity of Indigenous peoples,[3] while at the same time contributing to a better understanding of local sensitivities and resiliencies, supporting improved quality of evidence, improving the prediction of impacts, and developing measures that better avoid and mitigate impacts.[4]

It is within this context that the Cumulative Environmental Management Association (CEMA) published its Indigenous Traditional Knowledge (ITK) Framework in

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[1] Elmar Plate, Malcolm Foy, and Rick Krehbiel, *Best Practices for First Nation Involvement in Environmental Assessment Reviews of Development Projects in British Columbia*, Vancouver: New Relationship Trust, 2009. See also Canadian Environmental Assessment Agency, *Reference Guide Considering Aboriginal Traditional Knowledge in Environmental Assessments Conducted under the Canadian Environmental Assessment Act, 2012 (Ottawa: CEAA, 2015);* Maria Rosario Partidario, 'Knowledge Brokerage: Potential for Increased Capacities and Shared Power in Impact Assessment', *Environmental Impact Assessment Review* 39, 2013, pp. 26-36; Sari M., Graben, 'Writing the Rules of Socioeconomic Impact Assessment: Adaptation Through Participation' *Comparative Research in Law and Political Economy Research Paper Series No. 23*, Toronto: Osgoode Hall Law School, 2010; Chris Paci, Ann Tobin, and Peter Robb, 'Reconsidering the Canadian Environmental Impact Assessment Act: A Place for Traditional Environmental Knowledge', *Environmental Impact Assessment Review* 22, 2002, pp. 111-127.

[2] Monique Dubé, Julie E. Wilson, and Jon Waterhouse, "Accumulated State Assessment of the Yukon River Watershed: Part II – Quantitative Effects-Based Analysis Integrating Western Science and Traditional Ecological Knowledge," *Integrated Environmental Assessment and Management* 9(3), 2013, pp. 439-455; Fraser, Dylan et al., "Integrating Traditional and Evolutionary Knowledge in Biodiversity Conservation: A Population Level Case Study," *Ecology and Society* 11(2), 2006, pp. 1-20; J.A. Drew, "Use of Traditional Ecological Knowledge in Marine Conservation," *Conservation Biology* 19, 2005, pp. 1286-1293; Fikret Burkes, J. Colding, and C. Folke, "Rediscovery of Traditional Ecological Knowledge as Adaptive Management," *Ecological Applications* 10, 2000, pp. 1251-1262; Prober, Suzanne M., Michael H. O'Connor, and Fiona J. Walsh, "Australian Aboriginal Peoples' Seasonal Knowledge: A Potential Basis for Shared Understanding in Environmental Management," *Ecology and Society* 16(2), 2011, pp. 1-16; Jeremy Spoon, "Quantitative, Qualitative, and Collaborative Methods: Approaching Indigenous Ecological Knowledge Heterogeneity," *Ecology and Society* 19(3), 2014, pp. 1-9.

[3] Erin L., Bohensky, and Yiheyis Maru, "Indigenous Knowledge, Science, and Resilience: What Have We Learned from a Decade of International Literature on 'Integration'?" *Ecology and Society* 16, no. 4 (2011): 6.

[4] Alan Ehrlich, M. Haefele, and C. Hubert, "Incorporating TK Into EIA", presentation at the International Association for Impact Assessment (IAIA) Annual Conference, 2011, pp. 1-10.

December 2015.[5] The ITK Framework's purpose is to "provide guidance and standards for meaningful inclusion of Aboriginal traditional knowledge [...] in regional planning, environmental assessment and regulatory processes, and monitoring."[6] The report was forwarded on to the federal and provincial governments "with recommendations for implementation."[7] Both governments have signalled a willingness to engage with Indigenous communities on a "nation-to-nation" basis that will include implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).[8] The CEMA ITK Framework provides guidance to both governments and may serve to "reinforce the government's commitment to support the United Nations Declaration on Rights of Indigenous People (UNDRIP)."[9]

The objectives of this report are twofold. First, it will contextualize the CEMA ITK Framework within the larger history of Indigenous participation in oil sands monitoring and by so doing, show that there has been a distinct and real disconnection between previous program learnings and the commitment to implement the use of ITK into Governmental monitoring programs. Second, the report will make a series of recommendations regarding how the Alberta Environmental Monitoring, Evaluation, and Reporting Agency (AEMERA) might implement the CEMA ITK Framework key findings, in alignment to it's mandate, into effective processes that will integrate ITK in a manner that is culturally appropriate and strengthen the role of Indigenous communities in environmental monitoring in Northeastern Alberta.

Monitoring in the oil sands will continue and will need to meaningfully involve Indigenous communities and their knowledge. All recommendations are made to AEMERA, though they could very easily be implemented by whoever is made

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[5] Dave Thompson, Melanie Dene, Ann Dort-MacLean, Craig Candler and Alice Martin, "Indigenous Traditional Knowledge Framework Amended by Traditional Knowledge Working Group," (Fort McMurray: CEMA, 2015). http://cemaonline.ca/index.php/administration/cat_view/2-communications/13-cema-general. (last accessed 30 April 2016).
[6] Firelight. "Overview." Traditional Knowledge Framework. 2014. https://tkframework.ca/overview/. Last Accessed 30 April 2016.
[7] Cumulative Environmental Management Association, "CEMA Board Approves Indigenous Traditional Knowledge Framework." (Fort McMurray, CEMA, 2015). http://cemaonline.ca/index.php/news-a-events/cema-press-releases (last accessed 30 April 2016).
[8] Indigenous and Northern Affairs Canada. Statement by Minister Carolyn Bennett to celebrate the fifth anniversary of Canada's endorsement of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). http://www.newswire.ca/news-releases/statement-by-minister-carolyn-bennett-to-celebrate-the-fifth-anniversary-of-canadas-endorsement-of-the-united-nations-declaration-on-the-rights-of-indigenous-peoples-undrip-547269312.html (last accessed 30 April 2016); Trudeau, Justin. Minister of Indigenous and Northern Affairs Mandate Letter. 13 November 2015. http://pm.gc.ca/eng/minister-indigenous-and-northern-affairs-mandate-letter (last accessed 30 April 2016); Jodie Sinnema, "Premier wants every cabinet minister to come up with plans to help protect rights and land of aboriginal community," 18 July 2015. *Edmonton Journal,* http://edmontonjournal.com/news/politics/premier-wants-every-cabinet-minister-to-come-up-with-plans-to-help-protect-rights-and-land-of-aboriginal-community (last accessed 30 April 2016).
[9] Thompson et. al., 4.

responsible for oil sands monitoring in the future. It is hoped that this report will provide a path forward that will help make the inclusion of Indigenous Traditional Knowledge in environmental monitoring achievable to the benefit of both Indigenous knowledge holders, Indigenous communities, and governments.

