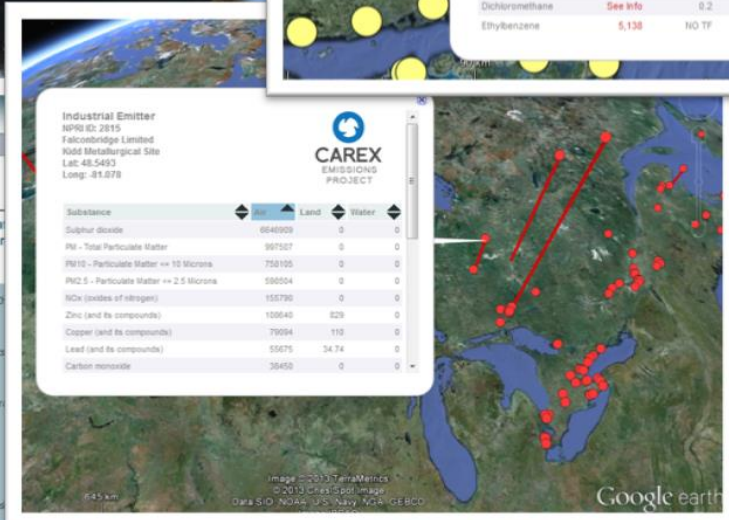


These rankings are based on emissions to air reported to the National Pollutant Release Inventory in 2006 and our best estimates of emissions from motor vehicles, trains, airplanes taking off and landing, hazardous waste incinerators, and residential heating (oil, gas, and wood). Other sources of these known or suspected carcinogens may exist and other pollutants not listed here may be emitted from these sources.

NOTE: A high rank does not necessarily indicate a high health risk. Visit the main CAREX environmental estimates for more information on actual measured levels and potential health risk for different substances.

SUBSTANCE	ANNUAL AMOUNT (Kg)	TOXICITY FACTOR	TOXIC EQUIVALENT (Kg) Compared to Benzene	SUBSTANCE RANK	# COMMUNITIES WITH SUBSTANCE
Acetaldehyde	6,191	0.017	105	213th	646
Arsenic	256	2600	664,520	69th	457
Benzene	24,049	1	24,049	205th	646
Benz[a]anthracene	See info	54	See info	NR	216
Benz[a]pyrene	See info	6400	See info	NR	216
Benz[b]fluoranthene	See info	130	See info	NR	212
Benz[k]fluoranthene	See info	NO TQ	No TQ	NR	211
Butadiene	2,737	0.54	1,478	179th	646
Cadmium	1,131	28	31,662	1st	647
Chloroform	See info	1.6	See info	NR	NR
Chromium	541	130	See info	6th	65
Chrysene	See info	5.1	See info	NR	209
Dichloromethane	See info	0.2	See info	NR	21
Ethylbenzene	5,138	NO TQ	No TQ	198th	641



CAREX Canada: Tools for Tracking Exposures to Known and Suspected Carcinogens in the Environment

A Strategic Plan for Transferring and Exchanging Knowledge about CAREX Canada Tools with First Nations Organizations

November 2013

Developed in Collaboration with the First Nations Environmental Health Innovation Network and the Assembly of First Nations



ACKNOWLEDGEMENTS

We would especially like to thank the Elders who opened and closed our meetings, and graciously provided their comments:

Elder Leonard George, Tsleil-Waututh First Nation
Vancouver, British Columbia. January 29th and 30th, 2013. Inaugural meeting of the CAREX-FNEHIN First Nations Knowledge Translation Advisory Committee.

Elder Jimmy Dick, Moose Cree First Nation
Toronto, Ontario. September 23rd and 24th, 2013. Plan refinement meeting.

Our appreciation also goes to **Dr. Charlotte Reading**, Director, University of Victoria Centre for Aboriginal Health Research, for her talk "Insights into First Nations Knowledge Translation" at the Vancouver, BC meeting.

