

**SUSTAINABILITY HIGHLIGHTS**

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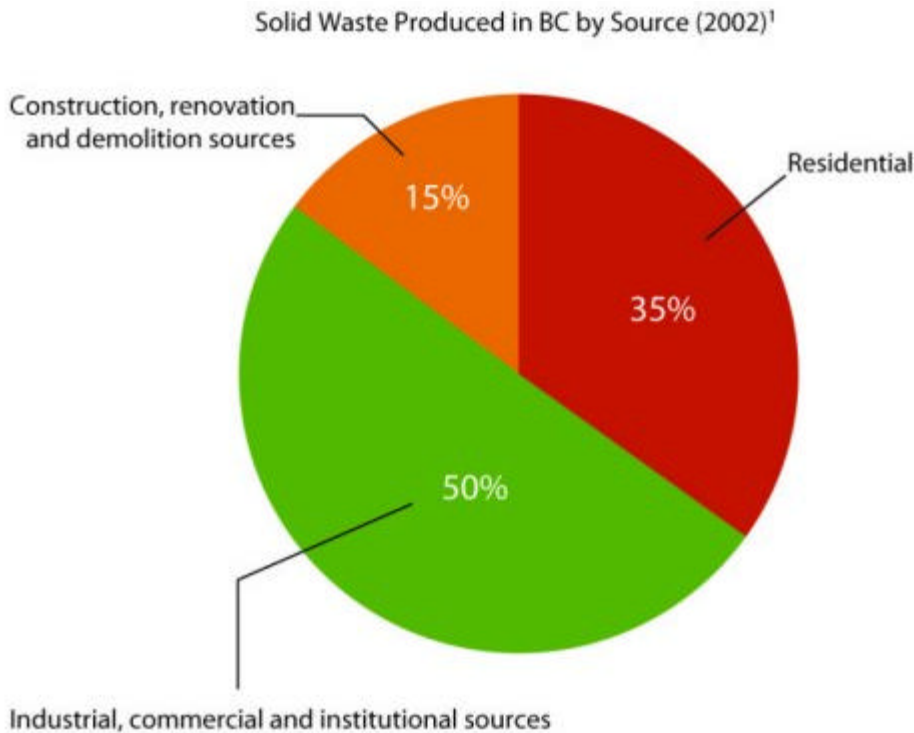
In nature, the waste from one process becomes an input to another process, supporting an ongoing cycle of decomposition and regeneration. In contrast, many waste by-products from human consumption, industrial processes, agriculture and manufacturing are not readily assimilated or utilized by natural systems. The solid, liquid and gaseous wastes generated by human activity can have significant environmental, social and economic costs. In particular, persistent and toxic substances can disrupt or damage the natural regenerative cycles of people, other species or the environment beyond repair, sometimes with significant healthcare or clean-up costs. Toxic substances can be found in food, water, air, and a wide range of consumer products. Such products include flame-retardants, non-stick cooking utensils and pesticides, which have beneficial uses but may also pose risks to human health and the environment. Waste generation and inefficient use of raw materials can also increase business costs; whereas, waste management, source control, pollution prevention and various efficiencies can help reduce operating costs and increase competitiveness among businesses and other organizations.

