

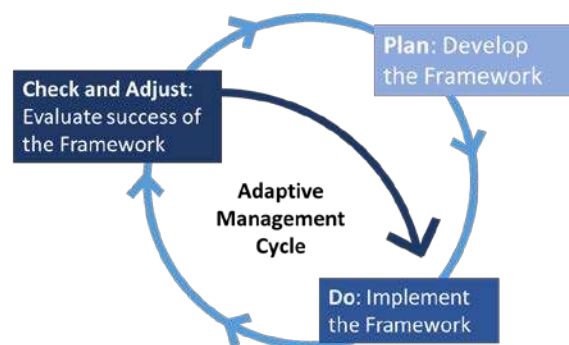
Cumulative Effects Management and Environmental Management Frameworks

Human activities from the past, present and reasonably foreseeable future have an impact on Alberta's environment. While Alberta's environment is resilient and capable of bouncing back from a certain amount of human-caused or natural pressures, some impacts may not become evident until many years later. Although each activity may seem small on its own, when all of these activities are combined and they interact with each other, the pressure on Alberta's environment can exceed the environment's ability to recover from disturbance. This is known as cumulative effects.

Management systems are in place to help address these cumulative pressures on Alberta's ecosystems. The fundamental principles of a cumulative effects management system include that they are:

- **Outcomes-based:** clearly defining desired end-states.
- **Place-based:** meeting the differing needs of regions within the province.
- **Performance management-based:** using adaptive approaches to ensure results are measured and achieved.
- **Collaborative:** building on a culture of shared stewardship; using a shared knowledge base.
- **Comprehensively implemented:** using both regulatory and voluntary approaches.

Cumulative effects management integrates tools, resources and relationships to manage activities that affect the environment, economy and social factors in a particular place. It follows an adaptive "plan-do-check" approach to setting, meeting and evaluating place-based outcomes. This approach incorporates new information, technology and tools ensuring it remains relevant and up-to-date.



Environmental Management System

Alberta's regulatory and environmental management system protects our environment and mitigates risks posed to the environment from urban and rural development, agriculture, and industrial activity, such as coal mining, pulp & paper mills, municipal wastewater and oil sands development.

The *Environmental Protection and Enhancement Act* (EPEA) is the key legislation that regulates surface water quality. Under EPEA, Alberta sets numerous standards, including wastewater release standards and water quality based effluent limits for industrial and municipal discharges. Environmental oversight includes requirements for operators to create issue-specific management plans to ensure strong monitoring, reporting and mitigation measures are in place as part of their project approval and throughout the project, as well as public notification.

Much of this system is focused on assessing the effects and approving individual projects and operators. To understand and manage the effects on the environment from multiple activities across the landscape, a cumulative effects management system is needed. Surface water quality management frameworks provide the larger regional context that can offer important information to inform local management efforts and can show the impact of local efforts on regional outcomes.

This proactive and dynamic management approach will help ensure undesirable trends are identified and assessed early on and will reduce the risk that indicator values exceed regional limits.

Environmental Management Frameworks

An environmental management framework (EMF) is an approach for managing cumulative effects that considers the collective impact of all activities in an area on the environment, society and economy.

The key components of an **environmental management framework** include:

- **Objectives:** Define what the framework is intended to achieve.

- **Indicators:** Aspects of the environment that can be measured and used to understand whether the condition of the environment meets objectives and is suitable for identified uses.
- **Management Thresholds:** Numerical values established for indicators – these are a key feature in a system to manage cumulative effects. Thresholds are used as signals in the system. *Triggers* are designed to provide a signal that conditions may be changing, *limits* represent conditions that are not acceptable, and *targets* describe desired future conditions.
- **Monitoring and Evaluation:** The status of each indicator in relation to the thresholds is measured and evaluated regularly. If there is a change in indicator condition, a preliminary assessment is undertaken to determine if the issue requires a management response.
- **Management Response:** A set of steps that seek to determine the cause of changes in indicator condition, and develop and implement appropriate management actions.
- **Reporting:** Public reporting occurs regularly and includes environmental condition reports and management response reports.

Building on existing Alberta government environmental policy, legislation and regulation, EMFs provide regional context for the long-term management of existing activities and for future development.

Examples of Environmental Management Frameworks

In Alberta, environmental management frameworks have been utilized to manage cumulative effects on both air and water resources. Examples of frameworks that are currently in place include:

- Surface water quality management frameworks are in place for the [Lower Athabasca Region](#) and the [South Saskatchewan Region](#).
- Surface water quantity management framework for the [Lower Athabasca Region](#).
- Air quality management frameworks are in place for the [Lower Athabasca Region](#) and [South Saskatchewan Region](#).

Check out the Surface Water Quality Management Frameworks fact sheet to learn more about framework components. More information about surface water quality management frameworks currently in development can be found on the North Saskatchewan Region and Upper Athabasca Region Surface Water Quality Management Framework fact sheets.