Indigenous Traditional Knowledge and Oil Sands Monitoring

Indigenous peoples have lived in the area that would become Northeastern Alberta since time immemorial. They continue to live in their traditional territories with many believing the health of their communities is closely aligned with the health of the environment. This connection is often articulated through the concept of "Indigenous Traditional Knowledge," which describes a body of knowledge built up by Indigenous peoples over generations of living on and understanding the land.[10] While this close connection has been recognized in the various monitoring programs that have been initiated in Northeastern Alberta since the late 1970s, it has most often been relegated to the margins and disconnected from concrete measures to determine and monitor the potential and existing environmental impact of oil sands development on the Indigenous communities.

Environmental Monitoring in Northeastern Alberta

Alberta Oil Sands Environmental Monitoring Program

In 1973 federal Environment Minister Jeanne Sauvé stated that the Syncrude Environmental Impact Assessment had major deficiencies, to which the Alberta Environment Minister William J. Yurko responded that:

> We know that major information gaps exist in respect to the baseline environmental data in the entire area. Nevertheless, in light of Canada's critical energy balance, it did not and does not appear prudent to delay oil sands development until all needed information is available.[11]

In a partial attempt to fill this gap, the federal and provincial governments launched the Alberta Oil Sands Environmental Research Program (AOSERP) in early 1975. The program was given a 5 year a $40 million research budget though this was restricted in later years.[12] The program undertook a series of research projects

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[10] Thompson et. al., 22; Canadian Environmental Assessment Agency, "Considering Aboriginal Traditional Knowledge in Environmental Assessments Conducted under the Canadian Environmental Assessment Act, 2012," Updated March 2015. http://www.ceaa-acee.gc.ca/default.asp?Lang=en&n=C3C7E0D3-1&offset=&toc=hide. Last Accessed 30 April 2016.

[11] W. J. Yurko to Jeanne Sauvé, 15 October 1974, in RG108 vol. 284 file 4833-3, Library and Archives Canada (hereafter LAC) as referenced in Hereward Longley, "Indigenous Battles for Environmental Protection and Economic Benefits during the Commercialization of the Alberta Oil Sands, 1967–1986," in Arn Keeling and John Sandlos eds., Mining and Communities in Northern Canada: History, Politics, and Memory. (Calgary: University of Calgary Press, 2015), 210.

[12] Natalia M. Kraswetz, William R MacDonald and Peter Nichols, "A Framework for Effective Monitoring: A Background Paper Prepared for the Canadian Environmental Assessment Council," (Ottawa: Minister of Supply and Services Canada, 1987), 76.

focussed on "the biophysical environment – the air, land and water systems, [though] provision was also made for research on the human environment, or human system." [13]

The human system committee contained representation from multiple provincial governmental departments, industry and the Town of Fort McMurray though no one specifically representing the Indigenous community was on the committee. Natalia M. Kraswetz, William R MacDonald and Peter Nichols see that this was a major problem, writing in their analysis of the program that:

> The native communities in the region were not involved in the research program, except as the objects-of-study. The Fort MacKay Band requested information and a presentation from the human system, and on that basis concluded that the program was not related to their interests.[14]

The program also failed to facilitate interaction between the social, cultural and biophysical research, with the programs focus instead being on research and monitoring "social systems."[15]

While it is true the program failed to include Indigenous people and their knowledge systems in the research, some researchers hinted at the potential for utilizing Indigenous wisdom in oil sands monitoring. In his report, "History of the Athabasca Oil Sands Region, 1890 to 1960s, Volume II: Oral History", James M. Parker suggested that Indigenous histories needed to be examined "within a wider context", with "oral history data" used to "complement the data being uncovered in documented sources."[16] Michael G. Fox and W.A. Ross' report recognized trapping as "an important source of livelihood to many…as well as an element of economic and cultural diversity in the Fort McMurray area."[17] While both reports pointed to the potential connections between Indigenous culture and the environment, they did not explore these connections in detail, instead focussing on the potential socioeconomic impacts that oil sands development would have on the community.

A third report by Edward van Dyke and Carmon Loberg considered the potential social and cultural impacts of oil sands development on Indigenous people, noting:

> The oil sands developments have been a major imposition upon, and have affected the physical displacement of, native people.

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[13] Ibid., 6.
[14] Ibid., 80.
[15] Ibid., 77.
[16] James M. Parker, *History of the Athabasca Oil Sands Region, 1890 to 1960's. Volume II: Oral History.* Prep. for the Alberta Oil Sands Environmental Research Program, (Edmonton: Alberta Oil Sands Environmental Research Program, 1980). 46.
[17] Michael G. Fox & W. A. Ross, *The influence of oil sands development on trapping in the Fort McMurray region,* (Edmonton: Alberta Oil Sands Environmental Research Program 1979), 112.

> Nearly all of the long-time residents who were interviewed referred to the destruction of familiar landmarks which were symbols of their home environment. These have been replaced with the symbols which represent an entirely different life style from that which is familiar to the old-timers. This historical fact is relevant to a feeling of disorientation which seems to be experienced by many of the older residents.[18]

The authors repeat this theme throughout the report, recognizing that: "Without exception, residents who have been in Fort McMurray for a long time and particularly those who were born and raised in the community point to the psychological trauma of the changed landscape. The physical symbols which had meaning for them have been destroyed. As a result, the area does not feel like home."[19] The authors acknowledged their inability to understand the issues facing the Fort McKay Indigenous community, and felt this was likely because they failed to deal with concepts "local people could relate to" and because they, as researchers, were not based in the community.[20]

Unfortunately, AOSERP made virtually no effort to consider how Indigenous peoples' understanding of ecosystems (or human systems for that matter) might be used to better understand the potential impacts of oil sands development. These failures helped to contribute to a disengaged relationship between Indigenous people and the Government of Alberta for over the next decade and a half where communities complained that their concerns were not being addressed in regulatory processes.[21]

Northern River Basin Study

Approximately 15 years after the last AOSERP reports were completed, the Governments of Alberta and Canada initiated the Northern River Basin Study (NRBS). One of the Study's key principles was the need to connect Indigenous knowledge with environmental research and monitoring. The NRBS studied the three major northern river basins in Alberta – the Athabasca, Peace, and Slave– and was divided into eight components, including traditional knowledge as a separate but connected component. The traditional knowledge component synthesized a number of research projects into one final report, whose recommendations are based upon archival research, interviews with 258 community members, and surveys with 221 individuals, the vast majority of whom were indigenous.[22] In

