

# CUMULATIVE EFFECTS

## THE T̄SILHQOT'IN NATION

The ancestral teachings of the T̄silhqot'in Nation, "the People of the River", guide decision-making for the nenqay (the land and everything on it).

The T̄silhqot'in respect the nen (water, land and resources) and have ensured since time immemorial to only take what is needed, to give thanks for what is provided, and to share with other species and future generations. By respecting the capacity of the nen, these practices ensure it will continue to give.

The T̄silhqot'in have traditionally managed for cumulative effects through their Dechen Ts'edilhtan (laws) and understand the importance of assessing how the land, water, plants, animals, air and people are affected by the multitude of impacts that are felt over time and space.



## WHAT ARE CUMULATIVE EFFECTS

The environment is an interconnected and interdependent system. Environmental impacts that result from human decisions and activities do not occur in isolation, but instead they combine and interact with each other. This is the basic principle and meaning behind the term cumulative effects/impacts; environmental changes are cumulative over time and across geographic regions.<sup>1</sup>

In one sense, cumulative effects is a concept that is easy to understand; these are the impacts that people observe and experience in the real world. But, in another sense, cumulative effects has been difficult to put into practice as part of environmental management and planning processes.

There are many regulatory definitions for cumulative effects, and **Cumulative Effects Assessment (CEA)** has been approached in many different ways in Canada (Box 1). To understand why CEA has been challenging for Canada and for British Columbia to do effectively, it is helpful to understand how it evolved.



### BOX 1: DEFINING CUMULATIVE EFFECTS

Cumulative effects have been defined in a number of different ways in environmental impact assessment regulations in Canada, and some provinces do not specifically require or define cumulative effects.

Under Canada's *Impact Assessment Act* 2019 cumulative effects are defined as: "changes to the environment, health, social and economic conditions as a result of the project's residual environmental, health, social and economic effects combined with the existence of other past, present and reasonably foreseeable physical activities, as well as within activities of the project itself..." (Impact Assessment Agency of Canada, "Practitioners Guide" sec.22).

Under British Columbia's guidance for the *Environmental Assessment Act* 2018 cumulative effects are defined as "a project's negative result(s) combined with those of other past, present, and reasonably foreseeable future projects and activities" (BC Environmental Assessment Agency, "Cumulative Effects and BC Environmental Assessment", 2020, p.3).

These definitions have implications for how cumulative effects are studied as part of impact assessment processes.

# CUMULATIVE EFFECTS ASSESSMENT

CEA was developed to improve Impact Assessment (sometimes called Environmental Assessment or Environmental Impact Assessment) which is a process used in Canada, and most countries, to evaluate and make decisions about development projects.

**Impact Assessment (IA)** is often carried out as a project-based process. This means that the process is initiated because a company, government, or individual has applied to construct a project that requires an IA. Because the process is triggered by a specific project proposal, the scope of the IA is focused on the specific plan for that project and the environmental impacts that might result from it.<sup>2</sup>

This focus is important because one of the key purposes of an IA is to improve the project design by examining the potential impacts and making changes to the plan to avoid or lessen those impacts. But, a problem with this project-based focus is that it may leave out the real-world cumulative effects that could result from those project impacts in combination with other projects and impacts.

Not understanding this broader picture of cumulative effects could result in a phenomenon called “death by a thousand cuts” or the idea that the individual impacts of one project might not be very large or significant, but when considered together with everything else that is happening in the environment, those impacts could be devastating.<sup>3</sup>

The process of CEA was introduced to help address this problem.

Canada has included CEA as part of federal assessment processes since the 1992 *Canadian Environmental Assessment Act* and some provinces and territories, such as British Columbia, also have their own requirements and processes.<sup>4</sup>

Most CEA frameworks tend to be similar to the stages of IA, and are focused on identified Valued Components of the environment which are ecologically, socially, and/or culturally important and might be impacted by the proposed project (Box 2). A current condition or baseline is established for each Valued Component included in the CEA, and the effects of the project are assessed in combination with the effects of other existing and future projects and activities.

## BOX 1: STEPS FOR CUMULATIVE EFFECTS ASSESSMENT

As outlined under Impact Assessment Agency's “Technical Guidance for Assessing Cumulative Effects” (2018).

