

CLIMATES|ADAPTATIONS|LANDSCAPES

Landscape Architects Lead Climate Conscious Design and Planning

The Canadian Society of Landscape Architects (CSLA) (www.csla-aapc.ca) is the voice of the profession in Canada and an advocate for its members on issues such as urban renewal, sustainable development and cultural heritage. Landscape architects promote a multi-disciplinary and collaborative approach to the creation of meaningful, enjoyable human environments, and to the sustainability of natural ecosystems and special places. Combining art with science, the profession provides insight and creative design to development and planning processes, responding to the needs of society, promoting respect for the values of the broader landscape, and minimizing impacts to natural systems.

Since the work of landscape architects embraces change, the profession is uniquely positioned to provide leadership in planning for and adapting to the stresses of a changing climate.

The CSLA is committed to providing assistance to its members, and to other professions, levels of government and Canadian business and communities, to enhance their understanding of the contributing factors that have created planetary climate change, to promote opportunities to mitigate ongoing contributions that will accelerate deterioration in global climates, and to advance instruments and tools that will assist in preparatory and adaptive planning for environmental change.

The objective of this position paper is to align the CSLA, its component associations and other allied professions to promote the following key messages on climate change:

Climate Change: Preparation for a changing climate and readiness for increasingly severe weather requires innovative planning, design and management grounded in the belief that healthy ecosystems provide the fundamental support system for life on earth.

Stewardship: Stewardship of the invaluable Canadian environment underpins the goals of management, planning, design and construction in built and natural landscapes, and must include achievable objectives for mitigation of greenhouse gas emissions, and for the conservation, regeneration, and restoration of natural systems.

Innovative Design: Changing environmental conditions will require new science and ingenuity in planning and design in order to efficiently protect human society and the natural environment from avoidable impacts, to accommodate infrastructure to meet changing conditions, and to effectively prepare communities for catastrophic events.

Green Infrastructure: The utility and advantages of low impact development and green Infrastructure networks comprise a key pathway to healthier ecosystems and to cleaner, cooler, healthier and more liveable urban environments.

Collaborative Management and Design: Canadian governments at all levels and across all sectors should prioritize sustainable approaches to planning, design and development for all industry and all settlements, large and small, metropolitan, rural, regional, remote or coastal.

Community Engagement: To raise public awareness of the benefits of these Messages, landscape architects will promote collaboration and transparent decision-making processes that encourage positive engagement and consultation with communities and individuals.

About Global Climate Change

The global climate is changing. Human influence on these changes is clear. In the latest (2013, 2014) reports of the Intergovernmental Panel on Climate Change, it has been concluded that since the 1950s, the atmosphere and the oceans have warmed, amounts of snow and ice have diminished, sea levels have risen and concentrations of greenhouse gases have increased. Within the scientific community there is no uncertainty over climate change, there is only difficulty in predicting accurately by how much, and how soon will conditions change, and where will the impacts be first felt and hardest received.

Established in 1988 by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO), the Intergovernmental Panel on Climate Change (IPCC) is unquestionably the leading international body for the assessment of climate change. The IPCC is a collegium of 195 nations and thousands of scientists from throughout the world, whose collective opinions provide the world with a clear view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. IPCC Working Groups review and assess the most recent scientific, technical and socio-economic information relevant to the understanding of climate change. Canadian scientists participate in IPCC Working Groups and support the findings and conclusions of the Panel.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

EXERPTS FROM THE REPORT OF WORKING GROUP II: CLIMATE CHANGE 2014: SUMMARY FOR POLICY MAKERS

- "In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans."
- "In many regions, changing precipitation or melting snow and ice are altering hydrological systems, affecting water resources in terms of quantity and quality."
- "Many terrestrial, freshwater, and marine species have shifted their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions in response to ongoing climate change."
- "Based on many studies covering a wide range of regions and crops, negative impacts of climate change on crop yields have been more common than positive impacts."
- "Impacts from recent climate-related extremes, such as heat waves, droughts, floods, cyclones, and wildfires, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability."
- "Climate-related hazards exacerbate other stressors, often with negative outcomes for livelihoods, especially for people living in poverty."

Human Drivers of Climate Change

Increasing concentrations of greenhouse gases such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) in the atmosphere have created a global warming effect, caused when heat is trapped near the earth, increasing the temperatures of the Earth's air and water. The emissions of greenhouse gases (GHGs) from activities such as heating, transportation and energy production have been proven to contribute heavily to climate change. Other human activities, such as deforestation and agriculture also contribute to the quantities of carbon pollution in our atmosphere.

Natural processes or 'sinks' such as absorption (sequestering) of carbon through photosynthesis or uptake by oceanic systems, remove carbon from the atmosphere. However, throughout the world, emissions of greenhouse gases have increased dramatically since the 1900s, and when combined with changing land covers, and global pollution have outpaced the ability of natural systems to regain a balance in atmospheric concentrations. Today's atmosphere contains 42 per cent more carbon dioxide than it did at the start of the industrial era. Levels of methane and carbon dioxide are the highest they have been in nearly half a million years. Despite rising scientific concerns over the consequences of continued global warming, human emissions of GHGs are continuing to increase.

