{{{ECHO}}}

Environment, Community, Health Observatory Network
Strengthening intersectoral capacity to understand and respond to health impacts of resource development

Introducing the ECHO Network

The ECHO Network is a 5-year research program, funded by a Canadian Institutes of Health Research Team Grant, focused on working together across sectors to take notice of – and respond to – the influences of resource development on health and well-being, with specific emphasis on rural, remote and Indigenous communities and environments.

Our project brings together university researchers and research partners across Canada and internationally, who have identified a need to better understand and address the health, environment and community impacts of resource development. Our research team is led by a steering committee of different sectors, disciplines and communities, which is co-chaired by Dr. Margot Parkes**,** Canada Research Chair in Health, Ecosystems and Society at the University of Northern British Columbia, and Dr. Sandra Allison, Chief Medical Health Officer at Northern Health in BC.

The Need

Health is influenced by resource development through interrelated socioeconomic, ecological, cultural, and political pathways, which demand upstream, intersectoral responses. These relationships are especially important in Canada, where the economy remains tightly coupled with the development of natural resources and where the rate and scale of social and environmental change occurring in resource-rich regions is fueling debate regarding health impacts, especially for rural, remote and Indigenous communities

The ECHO Network brings together national and international partners to respond to two overlapping needs. First is a need for integrative tools and processes to detect, take notice of, analyze and respond to the health impacts of resource development. Second is the need to understand and respond to the cumulative impacts of resource development in ways that recognize combined environmental, community and health impacts resulting from past, present and future resource development across time and space.

A framework of learning and action underpins the ECHO Network (**Figure 1**). Drawing on these processes, the ECHO Network seeks to:

1. create and operate an Environment, Community, Health Observatory (ECHO) that strengthens intersectoral capacity to understand and respond to health impacts of resource development, and
2. use the ECHO platform to help regional programs make critical decisions on cumulative determinants of health that cannot be achieved by the health sector alone.
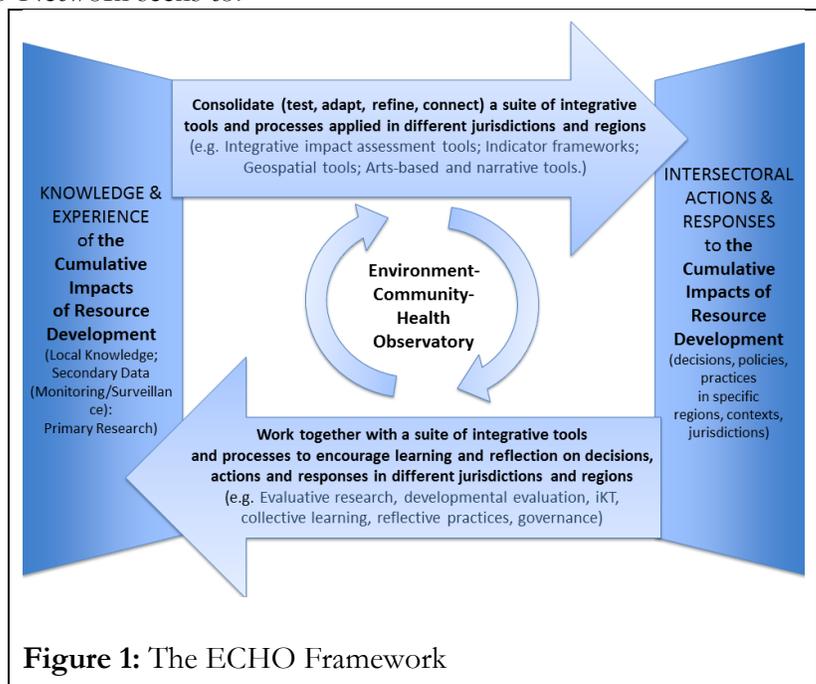

Figure 1: The ECHO Framework

Project Background

The ECHO Network: (1) is an interdisciplinary group of over 50 people across Canada including experienced health, environmental and social science researchers and practitioners and; (2) includes four regional cases (in New Brunswick, Alberta, British Columbia and Northern BC). In each regional case, knowledge users or regional case partners, have identified decision-support needs that demand a better integration of environment, community and health impacts. Regional cases are linked with UNBC, Université de Moncton, University of Alberta, and Simon Fraser University. The project is administered through UNBC. The ECHO will provide tools and processes that connect people to a network of information, practices and people to develop a shared perspective and more effective responses to the cumulative impacts of resource development. The research will involve four components, each linked to specific objectives, mentorship and capacity building processes over five years. The ECHO Network also involves a wider network of collaborations and partnerships across in other parts of Canada and internationally.

