

Backgrounder on the ecoCity Footprint Tool

Urban consumption is “overshooting” Earth’s capacity

Cities occupy just 3% of land on Earth, yet are responsible for the lion’s share of resource consumption.¹ The energy and resource intensity of urban lifestyles depend on the ecological and natural resources of vast areas of land and ocean outside cities. This consumption is exceeding the capacity of the Earth’s ecosystems to regenerate themselves, which is in turn threatening the future of humanity. Curbing consumption is critical if we are to create sustainable cities.

The ecoCity Footprint Tool:

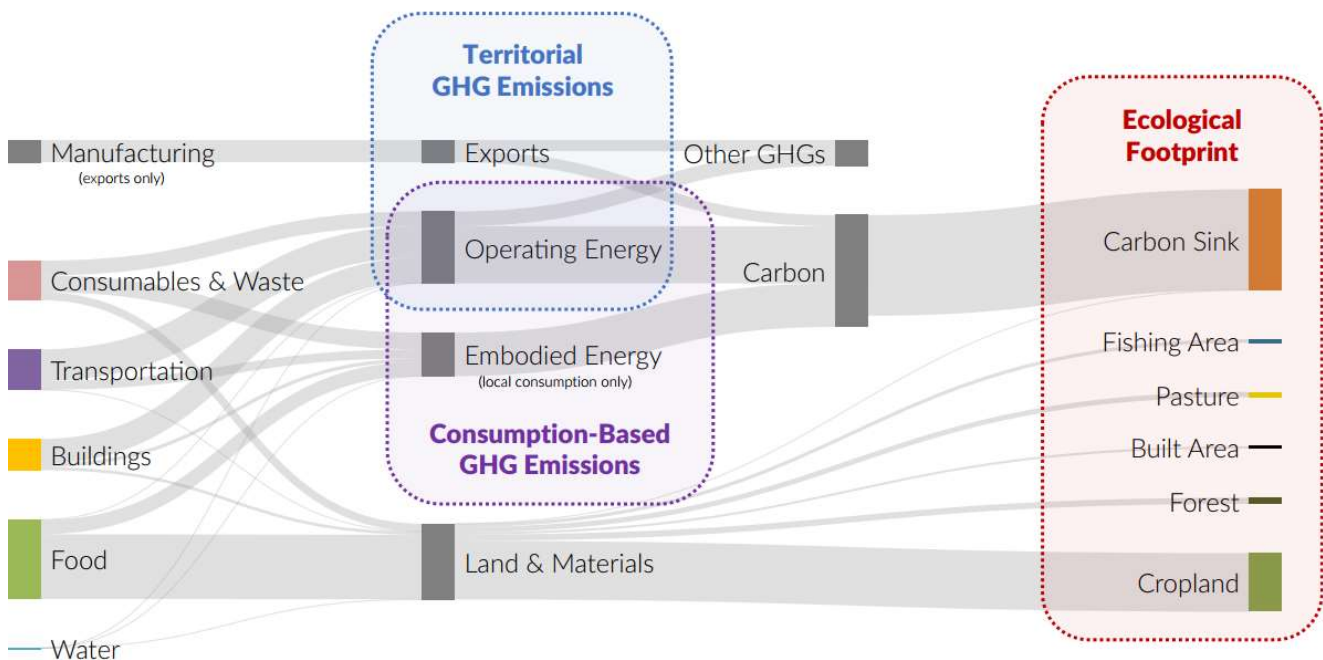
1. Provides data so that cities can **identify priorities** for acting on climate change and unsustainable resource consumption.
2. Supports **effective communication** with stakeholders about the rationale for, and benefits of this action.

The transition to more sustainable patterns of consumption is often hindered by a lack of necessary data to inform local policy. Cities are also burdened with reporting requirements, leaving little time for program implementation.

Proven tool measures impact of urban consumption

The ecoCity Footprint Tool evaluates local patterns of consumption and provides an understanding of the global impact of these habits - using standardized measures - the ecological footprint and greenhouse gas emissions. The Tool was initially created by Dr. Jennie Moore, Director, Institute Sustainability, BCIT, as part of her PhD, under the

supervision of Dr. William Rees, founder of the ecological footprint concept. Prototyped in 2006 and used by the City of Vancouver to inform its ground-breaking “Greenest City Action Plan (2011 and 2020). It was further tested and refined as part of an Urban Sustainability Directors Network (USDN) funded project in 2018. Now, with funding from the Real Estate Foundation of BC, a new, online version of the Tool is being pilot tested with 10 BC municipalities: Vancouver, Victoria, North Vancouver, and Saanich; and our new REFBC pilots: Campbell River, Capital Regional District, Nelson, Powell River, Surrey, and Quesnel.



The “Urban Metabolism” above traces the flow of energy and materials through Vancouver, yielding data needed to inform an ecological footprint and emissions inventories.

Tool pinpoints effective action, saves time

Municipal staff save time with the Tool because it provides multiple outputs simultaneously. The Tool also provides a more robust understanding of emission sources and ecological impacts, by sector. It uses a “bottom-up” approach, informed by an “urban metabolism” study (see above). This approach prioritizes the use of local data over national averages, more accurately informing goals and policies for climate and sustainability action to address buildings, transportation, water, food and consumables.

What does the tool tell us?

Here are some of the revealing lessons from pilot testing the Tool with Vancouver:

Target food groups: Meat consumption has a greater environmental impact than the transport of food. About three quarters of the food footprint and food related consumption-based emissions are due to the consumption of animal products (meat, dairy, etc.). Possible responses: public awareness programs such as meatless Monday campaigns.

Look upstream: The energy and materials used to manufacture and transport consumer products – from packaging to electronics – account for 90% of the footprint of consumables, whereas managing the resulting waste stream represents less 10% of this footprint. Possible responses: Share, reuse and repair initiatives, such as repair cafes.

Building materials are significant: Energy used to heat and light buildings account for most of Vancouver’ building footprint, but as the city shifts towards more renewable sources of energy and increases efficiency, the embodied energy of building materials will dominate the footprint. Possible responses: Revised building codes to encourage lighter footprint materials.

Get out of cars: Despite Vancouver’s significant progress to reduce travel in private vehicles, two-thirds of transportation-related consumption-based emissions come from private automobiles. Possible responses: Expand public transit and protected bike lanes.

For more information please email us at ecocityfootprint@bcit.ca.

Vancouver’s footprint in 2015 was 231 times larger than the city area.

Standardized Measures of Consumption:

An **ecological footprint** quantifies the area required to provide the natural and ecological resources to sustain a city’s level of consumption, measured in global hectares.

An **emissions inventory** shows the tonnes of greenhouse gas (GHG) emissions resulting from local activities.

The ecoCity Footprint Tool provides a “**standard GHG emission inventory**” as well as the “**consumption based emission inventory**” (CBEI), both of which are evaluated in terms of carbon dioxide equivalent (CO₂e).

A standard, or territorial, inventory is typically created by governments to explore the emissions occurring within their jurisdictions. A “consumption-based inventory evaluates all GHG emissions associated with consumption, including ALL emissions associated with the production, shipping, use and disposal of all goods consumed in the city. These additional consumption-related emissions are calculated by including the embodied energy of the consumed goods, that is the energy and materials used to produce and dispose of these materials.

¹ WWF (World Wide Fund for Nature). (2014). *Living Planet Report*. Gland Switzerland: World Wide Fund for Nature. Retrieved from: http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/ (accessed on 12 November, 2015).