Mitigation

Mitigation refers to efforts made to limit changes in the global climate by reducing the emissions of greenhouse gases, and/or enhancing the ability of natural systems to sequester carbon. Mitigation efforts aim to reduce the potential that climate change will exceed the accommodation capacity of natural and human systems. While it is important that society continues in its efforts to mitigate the human contributions to global warming, global climates are already changing. Future mitigative efforts are needed to slow the process and reduce the intensity of those changes.

“Responding to climate-related risks involves decision-making in a changing world, with continuing uncertainty about the severity and timing of climate-change impacts and with limits to the effectiveness of adaptation.”

IPCC, 2014

Adaptation

Adaptation refers to the adjustments made in natural or human systems as a response to existing or anticipated changes in climate and in weather patterns. Adaptation efforts can moderate threats, or exploit beneficial opportunities. Adaptation efforts can be a combination of short or longer term initiatives, intended to provide a net environmental, social and economic benefit. Most adaptation planning processes rely upon a combination of policies to protect, accommodate or retreat from risks posed by anticipated environmental changes. Risk analysis includes an improved understanding of vulnerabilities, changing exposures and potential impacts associated with climate change. Management of risk entails full assessment of the

benefits and costs associated with achievable adaptation options, including the option of doing nothing.

Resilience

Within ecosystems, resilience has been defined as being a composite of the capacity to withstand the stresses of small-scale perturbations, the length of time required to recover from the resultant stresses, and the degree to which the system or species recovers to pre-stress conditions. As it relates to climate change, the IPCC has defined resilience as “the capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation”. When ecosystems, and/or societies are permanently altered to better deal with stress, the alternative state can be seen as either a positive or negative change from pre-stress conditions.

Role for Landscape Architects

Landscape architecture in Canada has played an integral role in the conservation of the Canadian environment and in the development of Canadian communities. It falls to the profession to provide leadership in all aspects of management, planning and design that mitigates the onset of a changing climate, protects our natural environment and assists our communities in adapting to our changing circumstances. Landscape architects work to accommodate both the needs of human society and the natural environment, respecting the cultural landscapes of the past, and planning sustainably for the future.

Given the understanding that mitigation efforts may reduce the speed and intensity but will not offset impending changes in climate, The CSLA, its members and component associations endorse the following principles:

- The CSLA will provide leadership on mitigation of and adaptation to climate change, both within the profession and within the communities we seek to serve.
- The CSLA will assist in the identification and exchange of information between the scientific community and landscape architect to ensure accessibility to the best available information on the current status of climate change, impending impacts, and horizon issues facing human and natural environments.
- The CSLA will encourage its members to integrate options to mitigate and/or to adapt to climate change within their design projects and short and long-term planning recommendations so as to:
 - minimize risks associated with extreme events and environmental changes;
 - reduce the potential for adverse effects to human health and safety;
 - sustain species, habitats, and ecosystems;
 - protect cultural landscapes and;
 - enhance resilience in natural systems and human communities.

- o In keeping with these principles the CSLA will initiate collaborative action amongst the related planning and design professions of Canada in order to:
 - access, and disseminate the latest science on environmental change;
 - develop, access and disseminate information on best practices;
 - integrate climate change into planning and design education; and to
 - advocate with government for needed changes to design policy, regulations and standards.

Further Information

Natural Resources Canada

<http://www.nrcan.gc.ca/forests/climate-change/13083>

From Impacts to Adaptation

<https://www.nrcan.gc.ca/environment/impacts-adaptation/assessments/10031>

Climate Change Adaptation Community of Practice (Canada)

<https://www.ccadaptation.ca/en/landing>

European Climate Change Adaptation Platform

<http://climate-adapt.eea.europa.eu/>

Intergovernmental Panel on Climate Change (IPCC)

<http://www.ipcc.ch/>

International Institute for Sustainable Development

<http://www.iisd.org/adaptation/>

United Nations Framework Convention on Climate Change

<http://unfccc.int/2860.php>

Climate Change Position Papers Compiled by Other Organizations

Association of Professional Engineers and Geoscientists of British Columbia

<https://www.apeg.bc.ca/getmedia/a39ff60e-80a1-4750-b6a5-9ddc1d75248a/APEGBC-Climate-Change-Position-Paper.pdf.aspx>

American Association of Landscape Architects

http://www.asla.org/uploadedFiles/CMS/Government_Affairs/Public_Policies/climatechange.pdf

Canadian Institute of Planners:

http://www.cip-icu.ca/web/la/en/fi/8132737151324A9593674906F643A9A1/get_file.asp

Engineers Canada

<http://www.engineerscanada.ca/climate-change>

Ontario Association of Professional Engineers

http://c.ymcdn.com/sites/www.ospe.on.ca/resource/resmgr/doc_advocacy/2009_ps_11feb_en_viro.pdf

Australian Institute of Landscape Architects <http://www.aila.org.au/climate/>



Contact the CSLA and our Climate Change Spokesperson

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