Project Aims

Our research will develop innovative methods to identify and prioritise intersectoral prevention opportunities that foster safe, healthy and sustainable environments and reduce health inequities. The research aims to:

1. make evidence-based recommendations on the form and function of a cross-jurisdictional ECHO that will foster integrative understanding of the complex dynamics of resource development and health, and;
2. trial and evaluate intersectoral strategies to address the cumulative determinants of health that interact over time and space, targeting actions and responses that cannot be achieved by the health sector alone.

Regional Cases

The research program is anchored in **four regional cases**, in jurisdictions actively grappling with the health impacts of resource extraction and development, whose specific contexts provide a foundation to address research objectives. The organisations involved with each of the four regional cases are

- New Brunswick Environmental Network (with the NB Children's Environmental Health Collaborative);
- Alberta's Battle River Watershed Alliance;
- BC's First Nations Health Authority;
- BC's Northern Health Authority; and
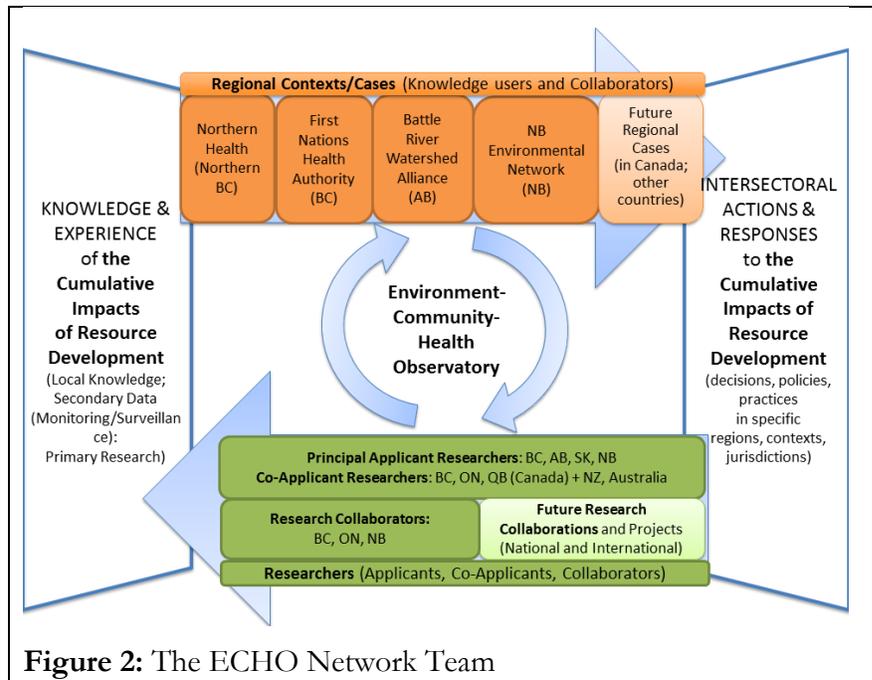- International partners from the Oceania region.

Figure 2: The ECHO Network Team

In each regional case (**Figure 2**), knowledge-users have identified decision-support needs or issues that warrant better integration of environment, community and health impacts, demanding intersectoral responses, that stretch beyond their jurisdictional mandates and capacities, and that could benefit from the integrative, networked knowledge, tools, processes, learning and action orientation of the ECHO Network. The complex demands of our regional cases require a multi-faceted and experienced research team. All members of the team have experience relevant to this task, with a history of collaboration either with the project leads or with the knowledge-user leads in each regional case. The research also benefits from cross-jurisdictional engagement across Canada, co-applicants from Australia and New Zealand, and international collaborators who have identified the ECHO Network as a timely response to the cumulative impacts of resource development.

Governance

The governance of the ECHO Network will be integral to the success of project. The ECHO project governance as *"a process whereby societies or organizations make their important decisions, determine who they involve in the process and how they render account"*. The breadth and diversity of the academic and community partners involved in this project, as well as the scope of research content demands an adaptive governance structure that is well-defined, while also allowing emergence and learning throughout an iterative five-year research program.