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[18] Edward W. Van Dyke and Carmon Loberg, *Community Studies: Fort McMurray, Anzac, Fort McKay*. (Edmonton: Alberta Oil Sands Environmental Research Program, 1978),14.
[19] Van Dyke & Loberg, 107-108.
[20] Van Dyke & Loberg, 136-137.
[21] Longley, 2015.
[22] Lea Bill, Jean Crozier, Dennis Surrendi with Lloyd (Sonny) Flett and Danny MacDonald, *A Report of Wisdom Synthesized from the Traditional Knolwedge Component Studies.* (Edmonton: Northern River Basins Study, 1996), Page 11.

addition, Indigenous peoples contributed to the Study's design, research and production.[23]

As pointed out by William D. Gummer, Kevin J. Cash, Frederick J. Wrona and Terry D. Prowse, because the NRBS effectively included Indigenous communities at all project levels, they were able to effectively ensure that community input and ITK was used to develop program objectives and policy recommendations, effectively identifying "issues and geographic areas of concern for human populations in the basins."[24] The authors describe the relationship between ITK and other project components in the chart below. In their minds, one of the NRBS true strengths was its ability to integrate ITK throughout:

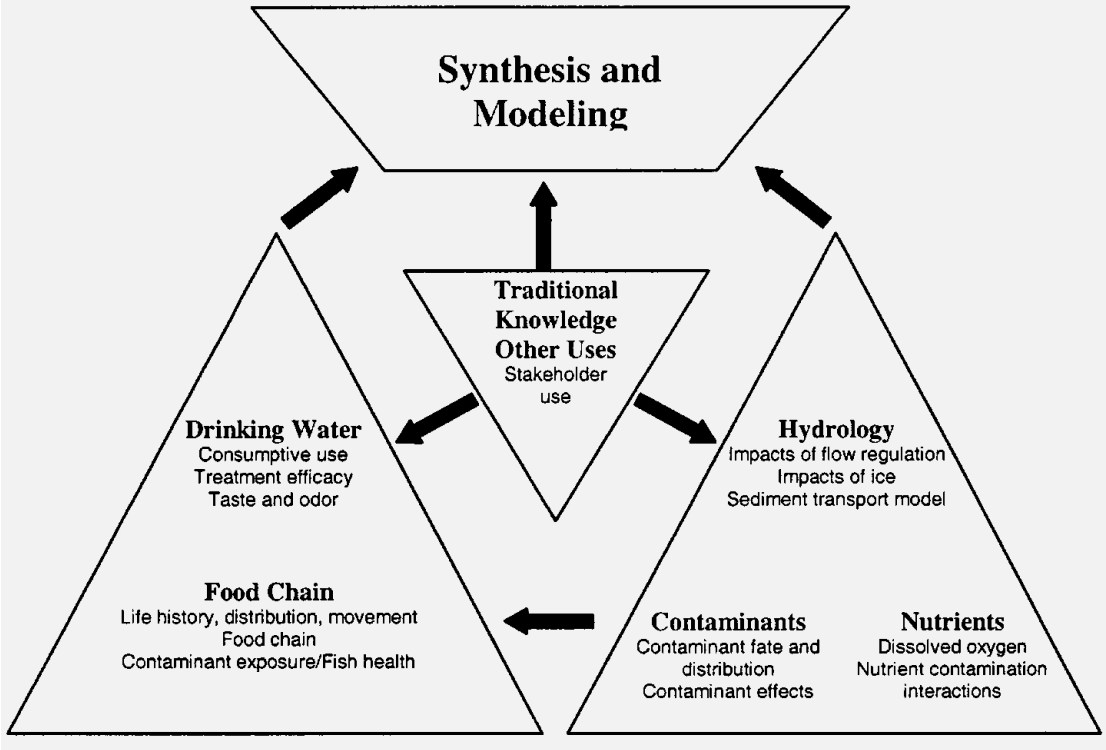

Figure 1. Relationships among the eight NRBS Study Components of Hydrology, Contaminants, Nutrients, Food Chain, Drinking Water, Traditional Knowledge, Other Uses and Synthesis and Modeling.[25]

The NRBS Traditional Knowledge Guiding Principles demonstrate continuity with the CEMA ITK Framework noting the importance of working closely with indigenous communities, recognizing the interconnectedness of "all living things," and the need to use Indigenous Traditional Knowledge with "respect, love and humility."[26] In addition to these guiding principles, the report's recommendations provide a starting place for understanding the potential for using ITK to develop an effective

[23] Ibid., i-ii.
[24] William D. Gummer, Kevin J. Cash, Frederick J. Wrona and Terry D. Prowse, "The Northern River Basins Study: context and design," *Journal of Aquatic Ecosystem Stress and Recovery.* 8: 2000. 14.
[25] Ibid., 8.
[26] Ibid., 3-4.

oil sands monitoring program. In particular, recommendations 4 and 5 speak to the need to build a monitoring program that incorporates both "traditional knowledge" and "conventional science," as well as develop a program that measures water quality using both ITK and conventional scientific methodologies. Other recommendations speak to the need to develop protocol agreements with First Nations and Métis communities, to incorporate recommendations regarding reclamation, and to include Indigenous peoples in the decision-making process by developing co-management arrangements, including representation on decision-making regulatory bodies following the creation of a "Handbook on Methodology for Traditional Knowledge Research."[27] The NRBS final implementation report additionally noted that the NRBS Board believed in seven core principles including that

> The Aboriginal people resident in the Northern River Basins should have formal links to future arrangements for the region so as to contribute their traditional knowledge, protect their culture and accommodate political change.[28]

The implementation report goes on to state that: "it is necessary to draw benefit from all sources of knowledge, and in the Northern River Basins it includes […] traditional knowledge" and that "[t]he future of the basins cannot be responsibly determined without a continued stream of scientific and traditional knowledge."[29] While these recommendations were made within the specific context of water monitoring, they apply to environmental monitoring more broadly and point the way towards how ITK could be used to develop an effective oil sands monitoring program that is respectful and inclusive of Indigenous peoples.

