

Sustainable Food Systems in a Changing Climate

Framing the discussion at Making the Links

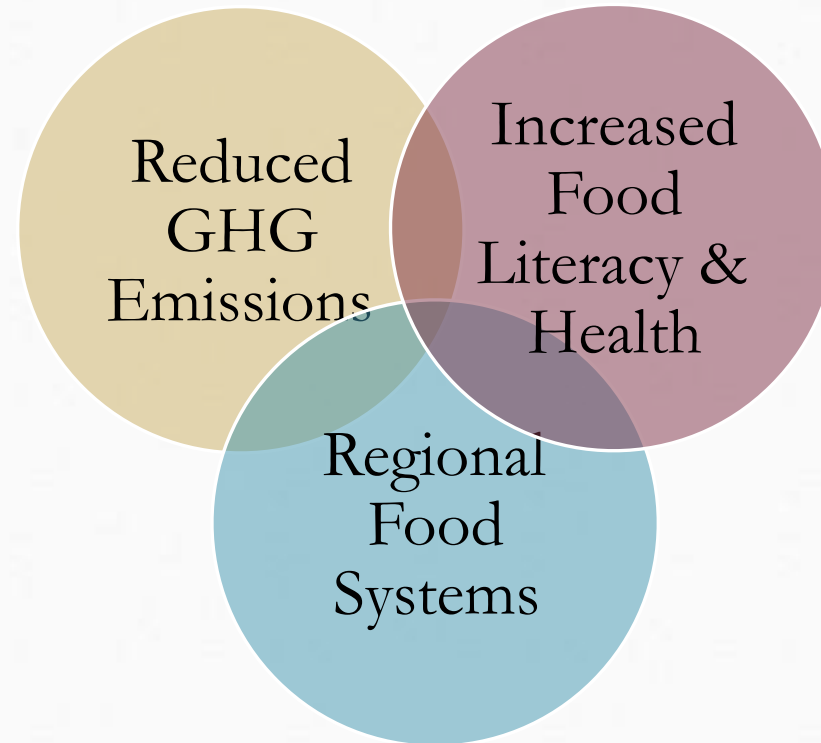
November 2018

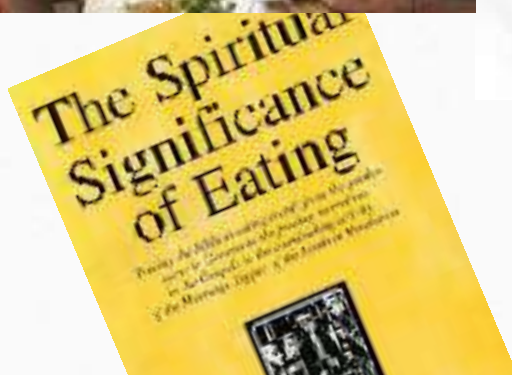
Disclaimer

- No expertise
- Some food system experience
- What I saw in one day



Where I started





"I BELIEVE THAT HEALTH IS MORE THAN MERELY THE ABSENCE OF DISEASE. IT IS A TOTAL STATE OF PHYSICAL, MENTAL, EMOTIONAL, SPIRITUAL AND SOCIAL WELL-BEING."