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Photo: Aruna Jayawardane

INTRODUCTION

CAREX Canada, in collaboration with researchers at the Spatial Sciences Research Lab at the University of Victoria (UVIC SSRL) and occupational health researchers at the University of British Columbia, has developed websites and tools that help us to understand where and how we may be exposed to known and suspected carcinogens in our environments:

- The Emissions Mapping Project provides Google Earth files showing estimated levels of toxic emissions for different geographic areas, including aboriginal communities, watersheds, and ecosystems. This information is a useful starting point for developing a comprehensive inventory of local pollutants.
- The CAREX Canada exposure surveillance estimates provide general indicators of potential exposure to carcinogens at home, outdoors and at work, and simple tools are available to calculate the excess risk of getting cancer from air, water and foods (eRISK) and to better understand what kinds of exposures occur in different jobs (eWORK).

This strategic plan was developed by the CAREX Canada First Nations Knowledge Translation Advisory Committee in collaboration with staff from the First Nations Environmental Health Innovation Network (FNEHIN), CAREX Canada, and the UVIC SSRL. The plan was developed in order to identify:

- potential key audiences for the information and tools
- examples of past successes and key characteristics of training programs for First Nations groups
- approaches and guidelines for developing First Nations training for the Emissions Mapping Project, eRISK and eWORK tools.

First Nations Knowledge Translation Advisory Committee

Terrina Bellegarde	Environmental Health Specialist, Federation of Saskatchewan Indian Nations	SK
Sue Chiblow	Environmental Consultant, Lands & Resources Unit, Mississauga First Nation	ON
Paulette Fox	Engagement and Relationships Advisor, Ministries of Energy and ESRD	AB
Danika Littlechild	Lawyer, Wilton Littlechild Law, Board Member, North-South Institute	AB
Aruna Jayawardane	Science Director, Maliseet Nation Conservation Council (MNCC)	Atlantic
Roseanne Sark	Director of Health, Mi'kmaq Confederacy of PEI	Atlantic
Bob Van Dijken	Acting Director of Circumpolar Relations, Council of Yukon First Nations	YK

FNEHIN, CAREX Canada and UVIC SSRL representatives

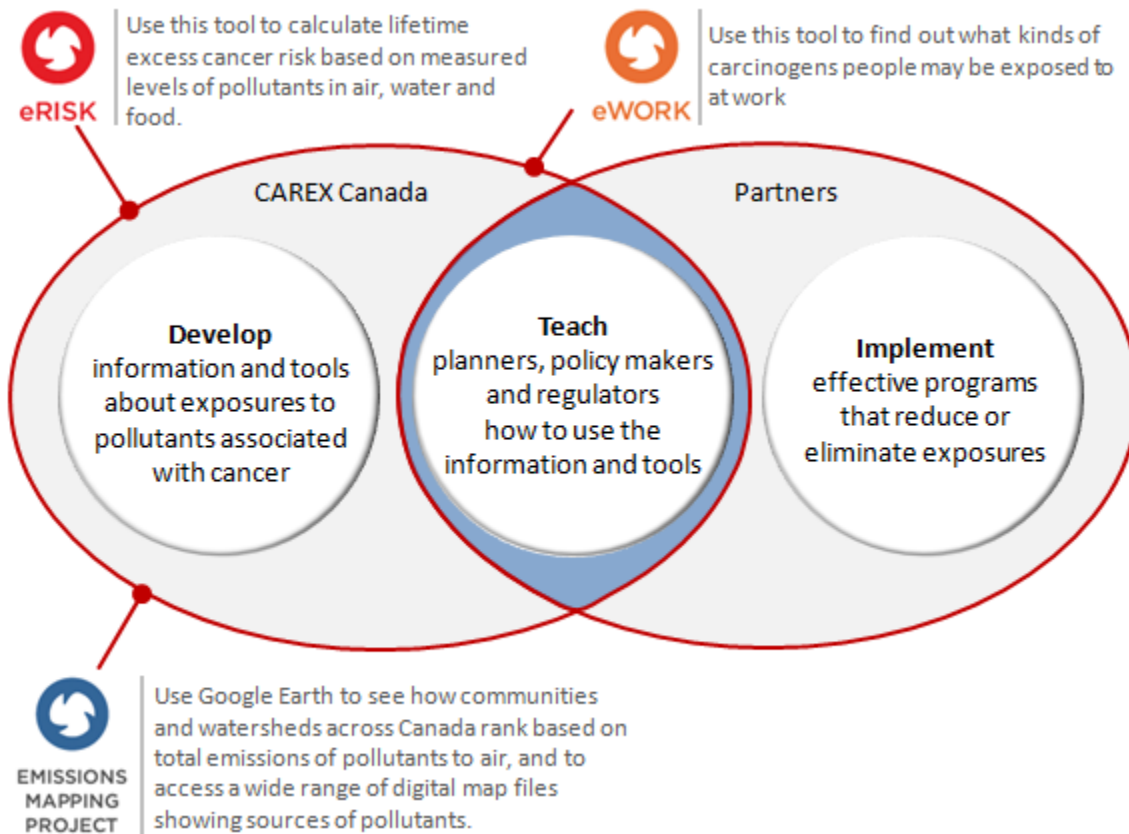
Melissa Pomeroy	Policy Analyst, Assembly of First Nations, (former) FNEHIN coordinator
Andrew Black	Policy Analyst, Assembly of First Nations, FNEHIN coordinator
Eleanor Setton	Co-director Spatial Sciences Research Lab, Scientific Advisor to CAREX Canada
Karla Poplawski	Environmental Exposures, CAREX Canada – University of Victoria Site
Alison Palmer	Managing Director, CAREX Canada – Simon Fraser University Site



