



Definition and Description

An **ecosystem** is a biological community of interacting organisms and their physical environment.¹

Many environmental issues are best considered at the level of the **bioregion**, a geographic area having common characteristics of soil, watershed, climate, native plants and animals. A bioregion is defined by the boundaries of human communities and natural ecological systems rather than political boundaries.²

Why Is This Topic Important?

Population growth, settlement patterns, human consumption, industrial uses and transportation have impacted the quality of air, water and land in cities particularly since the Industrial Revolution.

Sustainable communities recognize and protect the environmental, economic and social value of natural resources and assess costs of human activity in land use decisions. These can have direct impacts on the environment, such as the preservation of natural habitats and landscapes. They can also indirectly improve environmental conditions through choices such as fewer vehicles on roads to reduce air pollution and greenhouse gas emissions (GHGs).

Planning for local energy, water and land needs in response to global climate change and limited supplies of natural resources helps to strengthen the capacity of human settlements to adapt to climate change. Many environmental planning issues require solutions at the scale of bioregions and collaboration among governments, departments, agencies and organizations.

Did You Know?

The Capital Region's climate and terrain is one of the most **biologically rich** and **diverse** bioregions in Canada.

Victoria has a **temperate climate** with mild, damp winters and relatively dry and mild summers. In winter, average daily high is 8 C and the average low temperature is 4 C. In summer, the average high temperature is 20 C and average low is 11 C.

Victoria's **soils** are a mixture of clays and loamy topsoil, which were ideal for the farms established by Victoria's European pioneers in the 19th century.

Victoria's land base is almost **2,000 hectares** and 190 hectares of this total is public parkland. One-half of parkland is classified as **natural areas**.

Urban forests comprise 18 per cent of Victoria. They are treed landscapes including old-growth remnants, backyard trees, urban parks and trail systems, Garry oak meadows and treed boulevards.

Impervious surfaces such as asphalt, concrete and buildings cover approximately 60 per cent of Victoria. They prevent the absorption of rainwater, which can reduce water quality through excess run-off and the overflow of storm sewers.

Victoria's per capita **carbon emissions** are 4.7 tonnes per person, lower than most North American cities, but higher than reductions in global levels that are needed to reduce climate change and its impacts.

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1. Environment Canada
2. based on: 1977. Berg, Peter and Raymond Dasmann, "Reinhabiting California," The Ecologist 7, no. 10 (3). (Statistics Canada, 2006).
3. Senes Consultants Limited for CRD, 2009. Air Quality in the Capital Regional District.
4. Capital Regional District. Victoria Harbour. Available at: www.crd.bc.ca/watersheds/protection

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Issues and Trends

Air:

- › Vehicles are the primary source of air pollution in Victoria. Other sources include but not limited to home oil and wood heating, industrial uses and cruise ships.³

Land:

- › Natural areas and biodiversity have been compromised by fragmentation, invasive species and loss of integrity. Nearly three per cent of Victoria is covered in provincially classified sensitive ecosystems primarily in Beacon Hill and Summit Parks.
- › Virtually all of the shoreline in Victoria Harbour has been modified from its original form for industrial and commercial development. Rocky shorelines, intertidal mud flats and salt marshes have been replaced by land infill surrounding the Inner Harbour and seawalls.⁴
- › Overall, 17.6 per cent of Victoria is considered well or heavily treed, ranging from a low of 3.4 per cent in Downtown to 34 per cent in Rockland. Victoria's urban forest is facing several threats, including windstorms, an aging tree population, removal of trees on private land and large amount of impervious surfaces which limits access to nutrients and water.⁵
- › Victoria is one of only two municipalities in the CRD to adopt a pesticide reduction bylaw, which restricts the use of pesticides for cosmetic purposes on residential properties. Alternative methods to suppress pests, such as mechanical or hand removal of weeds, are encouraged on City lands through the Integrated Pest Management Policy.

Water:

- › The number of storm water discharges rated "high" for public health concern has increased in recent years in Victoria, as well as Oak Bay, Esquimalt

and Sidney, mostly in times of storms. Contaminants in storm water can pollute aquatic and marine habitats with heavy metals, paint, oil, grease, hydrocarbons and other solids.⁶

- › Victoria is the first municipality in the region to adopt the CRD Model Storm Sewer and Watercourse Protection Bylaw which prohibit certain types of wastes from being discharged into storm sewers and watercourses and promotes green infrastructure and practices.
- › New approaches to water management take an integrated approach to managing and restoring the urban water cycle. Water systems and infrastructure, such as rain water and waste water, are managed as elements of a complete and comprehensive system.
- › Historically, Victoria's harbour has been ranked among the most contaminated marine areas in BC. Much of the contamination occurred in the past, from former industrial uses around the harbour, although pollution continues to exist due to industry, run-off and urban growth.⁵

Waste:

- › More than 90 per cent of CRD single family households recycle on a regular basis, among the highest rates in the country. This increase has been helped by the inclusion of new plastics and pizza boxes in recycling programs.⁶
- › On a per capita basis, Victoria produces 0.78 tonnes of solid waste per year (2007). This is significantly higher than the CRD average of 0.46 tonnes per capita due to the concentration of commercial and institutional buildings in Victoria, which produce large amounts of waste.⁷

Energy:

- › Approximately 45 per cent of the City of Victoria's GHGs come from transportation, 26 per cent from commercial buildings, 23 per cent come from residential buildings and five per cent from solid waste.⁸

The City in Action: What We Do Now

The City of Victoria recognizes the need to protect and enhance the urban environment through plans and policies that fall within the municipal mandate. Planning goals address direct environmental impacts to elements of the environment such as biodiversity, air and water quality, natural habitat and public green spaces. Plans, policies and bylaws promote greener options for transportation, building design, waste management and landscaping. New provincial legislation requires the City to include targets for reduction in GHG emissions in the OCP with policies and actions to slow climate change and build climate-resilient communities through proactive land use management.

Share your thoughts and ideas:

Land use planning has the capacity to guide Victoria to a more sustainable future through policies that limit environmental impacts and have spin-off socio-cultural and economic benefits. OCP policies can address and change environmental trends on a local level and create a greener and healthier future.

- › What do you consider to be the most pressing environmental issue in your neighbourhood? In the region?
- › What do you think that Victoria is doing right in terms of addressing environmental issues?
- › What are the obstacles to creating a more environmentally-sustainable Victoria?

5. Gye and Associates, 2009. DRAFT City of Victoria Urban Forest Master Plan.
6. CRD Roundtable on the Environment, 2009. State of the Environment Update.
7. Capital Regional District, 2007.
8. HB Lanarc. 2009. Please see the OCP Discussion Paper on Climate Change and Energy.

WANT TO LEARN MORE?

- › Additional topic sheets are available online at www.shapeyourfuturevictoria.ca/research-facts