ecoCity Footprint Tool

Victoria & Saanich Pilot Testing Results

One Planet Conversations

April 12th, 2018

Presented by:
Dr. Jennie Moore
Cora Hallsworth

Cora Hallsworth Consulting

BCIT

Agenda

1. ecoCity Footprint Tool & Pilot Project Background
2. Results
3. Next Steps

ecoCity Footprint Tool & Pilot

Background

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ecoCity Footprint Tool: **Background**

2012 Greenest City Action Plan

Goal:

Achieve a “one planet” ecological footprint

Target for 2020:

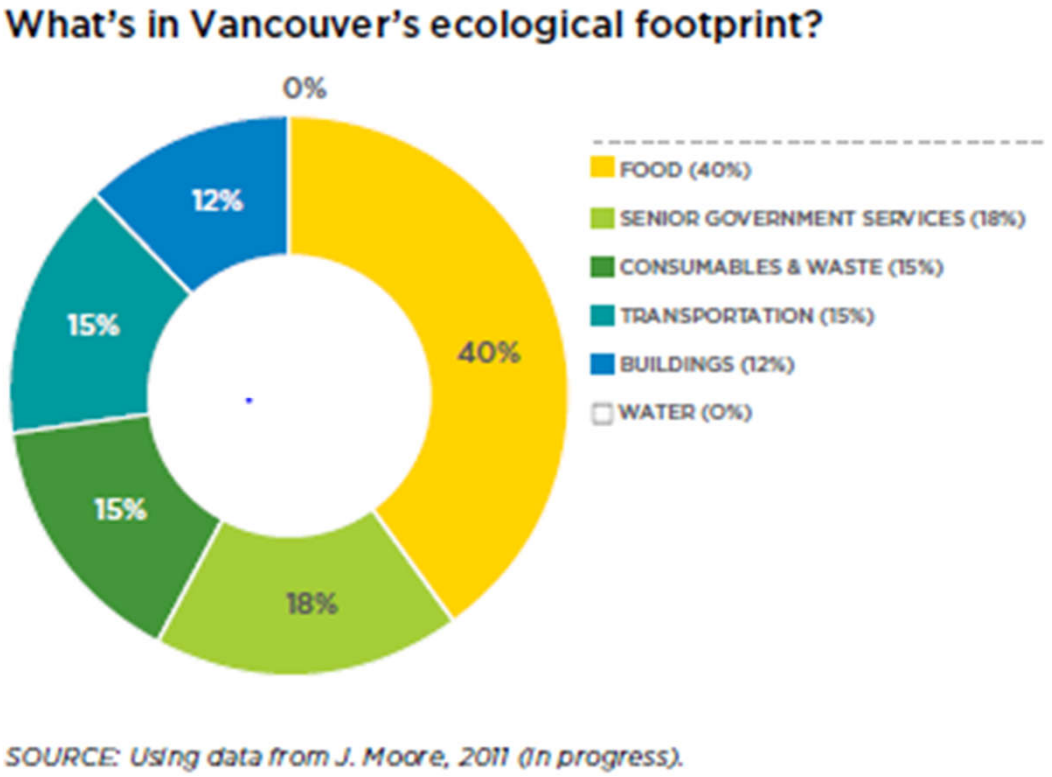
Reduce 2006 footprint by 33%

ecoCity Footprint Tool: **Background**

Prototype in 2006:

- Research Thesis
  by Dr. Jennie Moore

- Developed for communities to estimate their ecological footprints



ecoCity Footprint Tool

Functionality

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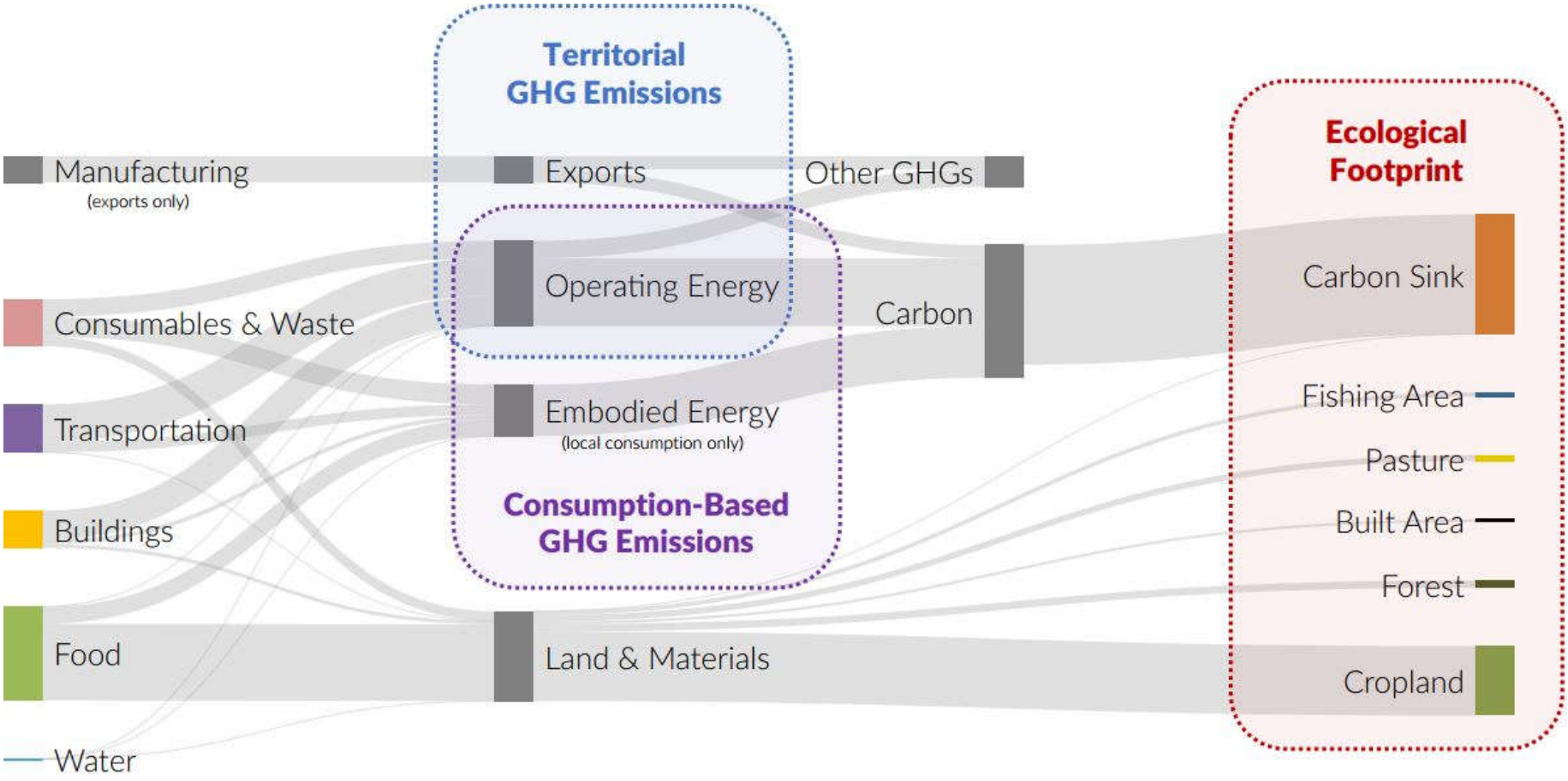
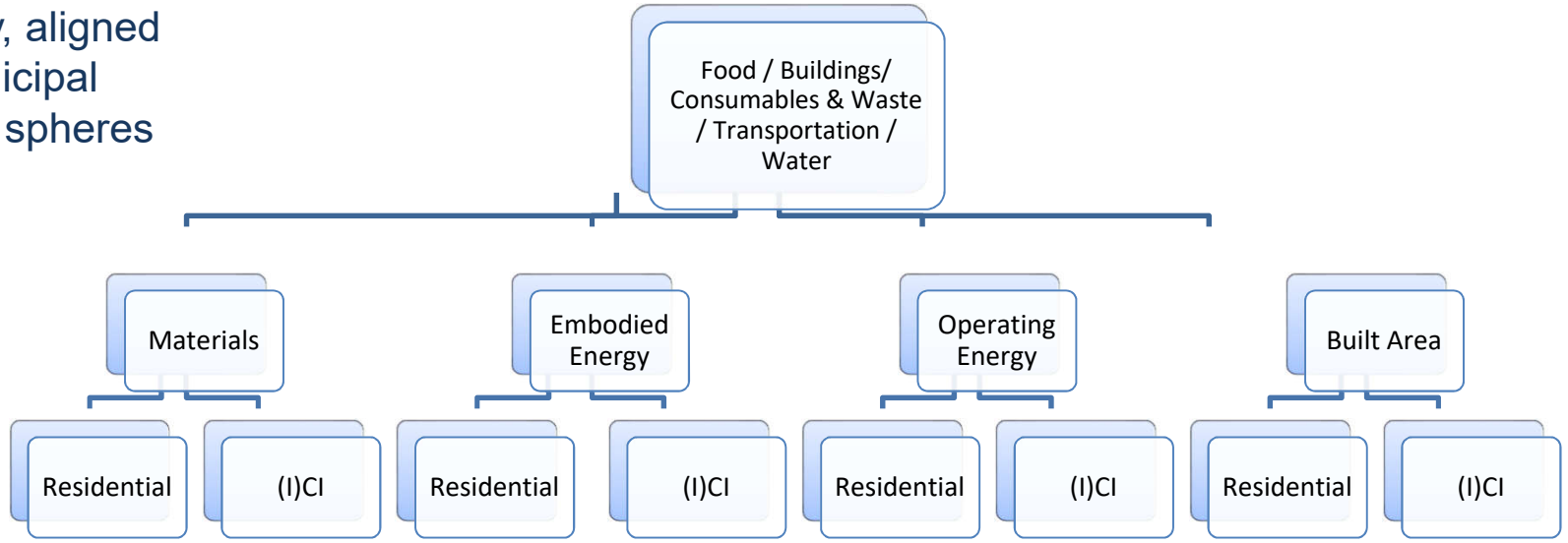
Bottom-up “Urban Metabolism”