The ECHO Network is structured around four levels of collective, representative governance. The governance structure depicted in **Figure 3** links specific governance committees with the overall structure and functions of the ECHO Network (see **Figure 1 and 2** above). In addition to roles as a researcher, regional case partners, and/or collaborator, each member of the ECHO Network will engage in one of the committees, or as members of active Working Groups.
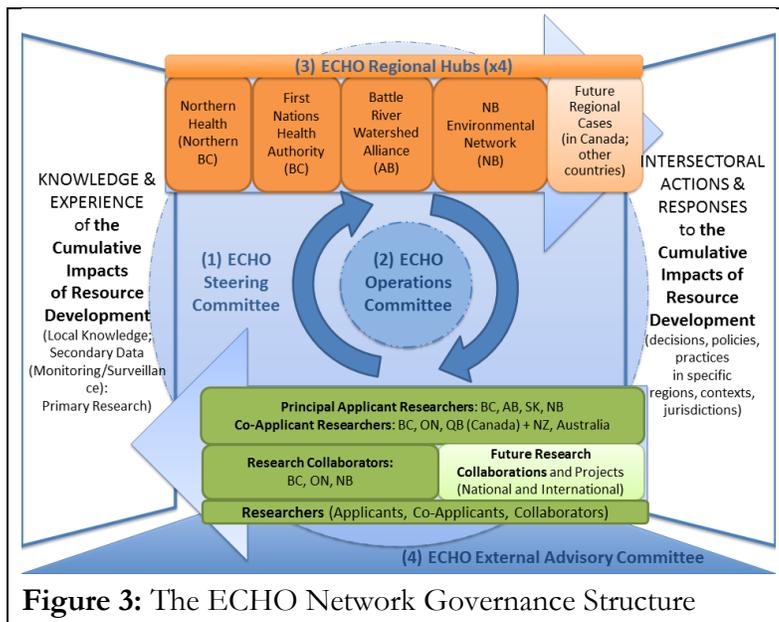
Figure 3: The ECHO Network Governance Structure

The ECHO Network intends to operate through consensus-based decision-making. Except when meeting in person, all meetings would be held through audio-visual platforms to enable both web-based and/or teleconference participation, that facilitates communication across time-zones and distance. In addition to virtual meetings, an annual in-person ECHO Network team meeting is planned with budget provided to support ~20 team members, including the Steering Committee, Operations Committee and Regional Coordinators. Committee chairs will meet together twice per year or as needed to ensure necessary communication, exchange and information flow among the various committees and governance units. Learning across regional cases will develop throughout the project.

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Capacity-strengthening, Mentorship, Training and Education

The ECHO Network will create an environment that fosters learning and mentoring of new cadre of researchers, practitioners and—through our regional hubs—community members, who are equipped to engage with cross-cutting challenges of the cumulative impacts of resource development that cannot be achieved by the health sector alone. We will prioritise:

Capacity-Strengthening: A combination of capacity-strengthening, mentorship and targeted training activities will feature throughout the research process. The team and our partners enter the program with content expertise in numerous areas relevant to capacity-strengthening. As the research progresses, this existing knowledge will be supplemented with new knowledge gained through research and evaluation activities, which will in turn be shared throughout the ECHO Network.

Mentorship: The supervision of research trainees forms part of a "cascade of mentorship" which would occur across the ECHO network and also at the regional level through diverse models. We note in particular the reciprocal nature of this relationship, whereby regional case partners and collaborators may mentor research team members and trainees on their understanding and working in different intersectoral contexts; researchers may mentor knowledge users and collaborators on approaches and tools, including integrated information management platforms; and knowledge users may mentor researchers through the difficult work involved in grappling with the cumulative impacts of resource development decisions. We envision mentorship occurring among colleagues from regional through to international levels to address these complexities.

Linking to training and education: Consistent with the reflective, learning-oriented approach of the ECHO Framework and evaluative research, the ECHO Network will develop academics, practitioners, and citizens grounded and experienced in *integrative*, rather than specialized, approaches to intersectoral research and practice. The interaction between capacity strengthening and mentoring across researchers, trainees, knowledge users and collaborators will be developed through a suite of training and education activities that are integral to the ECHO research design, including: targeted workshops and symposia at regional and annual meetings; co-designing regionally case-informed learning in conjunction with CoPEH-Canada's multi-institutional hybrid course; co-design of continuing professional development activities consistent with education and training for Ecological Determinants of Health; as well as supervision, training and national, international exchanges of Highly Qualified Personnel.

Integrated knowledge translation and exchange

Benefits of the proposed Integrated Knowledge Translation (iKT) and learning-oriented approach of the ECHO Network, include multiple opportunities for integrated and iterative design of knowledge translation and exchange, through the regional and network level workshops and activities. The network will leverage off precedents and strategies for national knowledge translation, exchange and outreach, including by not restricted to:

- an established culture of online webinars, dialogues and KTA tools;
- benefitting from the expertise of UNBC's Health Arts Research Centre for arts and humanities focused outreach and knowledge exchange;
- opportunities for sharing and dissemination results across multiple community, research and policy audiences in conjunctions with regional knowledge user;
- involvement of international researchers as part of the research team from the outset

Knowledge exchange will consider local, regional, national and international partners with targeted approaches being identified and developed informed by the research findings and priorities identified throughout the research, across regional cases and working groups.