There are many risk factors for developing cancer, for example, genetics and lifestyle behaviours like smoking. Exposure to some kinds of pollutants in the environment and at work can also contribute to getting cancer.

CAREX Canada is a university-based project that has been gathering information and developing tools about pollutants that are associated with different forms of cancer, and that may be present in the air we breathe, the food we eat, or the water we drink.

The CAREX Canada team works collaboratively with partners to teach planners, policy-makers and regulators how to identify priorities for reducing or eliminating exposures now so fewer people get cancer in the future.

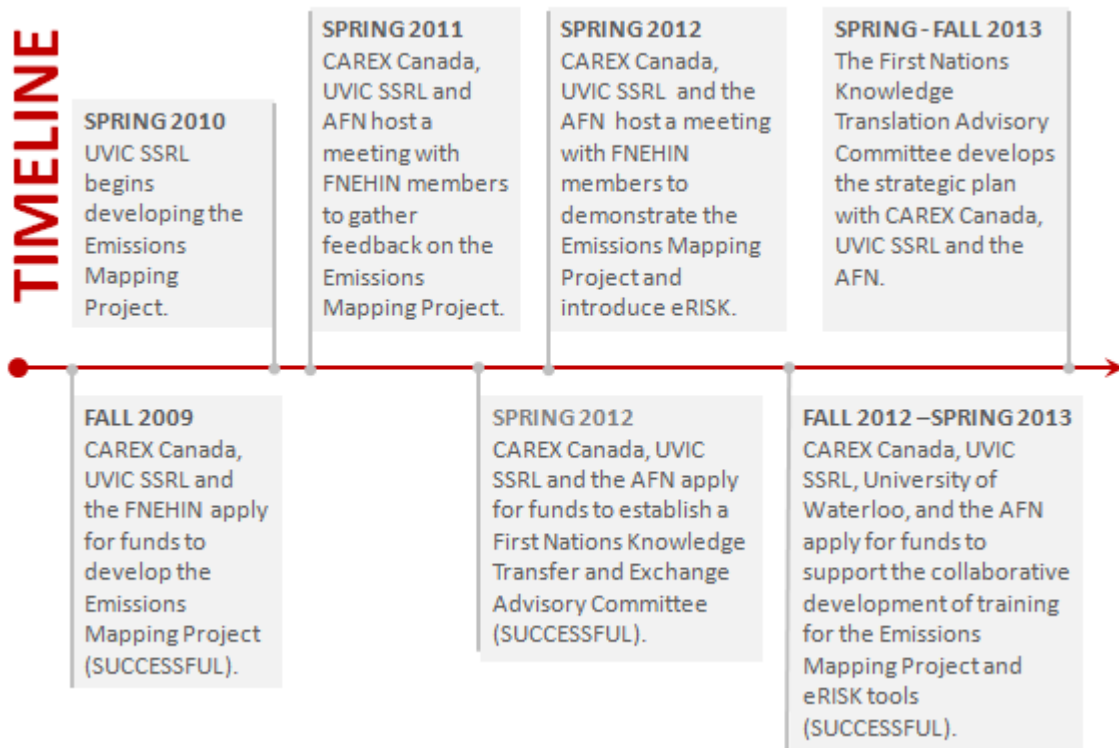


The **First Nations Environmental Health Innovation Network** is a Canada-wide network that provides information to assist First Nation communities to participate in environmental health research and to address their environmental health concerns.