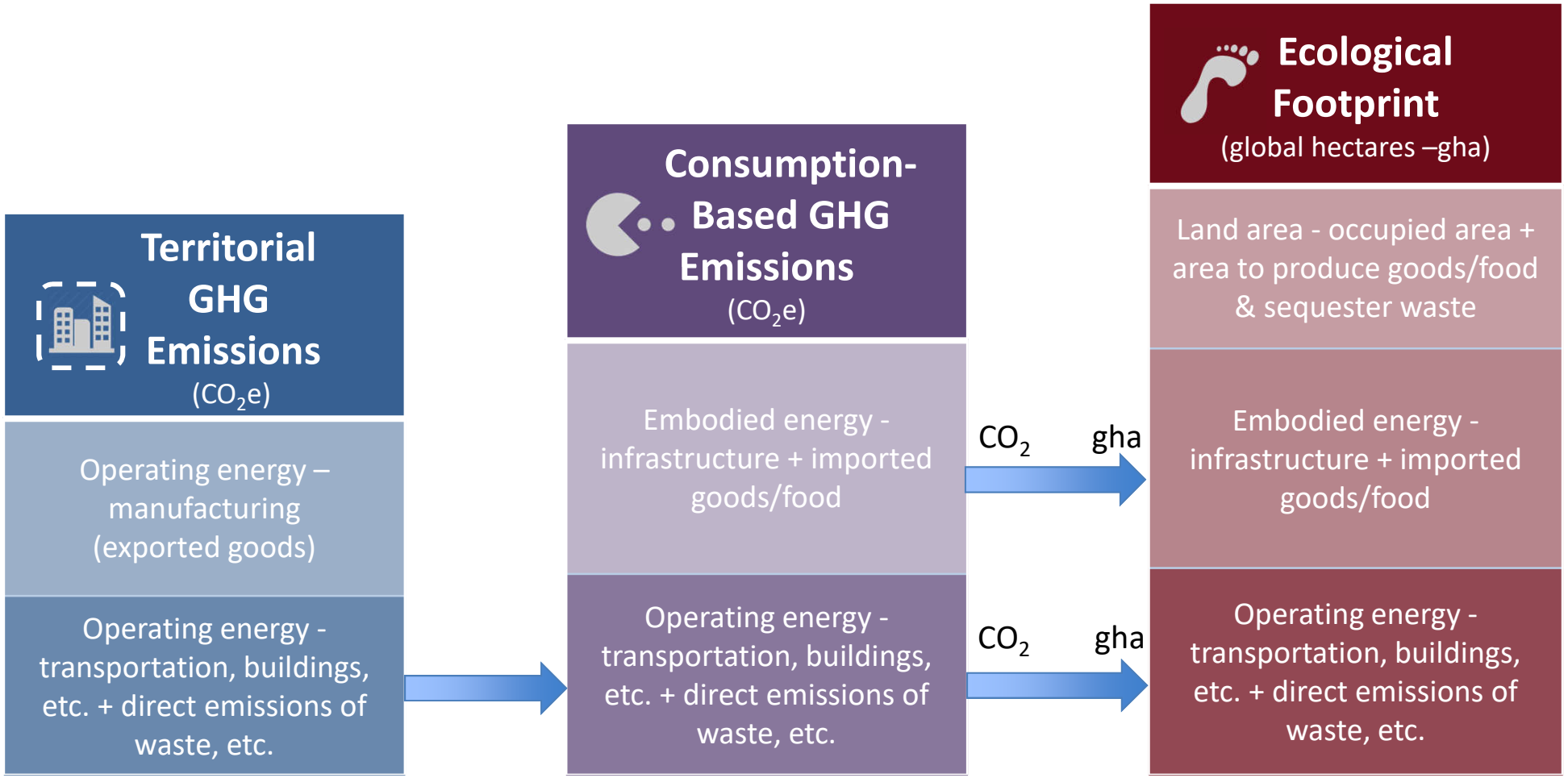


Urban Metabolism Components

The Tool is a bottom-up inventory, aligned with municipal planning spheres



Inventory Outputs



Bottom-up vs. Top Down Methods

Ecological Footprint
(global hectares –gha)

compound method

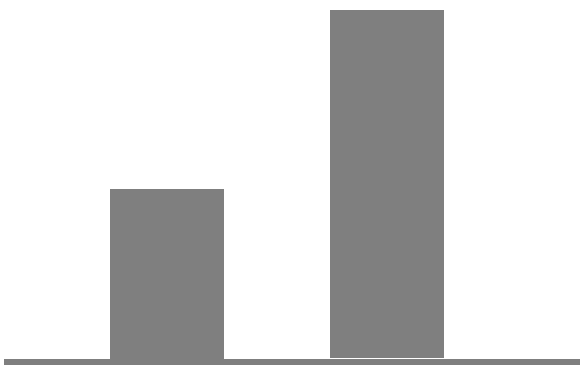
- Top-down National data
- Input-Output economic tables (i.e. StatsCan)
- Comparable
- Comprehensive
- Not locally responsive

component method

- Bottom-up
- Local data
- Municipal and Regional reports
- Not comparable (as a rule)
- Significant data gaps
- **Locally responsive/relevant**