- Dr. Frank Lipman

FOOD MATTERS™




Slow Food® Canada



HEALTHY *eating*
Strategy



Health Canada Santé Canada

Canada ¹⁻⁸⁷⁷

**Building a
Healthy, Just and Sustainable
Food System:**

**Food Secure Canada's Recommendations
for A Food Policy for Canada**

September 2017



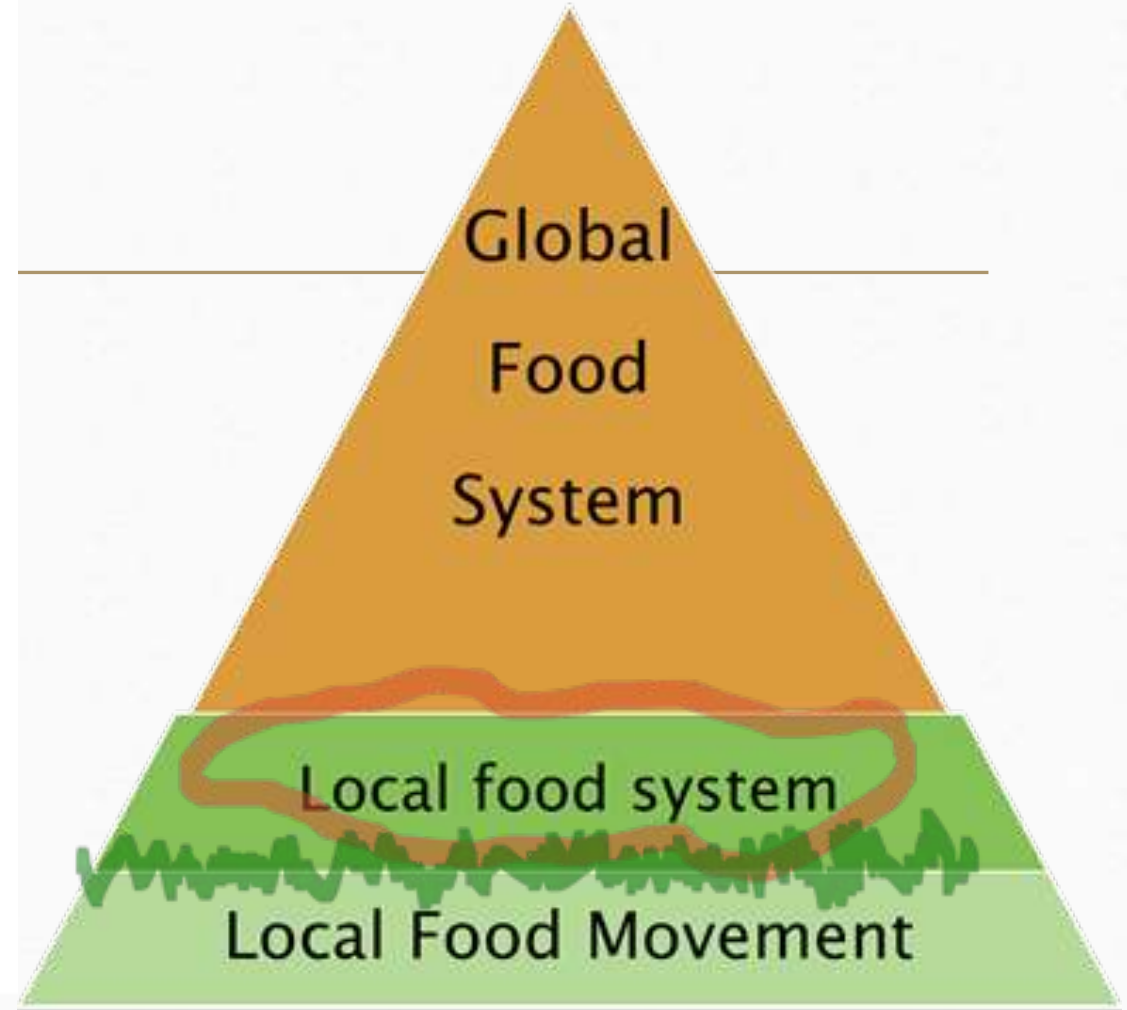
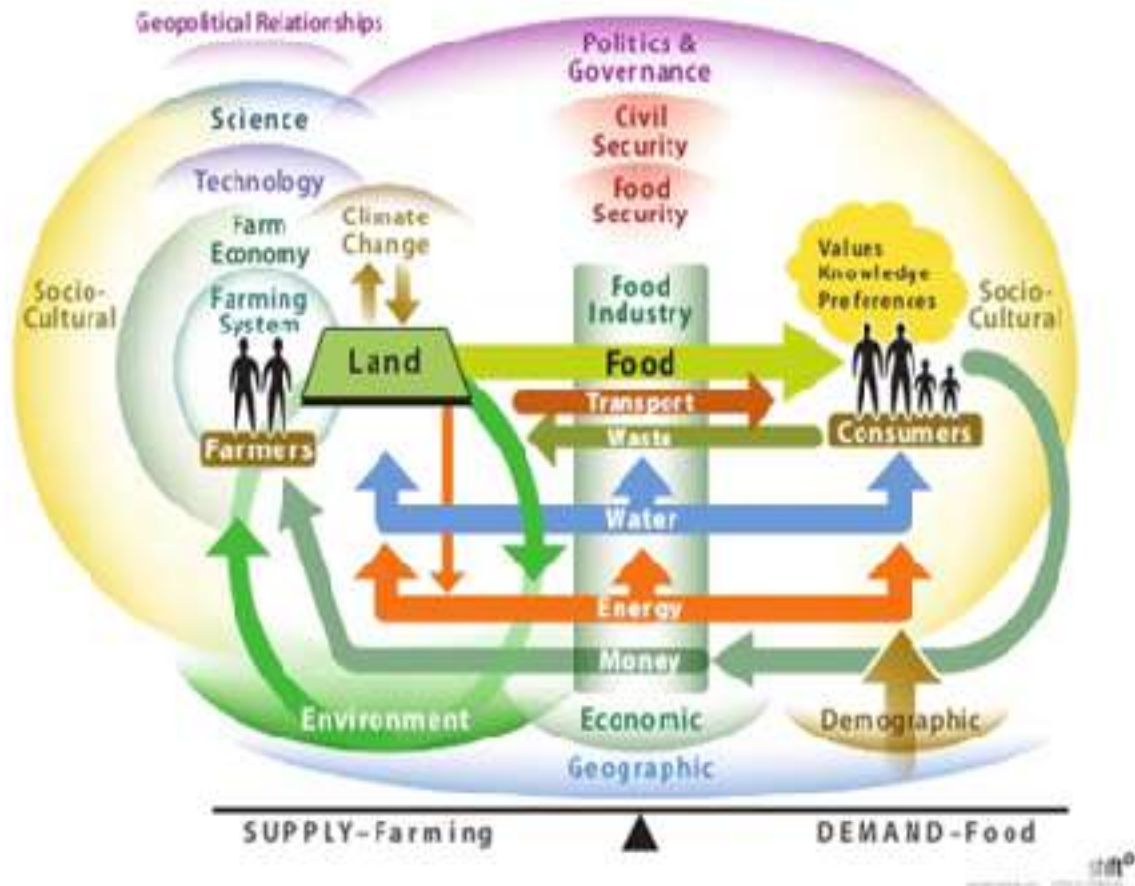
FSC
Food Secure Canada