The recommendations made in the NRBS TK Synthesis Report and Final Report speaks directly to the need to provide a meaningful place for ITK within regulatory process and monitoring programs. Reviewing the recommendations within the context of more recent attempts by governments to include ITK in monitoring demonstrate two key facts: (1) that Indigenous communities have been consistent in their desire to see ITK used effectively and meaningfully; and (2) that governments have failed to meaningfully incorporate ITK into land-use policy, regulatory processes and decisions, and environmental monitoring, despite the fact that many of the specific recommendations in the CEMA ITK Framework can be found in the NRBS report. The result of these two trends, moreover, has been the repeated frustration expressed by Indigenous peoples and the loss of confidence in the regulatory and monitoring processes and outcomes.

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[27] Ibid., 364-366.
[28] John Stager, "Life after NRBS: A Proposal for Interjursdictional Management of the Peace, Athabasca and Slave River Basins," (Edmonton: Northern River Basin Study, 1995), 3.
[29] Ibid., 7.

Joint Oil Sands Monitoring Program

While the Governments of Alberta and Canada continued environmental monitoring in Northeastern Alberta in the years after the NRBS, a number of concerns emerged that undermined the perceived validity and independence of the collected data, not the least of which was the failure of governments to seriously incorporate ITK into regulatory and monitoring programs. These concerns came to a head in 2009 when Erin N. Kelly, Jeffrey W. Short, David W. Schindler, Peter V. Hodson, Mingsheng Ma, Alvin K. Kwan and Barbra L Fortin published a study that exposed deficiencies regarding the measurement of polycyclic aromatic compounds in regional water monitoring.[30] This report, as well as other critiques, spurred both the Governments of Canada and Alberta to initiate reviews of regional oil sands monitoring programs and ultimately to launch the Joint Oil Sands Monitoring Program (JOSMP) in 2012.[31] The stated purpose of JOSMP was to "implement a world class monitoring program for the oil sands that integrates air, water, land and biodiversity elements." Both governments committed to developing a program that meaningfully included "traditional ecological knowledge" and would involve Indigenous communities.[32] Unfortunately, the program's implementation was undercut from the beginning by a range of factors, including jurisdictional uncertainty, an indefinite mandate, and a lack of local buy-in.[33] As a result, many commitments, including those regarding ITK, were difficult to fulfill. By 2015 the five oil-sands-area First Nations and at least one Métis group had withdrawn their support of the program.[34]

In 2014, the Government of Alberta launched the Alberta Environmental Monitoring, Evaluation, and Reporting Agency (AEMERA).[35] From its founding, AEMERA prioritized the need to meaningfully integrate ITK into the Province's environmental monitoring programs, though they were hampered by the jurisdictional quagmire that JOSMP had become. At the conclusion of JOSMP, most communities agreed that AEMERA was taking important steps to include ITK in their programing, working to negotiate protocol agreements with Indigenous groups that had left JOSMP, forming an Indigenous Wisdom Panel to oversee the

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[30] Erin N. Kelly, Jeffrey W. Short, David W. Schindler, Peter V. Hodson, Mingsheng Ma, Alvin K. Kwan and Barbra L Fortin ,"Oil sands development contributes polycyclic aromatic compounds to the Athabasca River and its tributaries." *Proceedings of the National Academy of Sciences of the United States of America, vol. 106 no. 52* (2009).

[31] Liz Dowdeswell (Chair), Peter Dillon, Subhasis Ghoshal, Andrew Miall, Joseph Rasmussen, John P. Smol, *A Foundation for the Future: Building an Environmental Monitoring System for the Oil Sands*, (Ottawa: Environment Canada, 2010); Alberta Oil Sands Secretariat, *Responsible Actions: A Plan for Alberta's Oil Sands*, (Edmonton: Government of Alberta, 2009). See also, Pierre Gosselin, Steve E. Hrudey, M. Ann Naeth, Andre Plourde, Rene Therrien, Glen Van Der Kraak, Zhenghe Xu, Royal Society of Canada Expert Panel: Environmental and Health Impacts of Canada's Oil Sands Industry, (Ottawa: Royal Society of Canada, 2010).

[32] Government of Canada and Government of Alberta, *Joint Canada/Alberta Implementation Plan for Oil Sands Monitoring* (Ottawa: Government of Canada: 2012).

[33] Paul M. Boothe, *Review of the Alberta Environmental Monitoring, Evaluation and Reporting Agency, A Report to the Honourable Shannon Phillips*, (Edmonton: Department of Environment and Parks, 2016).

[34] Vincent McDermot, "Last Local First Nation Leaves JOSM," *Fort McMurray Today* 2 May 2014.

[35] Boothe, 2.

development of Indigenous monitoring programs, piloting an Environmental Monitoring Technician Training Program, and funding partner organizations to begin developing ITK regional monitoring initiatives.[36] Such initiatives demonstrated AEMERA's commitment to have ITK play a prominent role in provincial monitoring and a desire to finally incorporate many of the recommendations first made in the NRBS report. In April 2016, it was announced that AEMERA would be closed and monitoring responsibilities would once again become part of Alberta Environment and Parks (AEP). It is unclear how the many commitments made to Indigenous communities under AERMERA will be handled by AEP.

Discussion

Monitoring the impacts of industrial development in the oil sands region is as old as the developments themselves. As the above examples demonstrate, when Indigenous people and their ways of knowing are not meaningfully included in environmental monitoring programs they mistrust the monitoring initiatives and their results. Furthermore, even when programs such as the NRBS include Indigenous people, generate trusted results, and make substantive and thoughtful recommendations, they mean little if Government bodies do not act upon them. JOSMP had the potential to finally incorporate the recommendations made by the NRBS, but failed to meaningfully involve Indigenous communities. As a result, communities publically stated they neither supported the program nor trusted the results of its monitoring activities. Following JOSMP, AEMERA attempted to rebuild trust, committing to develop a monitoring program that meaningfully included ITK. Along those lines the new monitoring agency undertook a number of programs and initiatives that did lead improve relations with Indigenous communities in the oil sands. In April 2016 the Government of Alberta chose to shutter the organization leaving many of the AEMERA commitments up in the air. This decision makes incorporation of the CEMA ITK Framework into AEP's core business that much more crucial, as it will be key to helping overcome nearly 30 years of failed attempts to integrate ITK into environmental monitoring.