Types of GHG Inventories

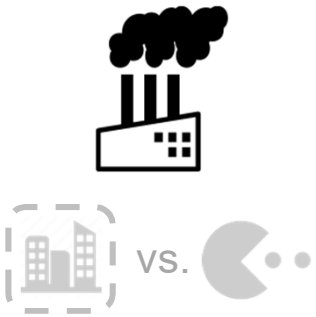
Comparison of Emissions Inventory Calculation Approaches



GPC (territorial) **CBEI** (consumption)

BC Pilots

Vancouver
Victoria
Saanich
North Vancouver



GPC (territorial) **CBEI** (consumption)

Iowa City, IA

higher levels of industry in Iowa City

Inventory Results - Highlights

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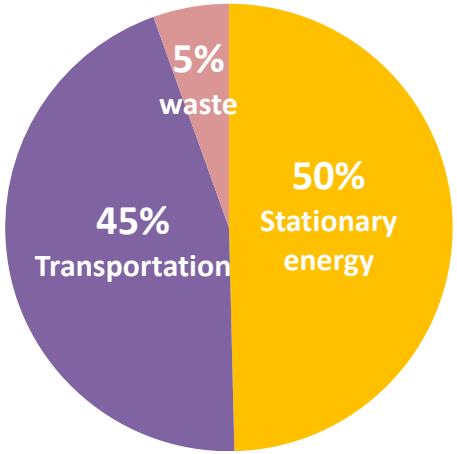
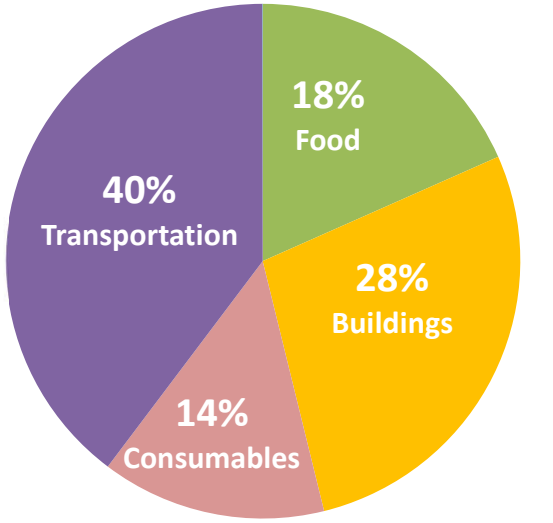
Victoria Results – Comparison of Outputs

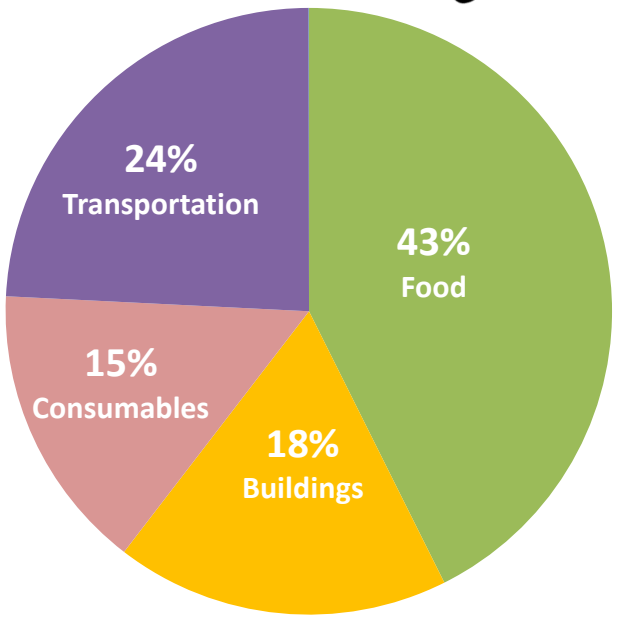
Territorial Inventory (GPC Basic)



Consumption-Based Emissions Inventory (CBEI)



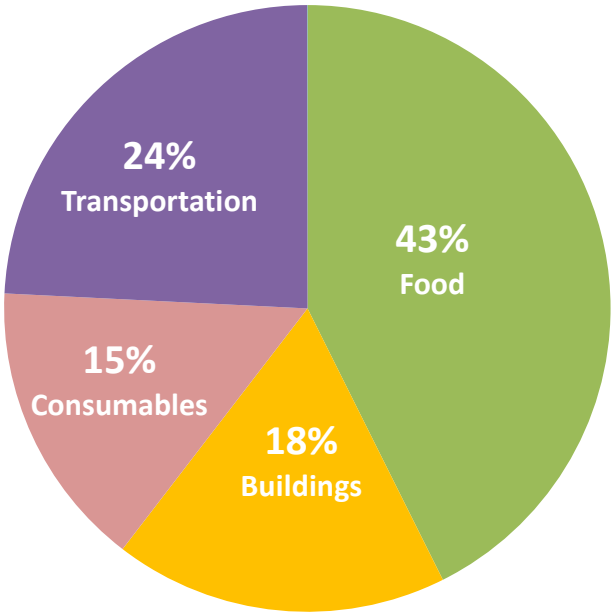
Ecological Footprint



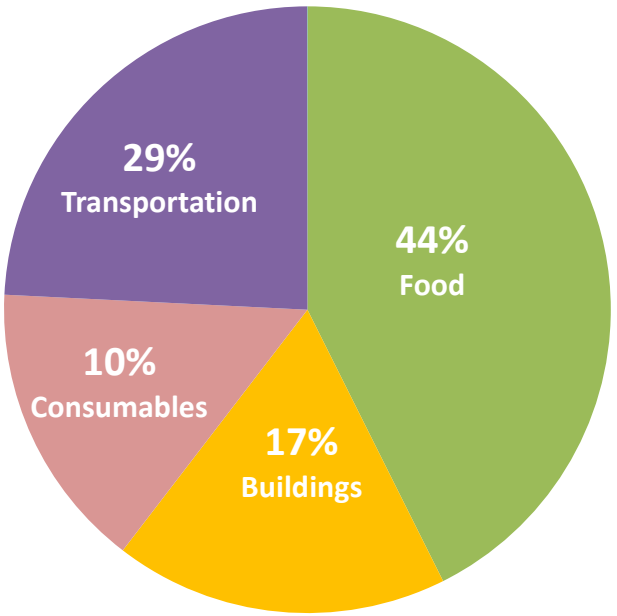
- *Waste/Consumables is a much lower component of the GPC inventory*
- *In the CBEI the largest impact is transportation (40%) followed by buildings*
- *Food has a much greater impact in the EF*