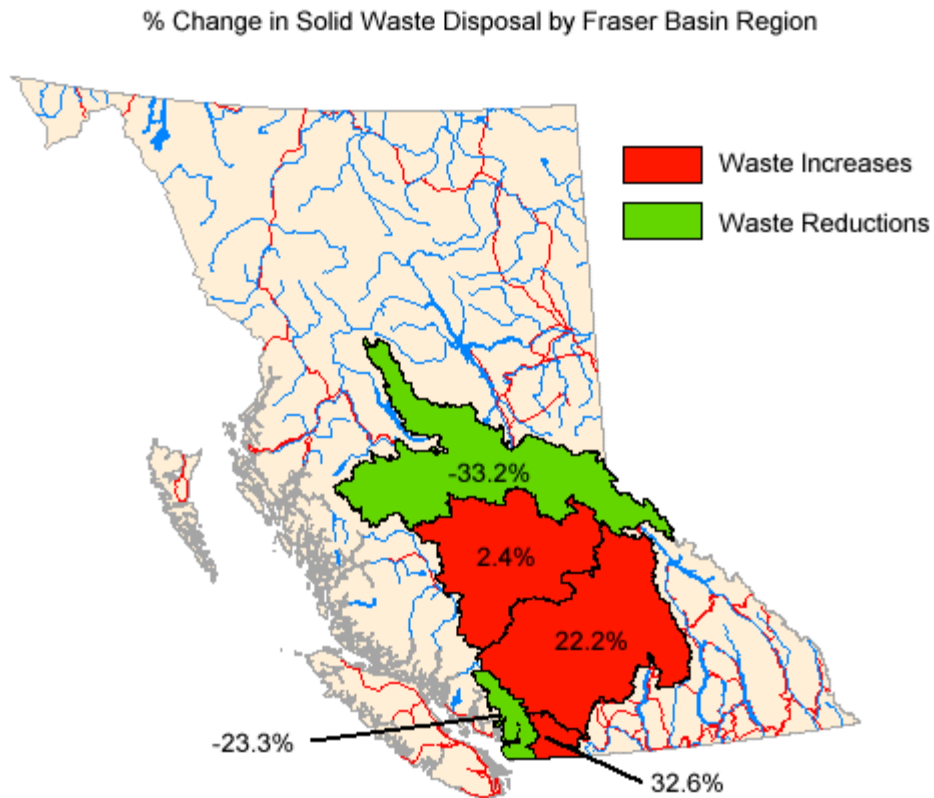
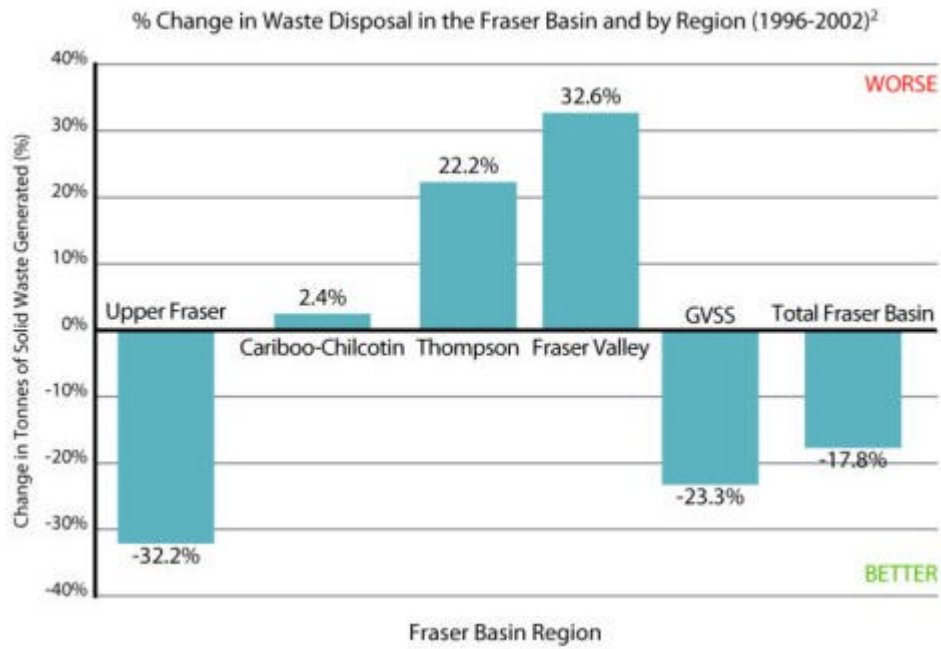
<b>Solid Waste Disposal</b>		<b>FAIR/MIXED RESULTS</b> - Total solid waste disposal is improving for the Fraser Basin. Per capita generation is improving in some regions and getting worse in other regions.
<b>Greenhouse Gas Emissions</b>		<b>MIXED RESULTS/POOR</b> - GHG emissions per capita and per \$ of GDP are improving, but total emissions are getting worse.
<b>Toxic Substances</b>		<b>POOR/GETTING WORSE</b> - Releases and transfers of toxic chemicals increased by 49% in Canada (1995-2002). Dozens of known carcinogens and other toxins were found in a majority of volunteers tested in 2004 and 2006.