CEMA Indigenous Traditional Knowledge Framework

It was within this larger context that the Cumulative Environmental Management Association (CEMA) asked its Traditional Knowledge Working Group (CEMA TKWG) to develop an ITK Framework. The objective of the CEMA TKWG was:

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[36] Ginger Gibson-MacDonald, "Shuttering of Science Agency Undermines Reconciliation with Frist Nations" *Edmonton Journal,* 28 April 2016. http://edmontonjournal.com/opinion/columnists/ginger-gibson-macdonald-shuttering-of-science-agency-undermines-reconciliation-with-first-nations (last accessed 30 May 2016. For examples of AEMERA programs see: Alberta Environmental, Monitoring and Evaluation Agency, "Indigenous Knowledge," (Edmonton: AEMERA, 2015). http://aemera.org/activity/indigenous-knowledge/ (Last accessed 31 May 2016); Jane Percy, "Harvesting Knowledge: Monitoring Berries in the Athabasca Oil Sands Region," *Oil Sands Monitoring Community Report*, (Edmonton: AEMERA, 2016). http://osmreport.ca/report/harvesting-knowledge/ (last accessed 31 May 2016).

> To address the lack of clarity and process for incorporation of traditional knowledge into the policy and regulatory regimes, CEMA's Traditional Knowledge Working Group is undertaking the task of developing a practical Traditional Knowledge Framework to help guide the meaningful and successful inclusion of traditional knowledge into policy development, land use planning and monitoring initiatives, and regulatory requirements.[37]

When reviewing previous initiatives, the CEMA TKWG came to the conclusion that ITK had yet to be effectively incorporated into monitoring programs, land-use plans, or regulatory decisions in large part because industry, government, and Indigenous communities had yet to agree on what the effective inclusion of ITK into programs, policies and decisions should look like. They further recognized that developing such a policy would only be possible if those same groups agreed on how successful implementation of ITK would be measured and assessed.

The project was divided into three phases: Phase 1 was a detailed literature review and gaps analysis; Phase 2 was a project scoping exercise; and Phase 3 consisted of engagement with key stakeholders and the drafting the Framework. Together the project took over 3 years to complete and included numerous engagements, drafts, sub-reports, interim reports, and presentations. Relevant material that was excluded from the final CEMA Board of Directors recommendations to the Government of Alberta was included in the report annex to provide necessary project context. [38]

The Framework approved by the CEMA Board of Directors provided broad principles to the Governments of Alberta and Canada for the effective inclusion of ITK in environmental decision-making, recommending that as a first step the Government of Alberta undertake the development of an "ITK Framework Practitioner's Guide to guarantee success."[39] The Framework was delivered by CEMA to the Government of Alberta and Canada in December 2015; the Governments have yet to offer an official response.

Framework Strengths and Limitations

The ITK Framework was a massive undertaking that spanned multiple phases and years. It included thousands of 'conversations' and involved participation from a multitude of stakeholders who agreed to a series of principles that, if implemented, could help ensure ITK would play an important role provincial regulatory,

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[37] Cumulative Environmental Management Association Traditional Knowledge Working Group, "Request for Proposal: Traditional Knowledge Framework Request For Proposals – Final Phase" (Fort McMurray: CEMA, 2014). http://cemaonline.ca/index.php/administration/doc_download/256-rfp-traditional-knowledge-framework-final-phase (last accessed 31 May 2016).

[38] For the project background please see: Firelight Group, "Traditional Knowledge Framework" https://tkframework.ca/ 2016. (last accessed 30 May 2016).

[39] Thompson et. al., 5; see also Cumulative Environmental Management Association, "CEMA Board Approves Indigenous Traditional Knowledge Framework," 2016.

monitoring, and land-use planning initiatives. The strength of the document is that it is the product of a robust engagement process, and while different sectors may be more supportive of various elements of the document, they agreed in principle with the ITK Framework's recommendations.

The Framework's strength could also be interpreted as a weakness. Through the process of trying to take into account multiple perspectives, certain elements that some might have hoped to see included were limited, restricted, or in some cases eliminated. For example, earlier versions of the ITK Framework included a "Measures and Criteria" component that provided "guidance and tools to objectively assess the inclusion of TK in decision-making, and whether the principles of the TK Framework have been respected."[40] That such an important piece was excluded from CEMA's final recommendation to government is unfortunate, and suggest there is much work to be done before ITK can effectively be implemented in government decision-making.

The ITK Framework was the product of multi-stakeholder processes, which were both strengthened and weakened by the group's ability to negotiate policy recommendations acceptable to each sector's interests. The final product consists of a series of principles that echo those made at various times previously (most notably by the NRBS), but that still remain largely unimplemented. The CEMA ITK Framework therefore needs to be clearly connected to each pillar within the Government of Alberta's Integrated Resource Management System (IRMS). The IRMS purports "to integrate and align monitoring, planning, and policy and regulatory systems, and to build strong relationships with partners and stakeholders." Without a clear plan, however, efforts to "effectively integrate the inclusion of Indigenous Traditional Knowledge into the IRMS process" will prove challenging to say the least.[41]

The remainder of this report will provide practical recommendations for how the CEMA ITK Framework's recommendations can be implemented into oil sands monitoring programs.

Key Framework Recommendations

The CEMA ITK Framework was meant to address the inclusion of ITK within the IRMS, specifically within monitoring, planning and, policy and regulatory systems. With regards to monitoring, the Framework made a series of recommendations that are applicable to all the pillars of the IRMS, as well as recommendations specific to monitoring. As noted above, these recommendations are often general and require additional interpretation.

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[40] Firelight Group, "Appendix E: Measures and Criteria." May 31, 2015.

[41] Thompson et. al.,7. For more on the IRMS see: Government of Alberta, "Alberta's Integrated Resource Management System,"(Edmonton: Government of Alberta, 2014), http://oilsands.alberta.ca/2827.html (last accessed 31 May 2016).

At the time of the Framework's drafting, oil sands environmental monitoring was the responsibility of AEMERA, who partnered with regional groups, like the Wood Buffalo Environmental Association (WBEA), to deliver monitoring programs. As described earlier, AEMERA has taken a number of concrete steps to begin the integration of ITK into their operating procedures, most notably establishing an Indigenous Wisdom Panel. In addition, AEMERA has acknowledged the efforts of partnering groups to establish their own ITK groups and projects to begin monitoring the environment. These initial steps will help to facilitate the implementation of both the ITK Framework's principles and recommendations and should be continued.

Summary of the CEMA ITK Framework Recommendations within a Monitoring Context

In total there are sixteen recommendations made in the CEMA ITK Framework that are relevant to AEMERA's monitoring mandate. Of those, ten were general and applicable to all the pillars of the IRMS while the other six were categorized as "monitoring." A detailed review of the recommendations is included in the annex, but a number of core elements can be extrapolated and analyzed below. Following these recommendations will make the implementation of the CEMA ITK possible.