Comparison of Outputs – Saanich & Victoria

Victoria Ecological Footprint



Saanich Ecological Footprint



- *Waste/Consumables is a much lower component of the GPC inventory*
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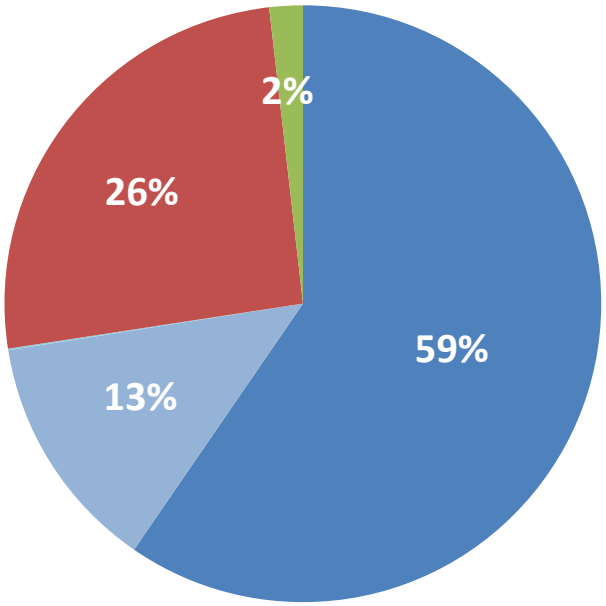
- *Food has a much greater impact in the EF*

Victoria Results – Food Footprint

Victoria's Food Footprint
116,741 gha

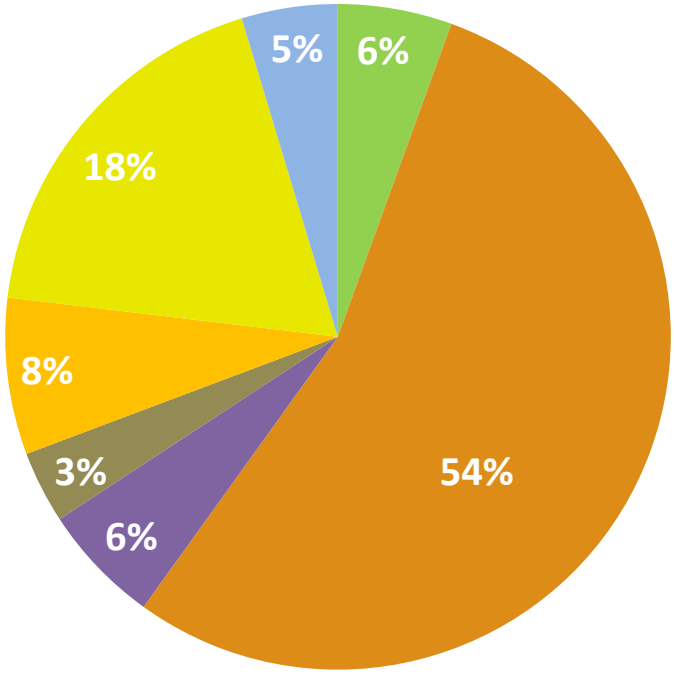
Materials: Cropland	
Pasture Land	
Fishing Area (0%)	
Embodied Energy (production)	
Operating Energy (food miles)	
TOTAL	1.38 gha/cap



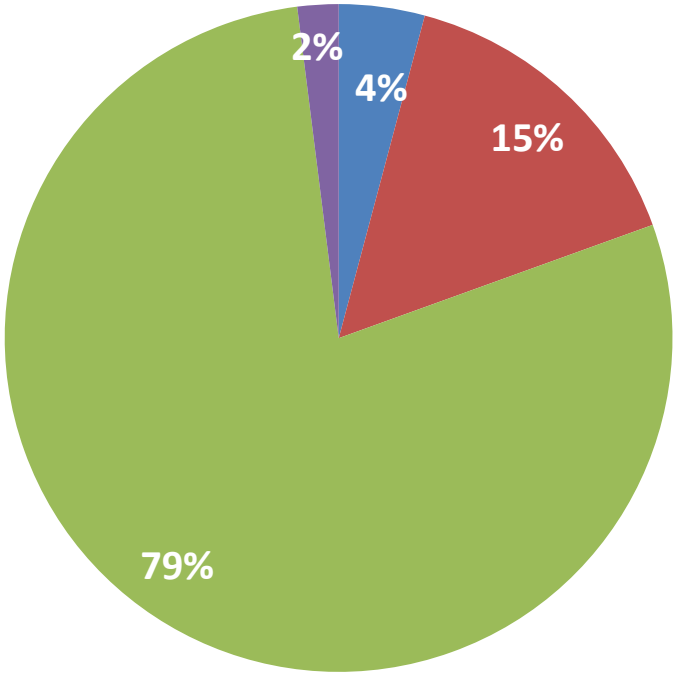
Victoria Results – Food Footprint

Victoria's Food Footprint
116,741 gha

Fish, Meat, eggs	
Dairy products	
Oils, nuts, legumes	
Grains	
Fruits and Vegetables	
Beverages	
Stimulants (coffee, tea, sugar, cocoa)	
TOTAL	1.38 gha/cap



Victoria Results – Building Footprint



Operating Energy

Embodied Energy

Building Materials

Built Area

TOTAL	**0.58 gha/cap**

Victoria Results – Consumables Footprint

Victoria's Consumables and Waste Footprint
44,000 gha

Materials Disposed

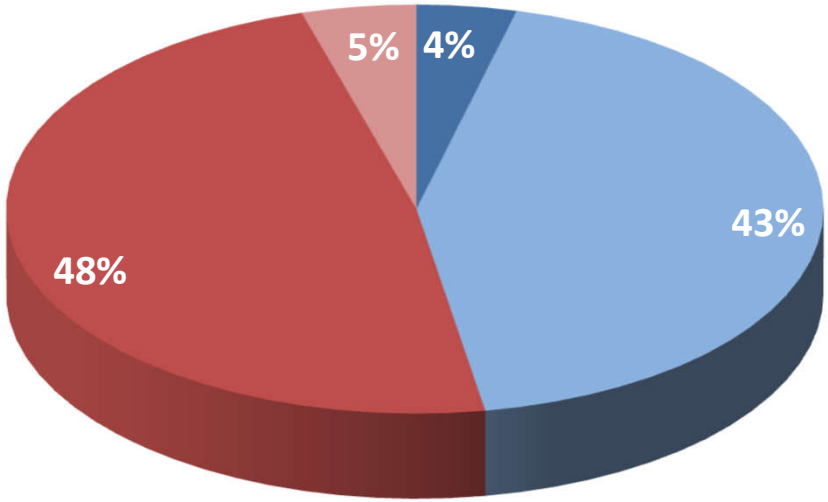
Embodied Materials Disposed 4%

Embodied Materials Recycled 43%

Embodied Energy of Materials Disposed 48%

TOTAL 5%

0.52 gha/cap

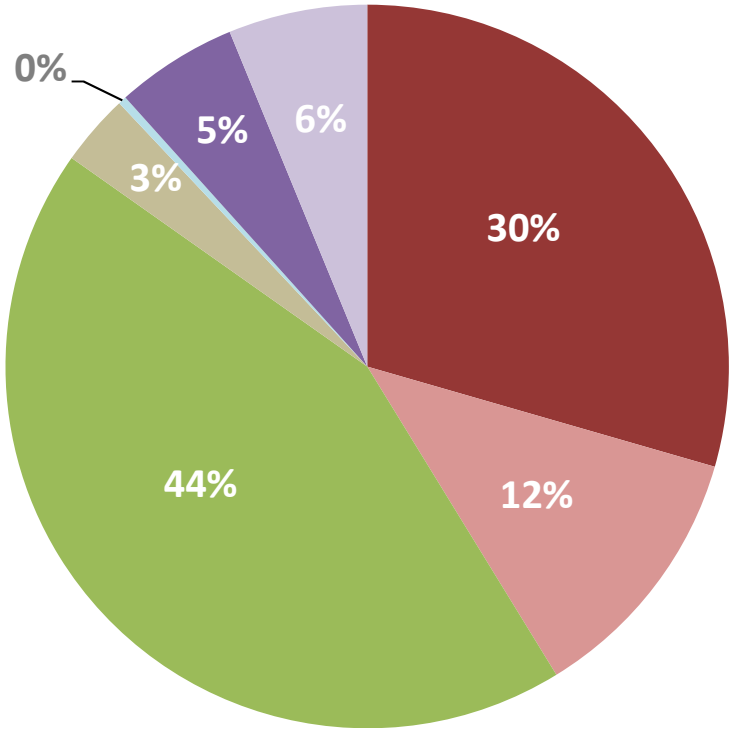


The footprint of consumables and waste is dominated by upstream impacts

Victoria Results – Consumables Footprint

Victoria's Consumables Footprint
39,000 gha

Wood waste, textiles, rubber	
Paper	
Plastic	
Metals	
Household Hygiene	
Other	
Glass	
TOTAL	0.46 gha/cap



