



Climate Change Terminology

There are two complementary courses of action to address

climate change: **Mitigation** is one course of action that targets the causes of climate change and seeks to reduce the amount of greenhouse gases (GHGs) that are released to the atmosphere as the result of human activities; for example, by reducing energy consumption in our homes or vehicles, or reducing the GHG-intensity of the energy we use.

Adaptation is the other course of action and targets the impacts of climate change, seeking to enhance our resilience to changing climate conditions, enabling us to better cope with and manage risks, as well as take advantage of opportunities that arise.

Key Climate Change Concepts and Terms

Adaptation (actions)

Deliberate actions taken in response to current or expected climate impacts to reduce potential harm or take advantage of beneficial opportunities. Actions can include monitoring, research and other information gathering, education and capacity building, changes to infrastructure, creating new policies and regulations, developing economic and other incentives, and ensuring governance takes into account climate change.

Adaptive Capacity

The capability of a community to moderate potential harm, to take advantage of opportunities, or to cope with the consequences from current and expected climate change impacts. The adaptive capacity of individuals, households and communities is determined by their access to knowledge and ability to implement change.

Adaptation Planning

The collection of activities and steps undertaken to moderate potential harm or to take advantage of beneficial opportunities from climate change impacts.

Carbon Sinks

A CO₂ Sink is a carbon reservoir that is increasing in size and is the opposite of a carbon “source.”

Carbon sinks are found in natural systems – mainly plants, soil, the ocean, and other organisms that use photosynthesis to remove carbon from the atmosphere by incorporating it into biomass.

Climate and Weather

Climate and weather refer to separate things. Weather describes atmospheric conditions (such as temperature, humidity, precipitation, wind, cloudiness) in a place or region in the short-term – usually, hour-to-hour, day-to-day, and even weeks to months. Climate refers to the average of weather conditions over 30 years or more. When describing southwest Alberta as typically windy, you are describing an aspect of its climate. Weather can change dramatically in a place or region from day-to-day (e.g., hot and dry one day, followed by cold, wet conditions the next day). Climate, in contrast, changes more slowly since it represents the average weather over the long-term.

Climate Change

A change in climate over an extended period. Climate change includes significant changes in average annual and average seasonal temperature or precipitation patterns in, say, central Alberta, that persist for decades or longer. Climate change also refers to long-term changes in the variability of climate. Climate change arises from human activity (i.e., greenhouse gas emissions) that alters the composition of the atmosphere, over and above what would be expected with natural climate variability.

Climate Extremes

Weather extremes viewed over seasons (e.g., drought or heavy rainfall over a season), or longer periods. Weather extremes are individual events that are unusual in their occurrence (at a minimum, the event lies in the upper or lower tenth percentile of the distribution) or have destructive potential, like tornadoes, strong wind gusts, short-duration high-intensity rainfall events, etc.

Climate Variability

Average weather patterns show variation within short time frames (e.g., a month, a season, one or more years). For example, this year may be significantly drier than an average year in Alberta, whilst the preceding couple of years may have been slightly wetter than the average year. Climate variability refers to these deviations – or anomalies – from the average. The term “natural climate variability” refers to variability in the climate that is not attributable to, or influenced by, any activity related to humans.



Co-Benefits

The added benefits of adaptation, over and above the benefits of moderating potential harm or exploiting potential opportunities that arise from current and expected climate conditions. For example, the increased use of distributed energy technologies to provide electricity not only reduces a community's vulnerability to power outages by diversifying supply, it also reduces emissions of greenhouse gases (contributes to climate mitigation goals) and increases job opportunities (contributes to economic development goals). Co-benefits can often be at least as equally important as the direct benefits of adaptation.