Support For Creation of a Regional ITK Monitoring Group

The creation of an empowered and funded organization made up of Indigenous communities to undertake ITK monitoring programs will be key to implementing the CEMA ITK Framework. This suggestion aligns with requests made in earlier monitoring programs, and will help the Government of Alberta meet their commitment to implement UNDRIP.

Within the oil sands region, Wood Buffalo Environmental Association's Traditional Knowledge Committee (WBEA TKC) is unique positioned and has the opportunity to provide Indigenous communities the vehicle they require to develop ITK monitoring programs. The Wood Buffalo Environmental Association (WBEA) is "a member-driven, independent, community-based, not-for-profit association with 31 members, representing Aboriginal, Environmental Non-Government, Government, and Industry sectors."[42] At present WBEA is responsible for Air Quality Monitoring, Terrestrial Environmental Effects Monitoring, Human Exposure Monitoring and Traditional Knowledge Monitoring within the Regional Municipality of Wood Buffalo.[43] The Traditional Knowledge Committee is the newest group in the organization, only receiving official sanction in 2015. The only project currently being undertaken by the TKC is the Fort McKay Traditional Knowledge Berry Monitoring project, though in 2015 WBEA recommended a number of other projects

[42] RAMP-WBEA Integration Subcommittee, "Report to WBEA General Members Board and RAMP Steering Committee," (Fort McMurray: WBEA & RAMP, 2013), 11.
[43] Ibid., 14-15.

for consideration by AEMERA as part of the 2016/2017 Oil Sands Monitoring Program.[44] At present, 7 Indigenous communities belong to WBEA, and they all actively participate in the WBEA TKC. WBEA TKC has the ability to propose and undertake ITK projects that fall within WBEA's larger mandate though, like all WBEA monitoring groups, the majority of their funding is provided by AEMERA.

WBEA TKC is the only oil sands monitoring group managed by stakeholders using ITK to develop monitoring programs. The TKC has significant Indigenous community membership and participation, a track-record completing ITK monitoring, and the potential to connect with all Indigenous communities within the RMWB. Additionally, they have the advantage of already being funded by AEMERA through WBEA's annual budgeting process. The TKC is currently limited by WBEA's mandate, but it maybe possible to expand that mandate to include all CEMA ITK Framework recommendations regarding oil sands monitoring.

A key to AEMERA implementing the ITK Framework recommendations will be to continue actively engaging with Indigenous communities in the oil sands region. There is an opportunity to leverage the existing WBEA TKC structure and continue to develop ITK monitoring initiatives. Over time, the WBEA TKC could grow to begin implementing ITK Framework recommendations regionally including developing community protocol agreements, expanding the TKC membership and scoping additional ITK projects.

Other CEMA ITK Recommendations

Evaluation of Existing Monitoring Programs to Ensure they Include ITK

Another task that the AEMERA should undertake is a review of existing oil sands monitoring programs to ensure they have considered ITK within their scope. Where opportunities for collaboration are identified, those should be explored and potentially lead to projects being undertaken jointly so that monitoring programs include both Western science and ITK as per recommendations made not only in the ITK Framework, but from the NRBS.

Creation of ITK Protocols

AEMERA should prioritize the creation of ITK protocol agreements with each member Indigenous community. In this process, AEMERA might find it useful to work closely with the WBEA TKC since they have established relationships and protocol agreements with all member Indigenous communities.

[44] For more on the Fort McKay Traditional Knowledge Berry Monitoring Program please see: WBEA – Fort McKay Berry Focus Group, "Using Traditional Knowledge and Western Science to Monitor Berry Patches in the Athabasca Oil Sands Region," (Fort McMurray: WBEA, 2015). Accessed at https://youtu.be/F5pl6uPHJPc 31 May 2016.

Explore the development of Community-Based Monitoring Programs and Incident Reporting Mechanisms

AEMERA should continue to develop community-based monitoring programs and an incident reporting mechanisms, two key recommendations from the CEMA ITK Framework.

A key monitoring recommendation within the CEMA TKC asks that ITK holders be included in the monitoring of industrial projects at all phases of activity and that such monitoring program should include Indigenous community-based monitoring component. AEMERA has initiated the development of an Indigenous community-based monitoring program that will help to meet this request.[45] As a place based organization, WBEA TKC will be well positioned to assist with the development of this community-based monitoring program expanding it into member communities.

The CEMA ITK Framework also recommends that a "transparent, accessible and culturally informed incident/issue reporting service" be established to report concerns and to follow-up on those concerns. Once again, there is an opportunity for AEMERA to work with WBEA TKC to play a role and to develop monitoring programs based on reported community concerns. WBEA has a track-record of taking such action including the development of the Fort McKay Air Quality Index which was created as a result of community requests.

Use ITK to Create a Pre-Industrial Baseline Measure

A key recommendation within the CEMA ITK Framework was the community's desire to see a pre-industrial baseline study using ITK. The advantage of the WBEA TKC undertaking such a project is that it will provide a baseline data from which to develop future ITK monitoring initiatives and to evaluate change over time. Additionally, undertaking such a project will help to demonstrate that community observations are being listened to and that they will inform future decision-making processes as oil sands development proceeds.

Develop ITK Monitoring Indicators and Thresholds

As the WBEA TKC continues to grow, it has the potential to undertake monitoring programs that may help to identify identify key ITK indicators and thresholds. These indicators and thresholds can then be used to develop effective ITK monitoring programs and potentially assist with the creation of regional ITK indicators and thresholds.

Monitoring Reclamation

A priority for communities is having the ability to monitor the reclamation process. In the long-term, AEMERA could develop a reclamation-monitoring program to ensure the reclaimed land meets the Indigenous land-use needs of the community.

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[45] Zoey Wang, Karin Smith-Fargey and Krista Tremblett, "Situational Analysis: Insights into Aboriginal Community Based Monitoring Initiatives in the Oil Sands Region," (Edmonton: AEMERA, 2016). http://aemera.org/wp-content/uploads/2016/01/Factsheet_Situational-Analysis1.pdf (last accessed 31 May 2016).

Research completed by CEMA's Reclamation Working Group demonstrates that Indigenous communities and knowledge holders have a strong vision for the future of the land.[46] This research should be used to inform monitoring priorities for reclaimed areas ensuring monitoring programs use indicators relevant to the community to determine long-term success.