Victoria Results – Transportation Footprint

Victoria's Transportation Footprint
67,000 gha

Embodied Energy Vehicles

Operating Energy: **Private Vehicles**

Commercial Vehicles

Public Transportation

Ferry Travel

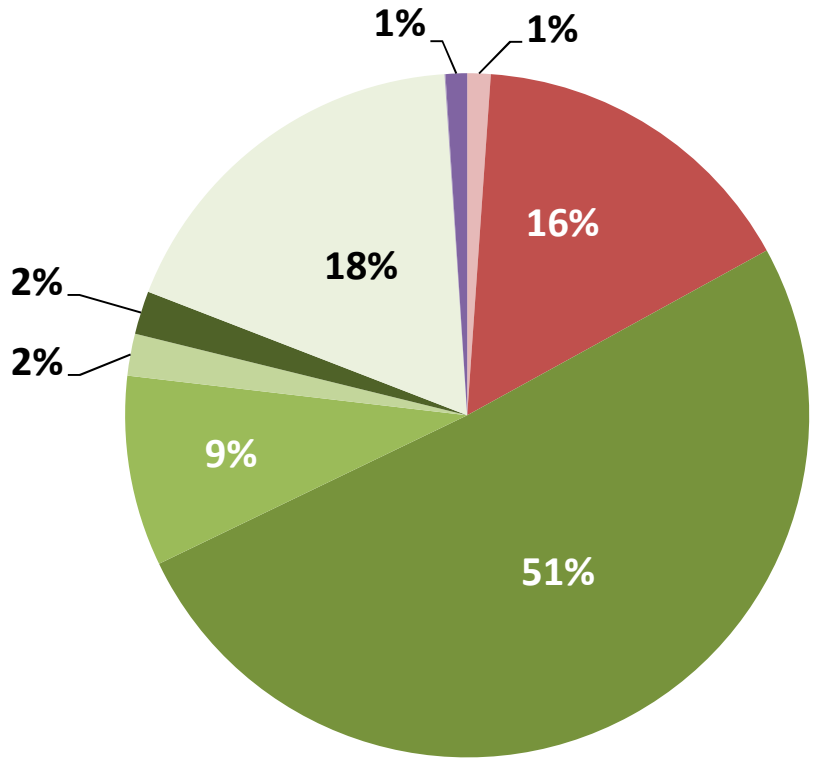
Air Travel

Street Lights (0%)