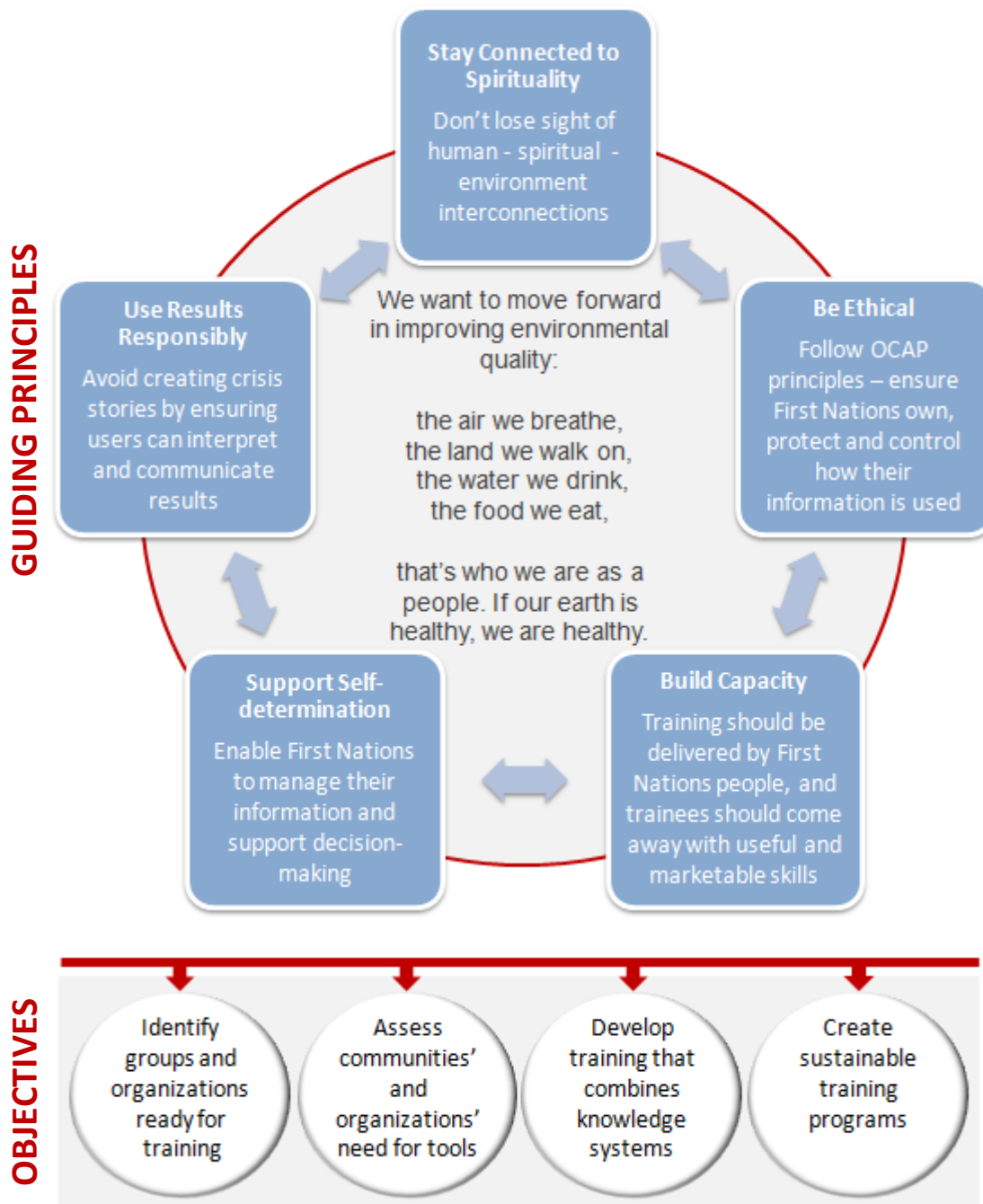


This strategic plan is the result of a series of meetings and conference calls conducted by CAREX Canada and Uvic SSRL researchers in collaboration with staff at the Assembly of First Nations, and members of the First Nations Environmental Health Innovation Network.

The partnership has been successful in developing several successful funding applications to expand the scope of the collaboration.



KNOWLEDGE TRANSFER AND EXCHANGE STRATEGIC PLAN



¹ For more information on the First Nations Principles of OCAP (ownership, control, access and protection), visit <http://www.fnigc.ca/ocap.html>

Objective 1. Identify groups and organizations ready for training.

Rationale: There is a need to increase the awareness of specific groups ready for training using targeted messages for specific uses; to connect with specific groups.

Actions	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017
1A. Create and send a focused brochure for departments working on resource development, land use planning, or with geographic information system (GIS) capacity illustrating tools and their applications for decision making and environmental assessments.	●→							
1B. Follow up with managers/technicians to develop training plans.		●→				●→		
1C. Implement and evaluate training.			●————→				●————→	
1D. Repeat outreach brochure/poster using examples and successes from implemented projects.						●→		

Measures of Success

- ❖ Completed brochures
- ❖ Number of responses
- ❖ Completed training plans
- ❖ Implemented training plans
- ❖ Increases in website use
- ❖ Stories of successes and barriers

Related Comments

- GIS managers and technicians may be ready now.
- Sell as a tool to enable better decision making in environmental assessments for economic development (timely as economic development is being pushed); focus on applications to environmental impact assessment, evaluation of economic development, comparisons to baseline environment.