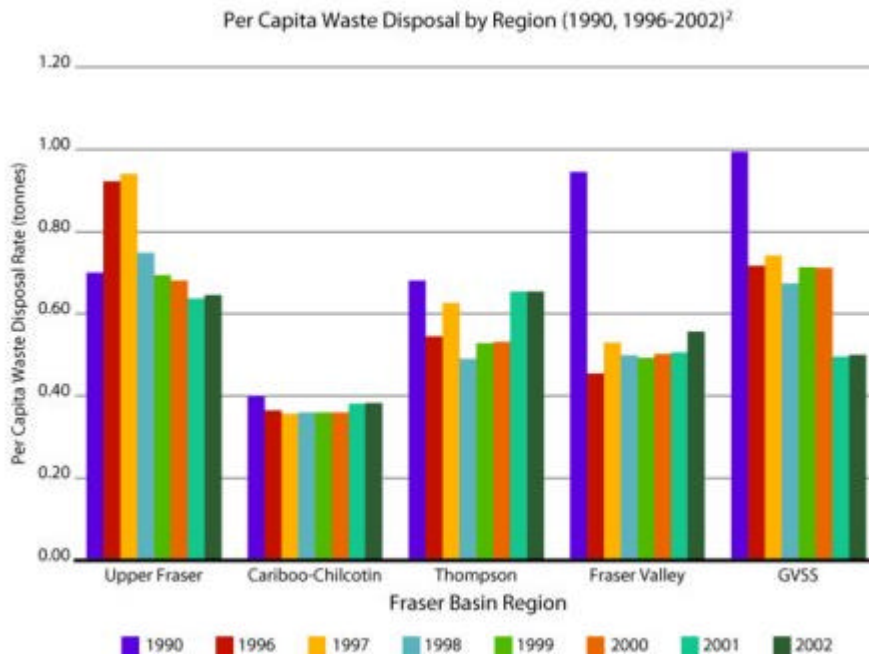
**Solid Waste (1996-2002)** <sup>1,2</sup>

All sources in the Fraser Basin disposed of 1.4 million tonnes of solid waste in 2002. Overall, because of increased rates of diversion (recycling and composting), this represents a reduction of 17.8% since 1996. Rates of change have varied widely across Fraser Basin regions, with significant decreases in the Upper Fraser (-32%) and Greater Vancouver-Sea to Sky (-23%) regions and increases in the Fraser Valley (33%) and Thompson (22%) regions.

When examining provincial data, the majority of solid waste (50%) in BC is generated by industrial, commercial and institutional sources, 35% by residential sources and 15% by construction, renovation and demolition activities. Of the 1.3 million tonnes of residential waste in BC in 2002, approximately two thirds was disposed in landfills or incinerated, while only 31% was diverted through recycling or composting. While BC's rate of diversion is considerably better than the Canadian average (19%), there is room for improvement.







### Greenhouse Gas Emissions<sup>3</sup>

Greenhouse gases (GHGs) represent a significant form of waste because of their influence on climate change. GHGs are emitted by a diversity of sources, the majority of which relate to a dependence on fossil fuels, the transportation of goods and services and a variety of industrial processes. Urban sprawl, single-occupancy vehicles and shipping of goods on a global scale all contribute GHG emissions. Both the total (66.8 megatonnes) and per-capita (15.9 tonnes) annual GHG emissions have increased over time in BC and are at their highest in the last 15 years. See [Climate Change](#).

### Toxins in Humans<sup>4, 5, 6</sup>

Some human activities generate chemical waste or by-products that are released into the air, water and ground and may be toxic. Between 1995 and 2002, the volume of chemicals reported to be released and transferred in Canada increased by 49%. The most commonly used chemicals are pesticides. While not all chemicals and pesticides are harmful, a number of these agents have been linked to growth in a variety of ailments, including several forms of cancer, reproductive disorders, birth defects, asthma and neuro-developmental disorders. Information compiled by provincial poison control centres from across the country revealed that thousands of Canadians, predominantly children, are acutely poisoned by pesticides each year. As of July 2006, there were 60 active ingredients, used in 1,130 pesticide products, registered for use in Canada that have been banned in many other western industrialized nations because of health and environmental concerns ([See Health](#)).