Roads: Built Area

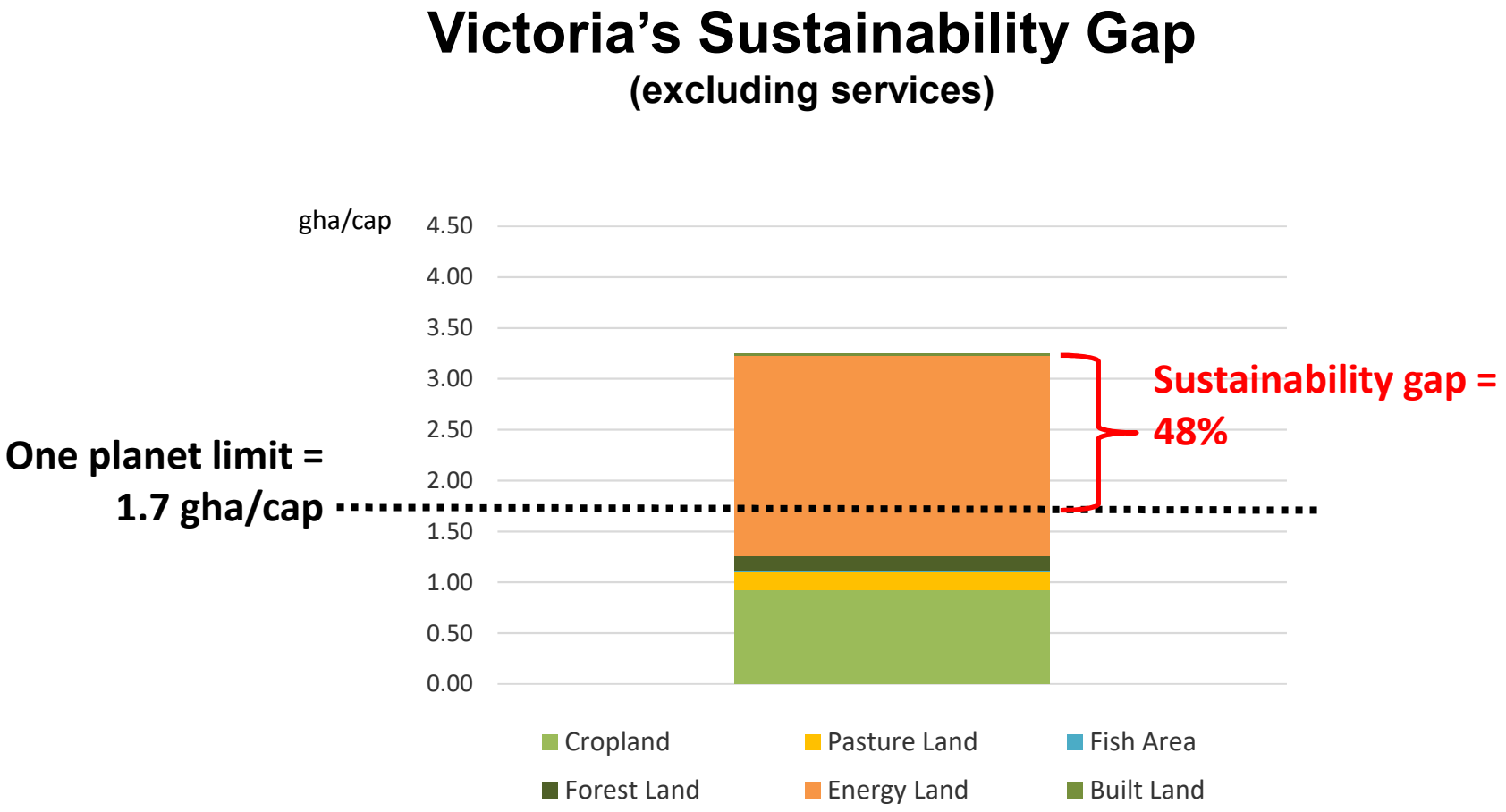
Roads: Embodied Energy

TOTAL	**0.79 gha/cap**



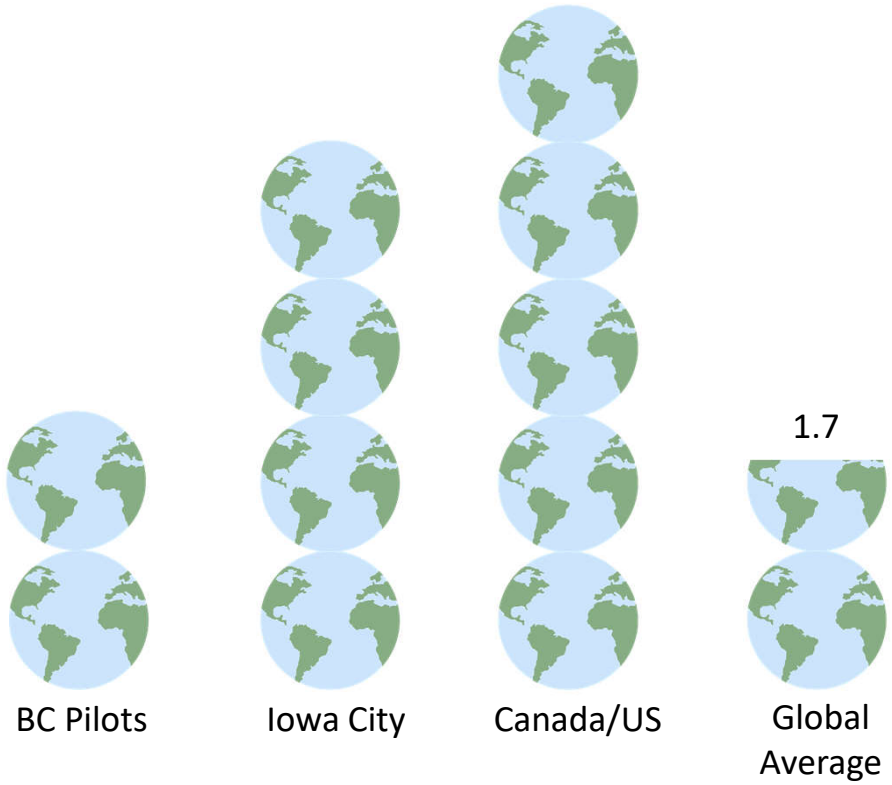
about 2/3 private vehicle transportation

Victoria Results – Sustainability Gap



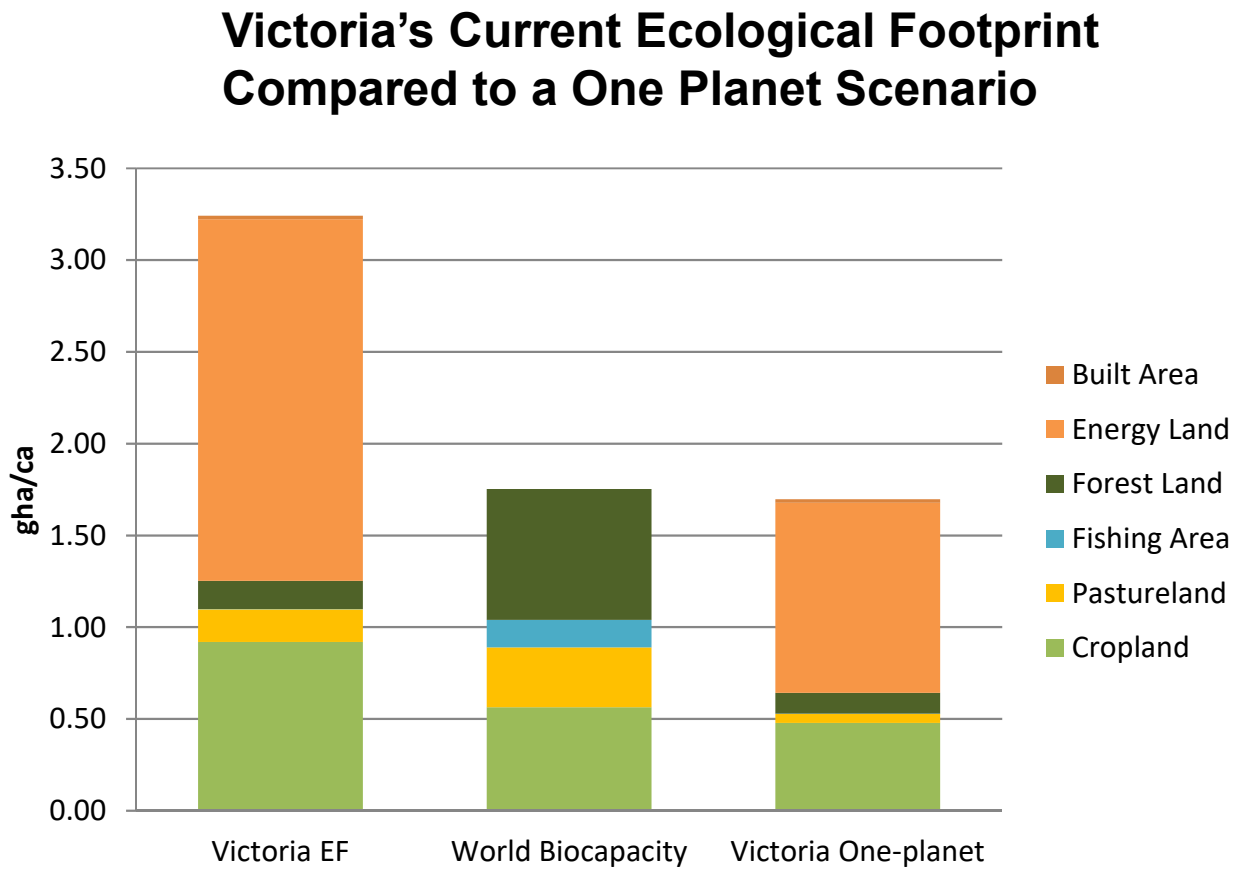
Ecological Footprint Comparison

Earths Needed to Sustain Consumption Patterns of Pilot Communities (2015)



** Canada, US and Global Average data is from Global Footprint Network (2014) https://www.footprintnetwork.org*

One Planet Scenario: Victoria



One Planet Scenario: Victoria

MEASURE	EF reduction (gha/capita)	GHG reduction (tCO_2e/capita)
Reduce beef (and substitute with chicken) and dairy (without substitution) by 25%[18]	0.12	0.11
Purchase 25% less food (all categories except Oils, Nuts, Legumes in which the target is a 20% reduction)	0.11	0.23
Reduce consumption of textiles by 60%	0.12	0.26
Reduce purchase of non-food consumables by 30%[19]	0.15	0.35
Eliminate fossil fuel emissions in residential, commercial and institutional buildings	0.41	1.86
Convert 50% gas private vehicles to electric	0.18	0.7

Next Steps

What can Victoria and Saanich do with this information?