Recommendations for Implementing the ITK Framework into Current AEMERA Programs and Initiatives

As already discussed, AEMERA has taken a number of steps to meaningfully ensure ITK is incorporated into the provincial environmental monitoring program. Establishing the Indigenous Wisdom Panel, encouraging traditional knowledge projects undertaken by partner organizations, initiating negotiations of ITK protocol agreements, undertaking monitoring training programs for Indigenous communities, and piloting community-based monitoring are important steps that should continue.

It will be important for AEMERA to build upon these strengths when implementing the CEMA ITK Framework in their oil sands monitoring program. The key recommendation from which most of the recommendations flow is to create an empowered and funded local organization made up of Indigenous communities to undertake ITK monitoring programs. The WBEA TKC is currently well positioned to take on this task, they are already developing Indigenous traditional knowledge monitoring programs within the RMWB, have a significant regional membership, have connections with other western science monitoring initiatives, and have sustainable administration and funding. Again these strengths will assist AEMERA in implementing the CEMA ITK Framework.

In the future, AEMERA may explore the possibility of expanding the WBEA TKC's mandate so that projects currently beyond WBEA's scope can be considered. At present, WBEA monitoring is limited to Air Quality Monitoring, Terrestrial Environmental Effects Monitoring, and Human Exposure Monitoring (as well as Indigenous Traditional Knowledge monitoring). At present the WBEA TKC have hesitated to undertake programs outside of these broad study areas, for example, in the 2016/2017 budgeting cycle, an indigenous community's request to undertake a study of observed changes in freshwater clams was denied because administrators at WBEA felt it was too far outside of the organization's current mandate. While in the past, WBEA has explored the possibility of expanding their mandate to include water quality and aquatics monitoring, such an expansion has yet to be approved by

[46] Cara Sanders and Deborah Simmons, *Reclaiming Homeland: Envisioning Research on Traditional Knowledge in Reclamation, Volume I: A Community Document*. (Fort McMurray, Cumulative Environmental Association, 2013).

the membership at large.[47] If WBEA does chose to expand their mandate, the opportunity would exist to also expand the WBEA TKC mandate to other media. In the meantime, the TKC should continue implementing other ITK Framework recommendations including developing protocol agreements with member communities, inviting additional members to join, and scoping and undertaking member recommended ITK projects.

By continuing to support the WBEA TKC, AEMERA will be providing space to Indigenous communities in the region to develop monitoring programs that use ITK to understand the potential impacts of industrial development in the region.

[47] RAMP-WBEA Integration Subcommittee, "Report to WBEA General Members Board and RAMP Steering Committee," (Fort McMurray: WBEA & RAMP, 2013).

Implementation Timelines

Immediate-term (1-6 months)

1. AEMERA should empower a regional group to assist with the coordination of ITK efforts in the oil sands region. AEMERA and WBEA TKC should work collaboratively and commit to discussing priorities and possibilities. These conversations should identify each organizations priorities and work to align those priorities.

2. AEMERA should initiate a review of all existing monitoring programs to determine opportunities to incorporate ITK and potentially establish parallel programs to twin the two knowledge systems.

Short-term (6-12 months)

1. WBEA TKC should attempt to grow the committee membership to include all Indigenous communities within the RMWB. Each member organization should have an ITK protocol signed with WBEA.

2. WBEA TKC should develop a long-term (5 year) strategic plan for ITK Monitoring in the oilsands aligning with AEMERA priorities.

Medium-term (12-36 months)

1. WBEA TKC should formalize its partnership with AEMERA to expand to a regionally based group that can help to coordinate the Community Based-Monitoring Program and Incident Reporting Mechanism.

2. AEMERA should initiate the development of a pre-Industrial baseline assessment of north-eastern Alberta based upon ITK so future ITK Monitoring Programs understand impacts of industrial development on communities. This work may be led by a regional organization such as the WBEA TKC group.

Long-term (36-72 months)

1. AEMERA should attempt to develop ITK Monitoring Indicators and Thresholds in the oil sands region. The WBEA TKC or another regional group may be well positioned to lead this project.

2. AEMERA should develop a reclamation-monitoring program using ITK. The program should be based upon the information learned from other ITK monitoring projects. The WBEA TKC or another regional group may be well positioned to lead this project.

Conclusion

Indigenous people have requested that their Indigenous Traditional Knowledge be included in oil sands monitoring since industrial development has occurred in the region. By and large these requests have been unanswered, leaving over 40 years of unfulfilled promises. AEMERA has begun to turn the page, both by developing their own programs and providing funding to WBEA TKC to undertaking ITK monitoring projects. AEMERA should continue down this path, and in so doing take opportunities to meaningfully involve Indigenous peoples and their knowledge systems in oil sands monitoring projects.

ANNEX

Review of the CEMA TK Framework Recommendations

CEMA TK Framework General Recommendations in a Monitoring Context

The ITK Framework includes a series of "short term" and "long term" recommendations. The first "General Actions / Best Practices" recommendations are meant to be applied to all the IRMS pillars, while later recommendations are specific to "Land-use Planning," "Regulatory (Project Based)" and "Monitoring." The following will review the ITK Framework recommendations within the context of incorporation into an effective monitoring program.

The first ITK Framework recommendation proposes that the Government of Alberta adopt the Framework's principles and "implement them for government decision-makers, including setting standards and requirements for other decision-makers." Within a monitoring context, it appears AEMERA has already initiated this process. As discussed above, the creation of the Indigenous Wisdom Panel, committing to fund Indigenous knowledge research projects, and committing to establishing community-specific protocol agreements are all steps in the right direction. One of the challenges for AEMERA will be demonstrating how ITK is being used alongside other types of knowledge to inform regulator and policy decisions. While outside of the scope of AEMERA, demonstrating this connection will be vital to the successful implementation of ITK Framework.

The ITK Framework's second recommendation relates to providing adequate capacity funding and scheduling for ITK projects. This request could prove challenging within a monitoring context given that many communities in the oil sands region are already overwhelmed by the regulatory process and currently do not have the capacity to undertake additional programs. As well, the current economic climate means funding for existing monitoring programs is constrained, and building new ones using a whole new knowledge system would be conceptually and financially challenging. A reasonable first step would be to provide funding to an ITK Regional Monitoring Group (such as the WBEA TKC) to begin working jointly with Indigenous communities to develop ITK programs that meet the needs of the communities.