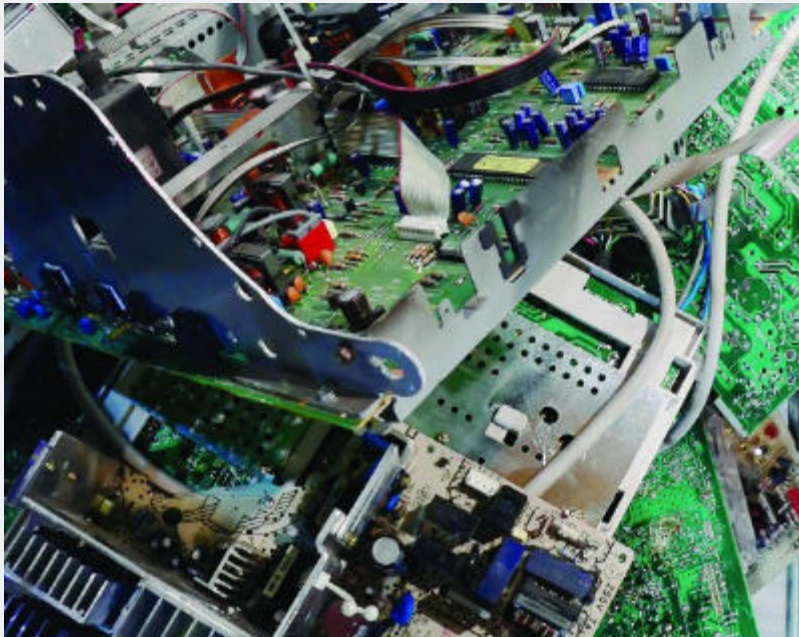
In 2004, a non-governmental organization-Environmental Defence-tested 11 people from across the country to examine the presence of 88 chemicals that are released into the land, air and water through industrial and agricultural processes. The study found traces of 60 of the 88 chemicals in all 11 of the volunteers: 44

chemicals detected per individual, including 41 carcinogens, 27 hormone disruptors, 21 respiratory toxins and 53 reproductive/developmental toxins.

A follow-up study conducted in 2005, examined the children, parents and grandparents from five Canadian families. On average, 32 chemicals were detected in each parent volunteer and 23 chemicals were detected in each child. In total, 38 carcinogens, 23 hormone disruptors, 12 respiratory toxins, 38 reproductive/developmental toxins, and 19 neurotoxins were detected in the study volunteers. There were several cases in which the children were more contaminated than their parents by these toxins.

### **E-waste finds new life**

Genesis Recycling is an electronics recycling company in Aldergrove that locally dismantles over 200,000 computers a year, recovers and sells components for recycling and keeps harmful substances out of landfill. It's a critical sustainability service. Electronic waste (e-waste) is now one of the fastest growing waste streams in North America and one that contributes to soil and water contamination because electronics contain hazardous substances that leach into the ground. Beginning in 2007, BC's Extended Producer Responsibility regulation will require the electronics industry to recycle all computers, monitors, desktop printers and TVs, and to offer e-waste collection or drop-off services. Similar industry stewardship programs already exist for paint, aerosols, medicines, pesticides, beverage containers, pharmaceuticals and oil.



## **INSPIRED ACTION**

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### **What is being done?**

→ BC currently has six active product stewardship initiatives for the recycling of beverage containers; solvents; flammable liquids and pesticides; used lubricating oil; consumer paints, varnishes, stains and aerosols for home and commercial use; pharmaceuticals; and tires. <sup>6</sup>

→ A growing number of businesses, municipalities, institutions and families in BC are initiating and committing to a "zero waste" target, by closing the loop on material flows and linking communities, businesses, and industries so that the waste of one becomes another's feedstock:

[www.footprintbc.com/zerowastenorth/index.htm](http://www.footprintbc.com/zerowastenorth/index.htm).

→ As of October 2006, 122 municipalities from across Canada had passed laws prohibiting the use of pesticides for cosmetic, non-essential purposes. These laws protect over 11 million Canadians, or approximately 37 per cent of the country's population. However, only 4 of the municipalities within the Fraser Basin have adopted such bylaws. <sup>8</sup>

→ Concerns about the control of invasive plants warrant careful consideration about pesticide bans. Integrated pest management is one means of limiting pesticide use, while controlling invasive plants. See [Natural Hazards](#).

### **What else can we do?**

→ Consider employing integrated pest management practices in the environment where you live, work and play to reduce human exposure to pesticides.

→ Conduct a waste assessment in your organization to reduce waste and save money. Waste assessments help determine the weight, volume and the types of waste materials being generated and identify options to reduce, reuse or recycle.

→ Encourage your community to participate in Waste Reduction Week (third week of October):

[www.wrwcanada.com](http://www.wrwcanada.com).

### **REFERENCES**

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[www.ec.gc.ca/pdb/ghg/inventory\\_report/2003\\_report/ann12\\_e.cfm](http://www.ec.gc.ca/pdb/ghg/inventory_report/2003_report/ann12_e.cfm).

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