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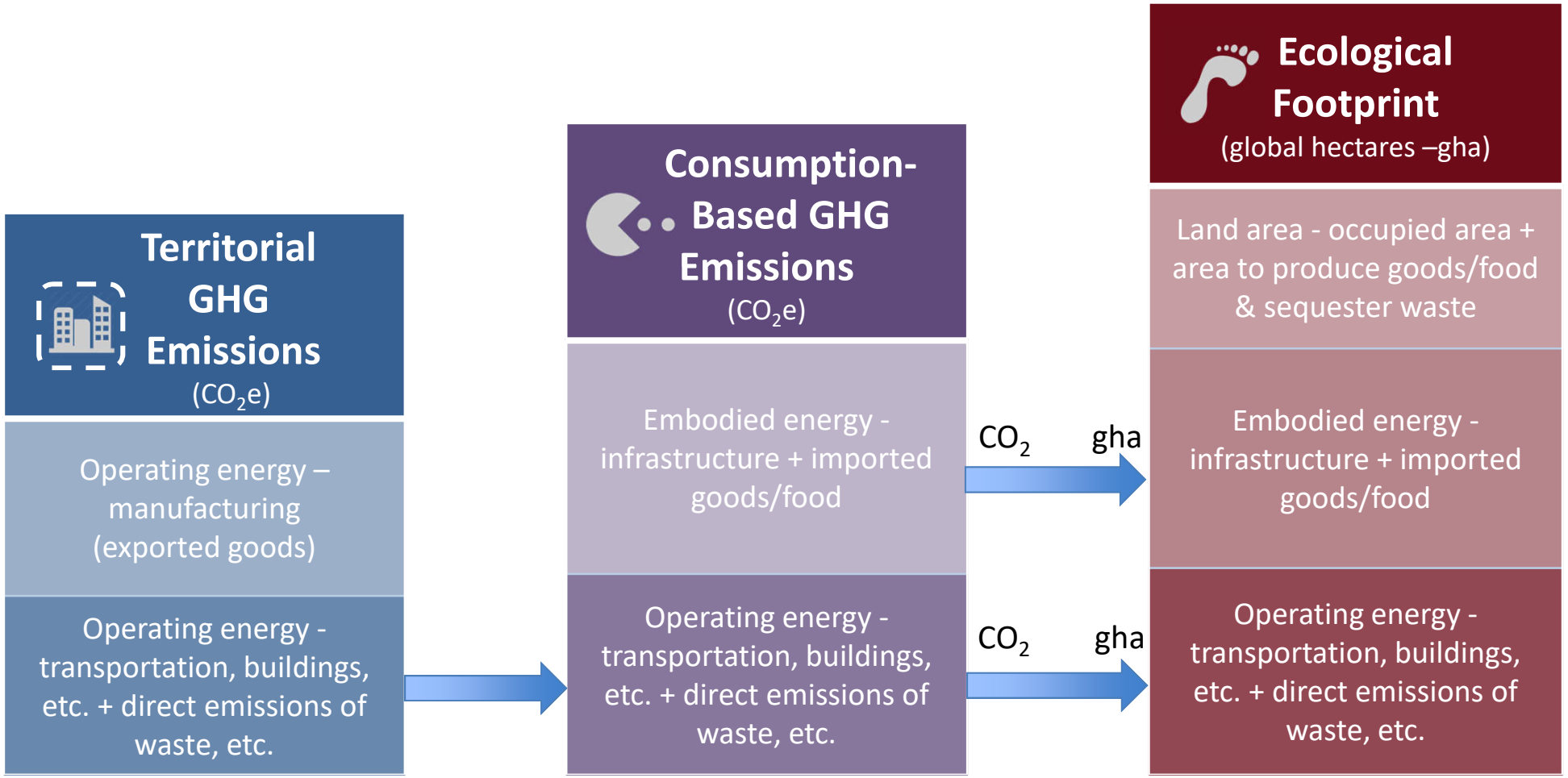
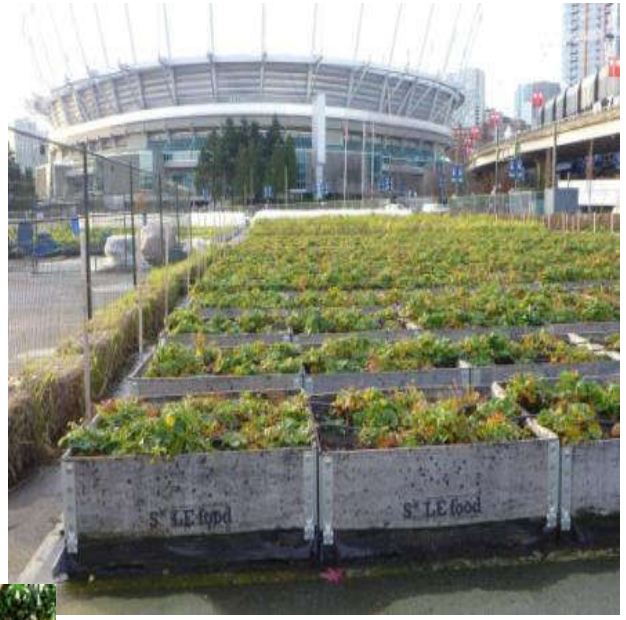
Using the Results – Expand the Dialogue!



Using the Results

- Inform Planning Processes: e.g., Victoria Climate Leadership Plan/ Saanich Updated Climate Plan; Official Community Plan
- Engage stakeholders



ONE PLANET LIVING | A framework by Bioregional

- Saanich joined Bioregional's new One Planet Cities initiative, which is bringing together four cities and city-regions across the world to create sustainability action plans

- Four pilot communities: **Saanich**, Oxfordshire (UK), Durban (South Africa) and Elsinore (Denmark)

- All pilots using ecoCity Footprint Tool to evaluate ecological footprint and inform action

BIOREGIONAL TEAM

Pooran Desai, Sue Riddlestone, Majonne Frost

ONE EARTH TEAM

Dagmar Timmer
Cora Hallsworth (CHC)
Vanessa Timmer
Jennie Moore (BCIT)

DISTRICT OF SAANICH TEAM

Rebecca Newlove, Glenys Verhulst

ONE PLANET LIVING | A framework by Bioregional

Saanich One Planet District Initiative Objectives

- Engage with key Saanich stakeholders to:
  - Undertake a sustainability gap analysis to identify district-wide priorities
  - Generate up to 23 stakeholder One Planet Action Plans (OPAPs) to support district-wide objectives

One Planet Living Framework

One Planet Action Plans *are intended to inspire and engage. They emphasize* ***10 sustainability principles****,* ***synergistic strategies*** *and* ***core indicators.***