### 1. Scoping

- Identify Valued Components for which residual environmental effects are predicted
- Identify spatial and temporal boundaries
- Identify other projects/actions

### 2. Analysis

- Collect regional baseline data
- Assess project effects on selected Valued Components
- Assess effects of all selected projects/actions on Valued Components

### 3. Identification of mitigation

- Recommend mitigation measures to lessen impacts

### 4. Evaluation of significance

- Determine significance of residual impacts (those which persist after mitigation)
- Compare the results against thresholds or land use objectives

### 5. Follow-up

- Recommend regional monitoring and effects management

## CUMULATIVE EFFECTS AND SCALE

An important note about the evolution of CEA is that, like IA, it was developed under a western cultural and scientific viewpoint. But, scientists did not invent the idea of cumulative effects; Indigenous communities around the world have known these issues and have been using the principles and concepts behind cumulative effects for thousands of years.

Many Indigenous Nations have developed and are continuing to develop their own processes for IA, including their own approaches to managing cumulative effects. Cumulative effects are important for Indigenous rights and governance in Canada since the very concept suggests that a project-by project-basis is not adequate to understand impacts on Indigenous peoples, rights, culture, and interests.<sup>5</sup>

Understanding cumulative effects is important for making sustainable decisions about the environment, and there are many ways of defining and implementing this concept in environmental assessment and management processes.



One of the challenges for CEA has been in determining the scale of the assessment. The term **cumulative** is intended to mean impacts from multiple sources that might add together and influence and intensify each other over time, and across space.

This means that CEA requires looking at past, present, and potential future impacts over large geographic areas. This is challenging within an IA process since the process, the data included, and the decision-making is focused on a specific project and site. Many people have suggested that CEA should be done independently of any individual IA process at a regional scale or as part of a strategic planning process.<sup>6</sup>

These types of regional/strategic processes are not common in Canada, but in some provinces and territories and federally there have been efforts to try implement them.<sup>7</sup> This could be helpful to improve understandings of cumulative effects, but it is also important to connect these assessments to IA and continue to include CEA in assessments of individual projects, since making a good decisions about a project requires understanding the possible cumulative effects.

A cumulative perspective is important for many different types of decision-making including land use and community planning, project-based IA, regional assessments, and many others. A key question and challenge is how to develop processes for CEA that can support all of these decisions-making needs, and be implemented meaningfully within different levels of assessment.

## CUMULATIVE EFFECTS AND SCOPE

Another key challenge for CEA is its scope, or determining the impacts the assessment is focused on. The term **impact/effect** is intended to include biophysical impacts to the environment, such as those to land, water, animals, plants, and air, but also impacts to human social systems. This might include impacts to communities, economies, culture, and health among others.<sup>8</sup>

One of the challenges for CEA has been including this full range of biophysical and human impacts. As it has been applied in Canada, CEA has been focused mostly on the biophysical parts of the environment. This has also been the focus of most CEA research. CEA processes also typically involves separating impacts and components of the environment into categories, studying them individually, and determining where an impact has crossed an acceptable level.

A weaknesses of CEA has been understanding the relationships between humans and their environment and including assessments of impacts to people and their communities. Part of this challenge is because many of these impacts are difficult to quantify, measure, and understand using traditional CEA methods, and there is often very little guidance and support for assessing and making decisions about cumulative effects to people.

One of the most important questions and considerations for CEA is defining what a cumulative effect is and what an assessment should include. Human decisions and development activities result in impacts to people, their lives, and their communities as well as to biophysical parts of the environment.

It is important that CEA processes outline approaches to assess and make decisions about this full spectrum of impacts.



## SUMMARY

Decision-making for a sustainable future requires a cumulative perspective and thinking beyond one project to the whole interconnected human and environmental system. CEA has been challenging in Canada, but important innovations are emerging, and Indigenous-led approaches are being implemented. At its core, a successful CEA requires designing assessment processes that support decision-making at the project and planning levels, and that are protective of a healthy environment and communities.

## REFERENCES

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## ADDITIONAL RESOURCES

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- "Indigenous Participation in Environmental Assessment" [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization/documents/indigenous\\_participation\\_in\\_environmental\\_assessment\\_-\\_final.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization/documents/indigenous_participation_in_environmental_assessment_-_final.pdf)
  - "Free Prior and Informed Consent" [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization/documents/free\\_prior\\_informed\\_consent\\_in\\_an\\_ea\\_context.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization/documents/free_prior_informed_consent_in_an_ea_context.pdf)
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- First Nations Major Projects Coalition. "Major Projects Assessment Standard" 2019. <https://fnmpc.ca/resources/>