The third recommendation within the ITK Framework is for the government to respect engagement protocols regarding ITK. AEMERA has already initiated this process, initiating protocol negotiations with Indigenous communities. Completing this work on a community-by-community basis has the potential to become extraordinarily time consuming and overwhelming, as AEMERA becomes responsible for managing multiple agreements with various communities, many dealing with their own changing political dynamics. A more reasonable approach might be to create an ITK Regional Monitoring Group that will negotiate protocol agreements with each participating First Nations and Métis community. In this way

communities will have a stake in the program and be able to work together to ensure its success.

The fourth and fifth recommendations ask how Indigenous knowledge will be managed through the IRMS, and specifically how decisions relying upon ITK will be communicated back to the community. This concern extends beyond ITK, as communities have often complained that governments and agencies fail to communicate how the information provided in various forms is used to make decisions. One opportunity for AEMERA would be to develop a report-back mechanism that demonstrates clearly how information gathered through ITK monitoring programs was provided to and used by regulators and policy bodies. It will then be up to regulators and policy bodies to demonstrate how that information was used to make informed decisions.

The sixth recommendation asks that cumulative effects assessments include a pre-industrial baseline developed using ITK. It is unclear how AEMERA within its current mandate can meet this request; through it is also clear that Indigenous communities have prioritized this request. It will be for AEMERA working with the other pillars of the IRMS to develop such an assessment.

The seventh ITK Framework recommendation is more applicable to policy and regulatory decision making bodies, asking that they use all available ITK prior to making decisions. For AEMERA, developing a regional organization that provides an opportunity for Indigenous communities to propose and undertake relevant monitoring projects to inform decision-makers would be invaluable.

The eighth recommendation of the ITK Framework is long-term in nature and asks that all environmental decision makers obtain a basic level of cultural awareness and ITK training. AEMERA has already taken steps to achieve this goal, providing training to staff in cultural awareness programs. An additional opportunity AEMERA could leverage is to use regional groups and the Indigenous Wisdom Panel to develop protocols and methodologies for the actual monitoring and interpretation of results.

The ninth recommendation asks that a "Regional TK Implementation Office" be established to liaise between government and Indigenous communities regarding the implementation of ITK programs and projects. This request would be met by the creation of the ITK Regional Monitoring Group.

The final general long-term recommendation asks that existing frameworks, policies procedures and guidelines be reviewed to consider whether they have effectively included ITK. It is suggested that the "Regional ITK Implementation Office" undertake this review with the goal to ensure all relevant frameworks, policies, procedures, and guidelines align with the ITK Framework. It seems that AEMERA has taken steps to complete such a review by establishing the Indigenous Wisdom Panel. The logical next step would be to empower a ITK Regional Monitoring Group

to review current oil sands monitoring activities to ensure ITK has been effectively incorporated.

CEMA TK Framework Recommendations Specific to Monitoring

In addition to the general ITK Framework Recommendations, a number of specific recommendations regarding monitoring are included in the ITK Framework. While some of these have already been covered in the above discussion, each is considered below.

The first monitoring-specific recommendation asks that ITK holders be included in the monitoring of Projects at all phases of activity. Additionally, this should include Indigenous community-based monitoring and communication. Once again, AEMERA has taken steps in this direction to initiate an Indigenous community-based monitoring program.[48] This work should continue in partnership with the Regional ITK Monitoring Group and be expanded to include on-site monitoring.

The second monitoring-specific recommendation asks that ITK, Indigenous communities, and ITK holders be used when developing guidelines for and assessing oil sands reclamation. CEMA's research regarding how ITK can be incorporated into reclamation planning demonstrates that Indigenous communities and knowledge holders have a strong vision for the future of the land.[49] This research should be used to inform monitoring priorities for reclaimed areas ensuring monitoring programs use indicators relevant to the community to determine long-term success.

Related to the third monitoring-specific recommendation is a long-term goal to use ITK to develop thresholds for decision-making. While this issue again connects closely to land-use planning, it also requires that effective ITK measures be established to determine successful community involvement. AEMERA can assist by supporting ITK monitoring projects that help to identify key indicators and thresholds from the community's perspective.

The fourth recommendation asks that the government establish a "transparent, accessible and culturally informed incident/issue reporting service" to report concerns and to follow-up on those concerns. Once again, there is an opportunity to complete this in partnership with a Regional ITK Monitoring Group that would have the authority to accept community concerns, develop monitoring programs based on those concerns, and complete associated follow-up based upon individual incidents or regionally.

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[48] Zoey Wang, Karin Smith-Fargey and Krista Tremblett, "Situational Analysis: Insights into Aboriginal Community Based Monitoring Initiatives in the Oil Sands Region," (Edmonton: AEMERA, 2016). http://aemera.org/wp-content/uploads/2016/01/Factsheet_Situational-Analysis1.pdf (last accessed 31 May 2016).

[49] Cara Sanders and Deborah Simmons, *Reclaiming Homeland: Envisioning Research on Traditional Knowledge in Reclamation, Volume I: A Community Document*. (Fort McMurray, Cumulative Environmental Association, 2013).

The fifth long-term request asks that Indigenous communities be involved with regional monitoring agencies and initiatives. This objective could potentially be achieved through empowering regional monitoring organizations that have multi-stakeholder representation, allowing these regional bodies to pursue regional monitoring interests in partnership.

The request goes on to include the desire for the monitoring of environmental, social, and cultural change. While such monitoring is currently outside of the scope of AEMERA, exploring the potential to connect the various impacts caused by industrial development in Indigenous communities is a community priority, and the potential to include such monitoring within the mandate of AEMERA should be examined.

The sixth long-term request asks that the Government of Alberta mandate that proponents meaningfully include ITK in their reclamation planning from beginning to end. While this request is clearly outside of the scope of AEMERA, the organization could, play a supportive role, giving proponents a forum to develop and then monitor reclamation plans ensuring the ITK is used and respected.

Material Collected in Support of Report

The CEMA TKWG created a number of products for review during the course of the ITK Framework Process. A number of these did not receive the consensus support from the CEMA Board of Directors and where therefore were not included with the final package delivered to the Governments of Alberta and Canada with the completed Framework. Included in the Annex are the products that were distributed to all CEMA members at the ITK Summit where the ITK Framework was presented and debated in its totality May 31, 2015. In addition, the reports produced by the first two phases of the ITK Framework are also included for additional context.

Materials provided to attendees at the CEMA Indigenous Traditional Knowledge Summit May 31, 2015: http://bit.ly/22HtVMz.

All phases of the CEMA ITK Framework: http://bit.ly/25G2DYw.

All material accessed for this report that is available digitally has been collected and stored here: http://bit.ly/292tHdt.