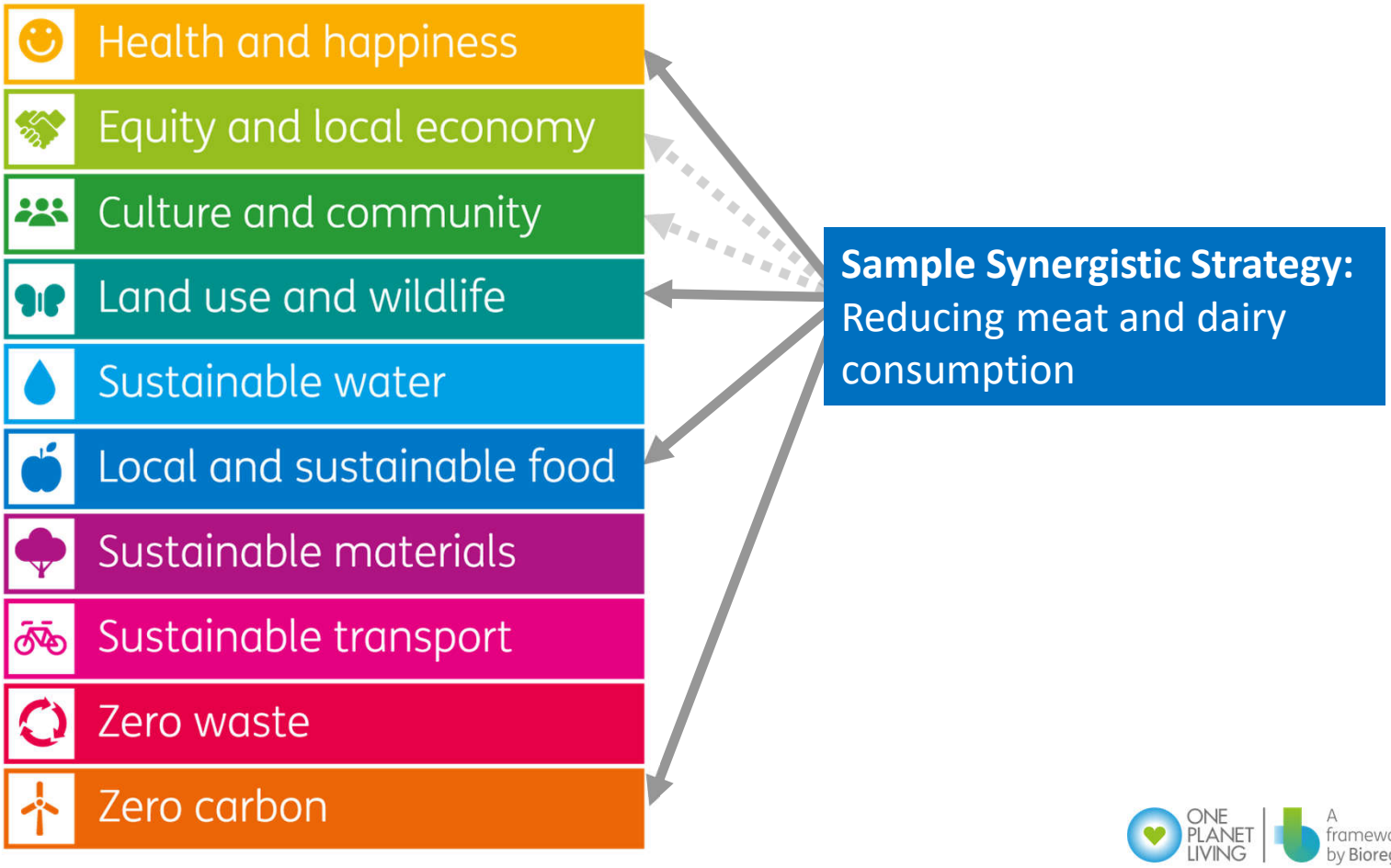
Core indicators:

- Ecological footprint
- Carbon footprint

ONE PLANET LIVING | A framework by Bioregional

one earth

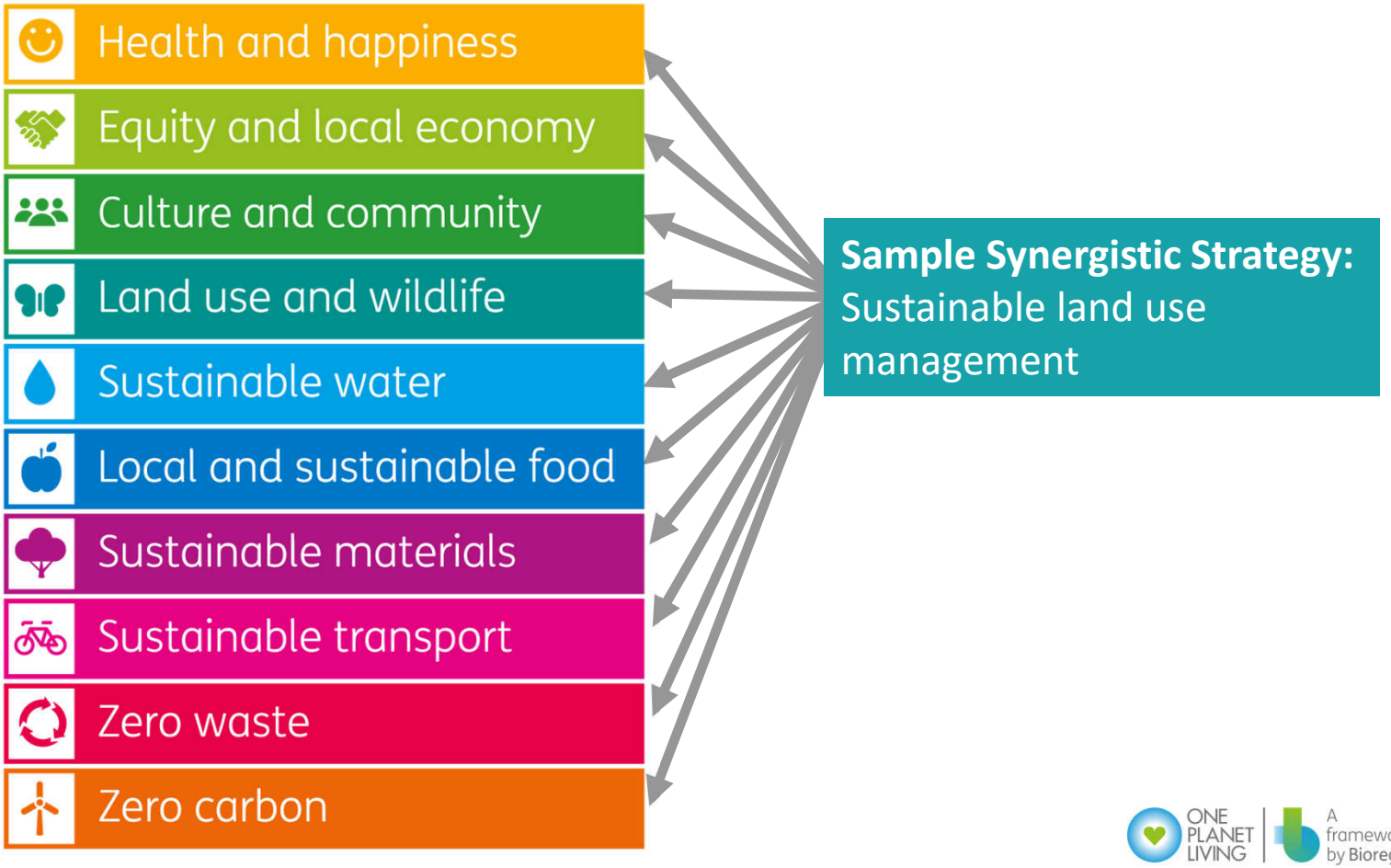
One Planet Living Framework



ONE PLANET LIVING | A framework by Bioregional

one earth

One Planet Living Framework



ONE PLANET LIVING | A framework by Bioregional

one earth

ONE PLANET LIVING | A framework by Bioregional

Stakeholder Groups

1. education, e.g., elementary schools, colleges, …
2. businesses, e.g., restaurants, stores, developers, …
3. community partners, e.g., nonprofits, networks, faith groups,
4. public institutions, e.g., libraries, power providers, …
5. *individuals*

ONE PLANET LIVING | A framework by Bioregional

One Planet Integrators

We're looking for volunteers who want to become part of an international peer network of passionate change-makers for sustainability.

- 10 Saanich community members will be selected to participate as integrators
- Receive training and then support stakeholders to create One Planet Action Plans

ONE PLANET LIVING | A framework by Bioregional

Integrator Commitments

- 1 day of training; ~ 3 days of workshops (June)
- 5 to 15 days to support creation of District One Planet Sustainability Scan and stakeholder OPAPs (June – Dec)

How to apply?

- Complete Integrator Expression of Interest Form

Using the Results

- Glenys Verhulst, Sustainability Planner, District of Saanich

- Jess Dawe, Manager of Energy and Climate Action, City of Victoria

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