Greenhouse Gas (GHG)

Gases in the atmosphere that include: Carbon Dioxide (CO₂), Nitrous Oxide (fertilizer), Methane, and others in smaller amounts. These gases allow solar radiation to enter the atmosphere and strike the Earth's surface, warming it. Some of this energy is reflected towards space. A portion of this reflected energy, however, bounces off the GHGs, and becomes trapped in the atmosphere in the form of heat. The more GHG molecules there are in the atmosphere, the more outgoing energy is trapped, and the warmer the Earth will become. CO₂ is the largest contributor to global warming.

Intergovernmental Panel on Climate Change (IPCC)

The international body for assessing the science related to climate change to which scientists from all over the world contribute to. The world's scientists agree that "warming of the climate system is unequivocal." For more information, check out the IPCC's latest report on 1.5 degrees warming.

Local Communities and Indigenous Peoples' Platform

This is a platform that was established to strengthen the knowledge, technologies, practices, and efforts of local communities and indigenous peoples related to addressing and responding to climate change, to facilitate the exchange of experience and the sharing of best practices and lessons learned on mitigation and adaptation in a holistic and integrated manner and to enhance the engagement of local communities and indigenous peoples in the UNFCCC process.

Maladaptation

Maladaptation describes adaptation actions taken to reduce vulnerability to climate change that increase, rather than decrease, the vulnerability of a community. Maladaptation may occur when actions increase the vulnerability of people, groups or sectors, increase GHG emissions, increase inequity in the community, decrease incentives to adapt, or place limits on the ability of future generations to adapt.

Mitigation

An action that will reduce or prevent GHG emissions, such as using renewable energies like wind and solar, making buildings, vehicles and equipment more energy efficient, and walking or cycling from time to time instead of using a car. It can also include planting trees to absorb and store carbon dioxide from the atmosphere.

The Paris Agreement

The Paris Agreement entered into force in 2016. It is a multi-lateral treaty under the UNFCCC that outlines specific goals and responsibilities to address climate change through both mitigation and adaptation. Canada has signed this Agreement.

Renewable Energy Examples

Biomass

Organic material from plants and animals. Can be repurposed to energy through burning or converting to liquid or gas. Examples: wood and wood processing waste, agricultural crops, waste materials, animal manure and human sewage.

Hydro

The natural flow of water in rivers offers kinetic power that can be converted into energy and electricity. Flow is directed to the blades of a turbine, making it spin, which causes an electrical generator connected to the turbine to spin and generate electricity.

Solar

Energy from the sun in the form of radiated heat and light. Can be converted into electricity through photovoltaic (PV) or solar cells, which converts sunlight directly into electricity, or solar thermal/electric power plants to power a generator.

Wind

The kinetic energy contained in wind can be converted into forms of energy, such as mechanical energy or electricity.

Geothermal

Heat originating from within the earth can be recovered as steam or hot water, which can then be used to heat buildings or generate electricity.



Resilience

The ability of a community to prepare for, resist, respond to, and recover from the impacts of climate change in a timely and efficient manner, with minimum damage and disruption to the environment, and the social well-being and economic vitality of the community. Resilience and adaptive capacity are strongly linked. Thus, different groups within the community will be relatively more or relatively less resilient to climate phenomena, depending on their adaptive capacity.

Risk

The expected consequences for people, livelihoods, buildings, infrastructure, cultural assets, environmental resources and services, etc., of exposure to specific climate change impact.

Tipping Points

Tipping points refer to parts of the climate system that may be abruptly committed to major shifts as a result of the changing climate. For example: the melting of the Antarctic ice sheet. There could also be social tipping points such as mass migrations, conflict, and economic disruption linked to climate change.

United Nations Framework Convention on Climate Change

An international treaty signed in 1992 by most of the countries in the world. It is an on-going forum for addressing climate change.

Vulnerability

The propensity or predisposition of people, livelihoods, buildings, infrastructure, cultural assets, environmental resources and services, etc., to be affected by specific climate change impacts.

Vulnerability is a function of the nature and magnitude of the potential impacts to which people, livelihoods, etc. are exposed, their sensitivity to that impact, and their adaptive capacity.



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