- May be useful for negotiating Contribution Funding Agreements, could support the argument that there is a need for more funding to address cancer concerns.
- May be useful for negotiating Impact Benefit Agreements and maybe supporting an argument to incorporate monitoring schemes for health and safety of workers.
- May be useful for communities dealing with legacy of old mines and contamination.
- Share concrete examples of how tool can be used, and also be clear on what the tools can't do.
- Use promotional videos with examples, interest based, story based, scenarios.

Objective 2. Assess communities’ and organizations’ need for tools

Rationale: There is a need to increase general awareness at the community and group level using high level messages, letting communities and organizations self-select for follow-up.

Actions	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017
2A. Create a high-level poster to distribute via the AFN to identify groups that are interested in learning more about the tools and potential training opportunities.	●▶				●▶			
2B. Present poster at AFN Special Chiefs Assembly Meeting in December 2013.	●▶							
2C. Create community and group specific information packages with information on how to contact CAREX for follow-up.						●—————▶		
2D. Follow up with communities and groups who respond by conducting needs/capacity assessments that will inform a training plan.								●—————▶

Measures of Success

- ❖ Completed posters
- ❖ Number of responses
- ❖ Completed information packages
- ❖ Completed needs/capacity assessments
- ❖ Number of groups moving on to specific training activities

Related comments

- Work on a simple ‘ad’ for tools and training.
- Create a high-level piece at the regional level with question – who needs to be trained?
- Create comparisons – First Nations to non-First Nations communities.
- Include high level sheets with CAREX information summarized.
- Send maps to communities with contact info on how to learn more (what are the carcinogens in my area and where are they?).

Objective 3. Develop training that combines knowledge systems.

Rationale: Training should be developed within the context of First Nations’ knowledge systems and delivered by (or with) First Nations members.

Actions	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017
3A. Work with First Nations partners to conduct pilot training development projects.		●	—————	—————	—————	—————	—————	—————
3B. Work with communities and organizations with completed needs/capacity assessments to develop, deliver and evaluate training.								●

Measures of Success

- ❖ Completed pilot projects
- ❖ Stories of successes and barriers

Related comments

- Conduct pilot project to develop examples of tool use and training materials.
- Focus on having First Nations trainers personalize local training – use the tools to illustrate local indigenous values and resources, including spiritual elements and connections.
- Develop training within context of First Nations knowledge systems - try to embed in First Nations knowledge, mapping out on land/integrating with traditional use studies and spirituality.
- Use learning pairs, especially for Elders to help them comprehend technology, and appreciative inquiry - teaching the importance of respect for elders and how to approach them in a culturally appropriate way.
- Create experiences that people can walk away with.
- One-on-one training is best, but also interactive webinars, Skype and in-person training, active, visual learning, manuals using an appropriate language level.
- Bring people together (not just off side of desk).
- Develop and use online resources that are simple and not overly challenging.
- Consider role playing approaches, like the Indopotamia program for water diplomacy.²

² <http://casestudies.law.harvard.edu/indopotamia-negotiating-boundary-crossing-water-conflicts/>

Objective 4. Create sustainable training programs

Rationale: Provide adequate support and incentives that lead to long term uptake.

Actions	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017
4A. Conduct a scan of existing educational organizations and toolkits.	●→							
4B. Contact existing educational organizations that might be good partners.		●→						
4C. Collaborate with educational organizations to provide recognized training that includes use of the CAREX tools.				●→				
4D. Assess feasibility of providing CAREX certification.				●→				
4E. Continue to apply for grants and look for funding partnerships	●→							→

Measures of Success

- ❖ Completed scan
- ❖ Partnership feasibility report based on contacts with educational organizations
- ❖ Description of training programs developed
- ❖ Number of grants applied for
- ❖ Number of grants awarded

Related comments

- Have a regional specialist available i.e. Circuit Rider (don't over-train or train too many people).
- Funding cuts are decreasing capacity in First Nations organizations – create a position for someone that can work with communities.
- Create CAREX membership program (membership requires some actions or duties)
- Look into certified training with practicum or credit at colleges and universities, or distance learning via online programs.
- Provide training that gives people expertise they can use or charge for.
- Seek external funding to help maintain programs.
- Look for opportunities to bundle CAREX training with complementary toolkits, for example: First Nations Environmental Assessment toolkits.
- There are land use frameworks, regional plans for air quality, water quality – how do CAREX tools fit in or contribute?

Implementation Recommendations

The Advisory Committee members emphasized the importance of establishing and maintaining relationships, and the following comments and recommendations were provided:

- Use existing structures to disseminate information, starting with the Assembly of First Nations as a coordinating point.
- We need confidence in relationships – who are First Nations going to be working with to do the training? If there is a relationship, we need to be able to depend on that relationship and have confidence to deploy the tools.
- It is very important to have the connection and relationship between national, regional and local. Relationships and communication is a necessity if we are to learn from best practices elsewhere.

Next Steps

This plan will be implemented September 2013 to March 2017. Regular reporting on the measures of success will occur at the end of March each year, beginning in 2014, in conjunction with a review of the plan and possible revision to reflect the experiences and lessons learned in the reporting term.



Spatial Sciences Research Lab
University of Victoria - Geography