 **Provincial Health
Services Authority**
Province-wide solutions,
Better health.

PROOF
FOOD INSECURITY
POLICY RESEARCH

Food System Map - Basic Elements



BC Public Investments: 2018/19 Budget

Agriculture's Connection to Health:
A summary of the evidence relevant to
British Columbia



- Agriculture: \$93 million
- Environment and Climate Adaptations: \$179 million
- Health: \$19,754 million
(not including mental health/addictions)

Table 1: Quantities of food needed and produced in Southwest BC (tonnes commodity weight) and corresponding levels of food self-reliance¹, with and without imported feed (2011)

FOOD TYPE	QUANTITY NEEDED	QUANTITY PRODUCED		FOOD SELF-RELIANCE	
CROP PRODUCTS					
Vegetables	627,193	244,343		35%	
Fruit	450,237	84,979		3%	
Grain	227,103	2,114		1%	
Fats & Oils	189,739	290		1%	
Pulses	14,635	75		1%	
LIVESTOCK PRODUCTS		"With Imported Feed"	"Without Imported Feed"	"With Imported Feed"	"Without Imported Feed"
Eggs	40,466	33,286	0	82%	0%
Poultry	112,112	200,281	0	100%	0%
Red Meat (Pork, Beef, Lamb)	158,358	15,549	0	10%	0%
Dairy	812,738	496,334	44,500	87%	10%
TOTAL (WHOLE DIET)	2,632,582	1,655,764	705,548	40%	12%

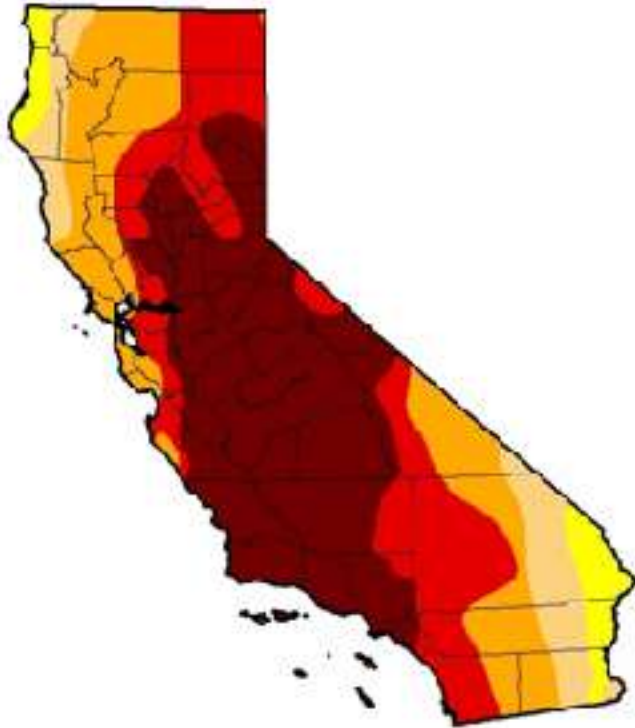
¹Because self-reliance per food type is calculated based on individual crops, and takes into account seasonality of production, self-reliance values are not equal to the quotient of quantity produced and quantity needed.

Figure 4: Approximate Value in Canadian Dollars of Foods Imported into, Exported from, and Produced in British Columbia (2007).^{124,ix}



For more information on food self-sufficiency in BC's Local Health Areas, see the Appendix.

U.S. Drought Monitor California



January 26, 2016
(Released Thursday, Jan. 28, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	0.00	100.00	75.35	98.73	83.98	40.21
Last Week (1/19/16)	0.00	100.00	67.17	96.13	68.15	42.48
3 Months Ago (10/20/15)	0.14	96.00	17.30	32.27	71.00	46.90
Start of Calendar Year (1/1/16)	0.00	100.00	17.30	67.56	68.01	44.14
Start of Water Year (10/1/15)	0.14	90.00	17.30	67.18	71.00	46.90
One Year ago (1/26/15)	0.00	100.00	86.43	94.34	77.51	39.39

Intensity

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text for forecast statistics.

Author:
Mark Svoboda
National Drought Mitigation Center



<http://droughtmonitor.unl.edu>



The Observer

Agriculture potential expands northward and to higher elevation



More crop damage by pests due to greater numbers and increased winter survival



Warmer temperatures increase growing season

Decreased winter cold injury

Longer grazing season

Water springs may delay planting

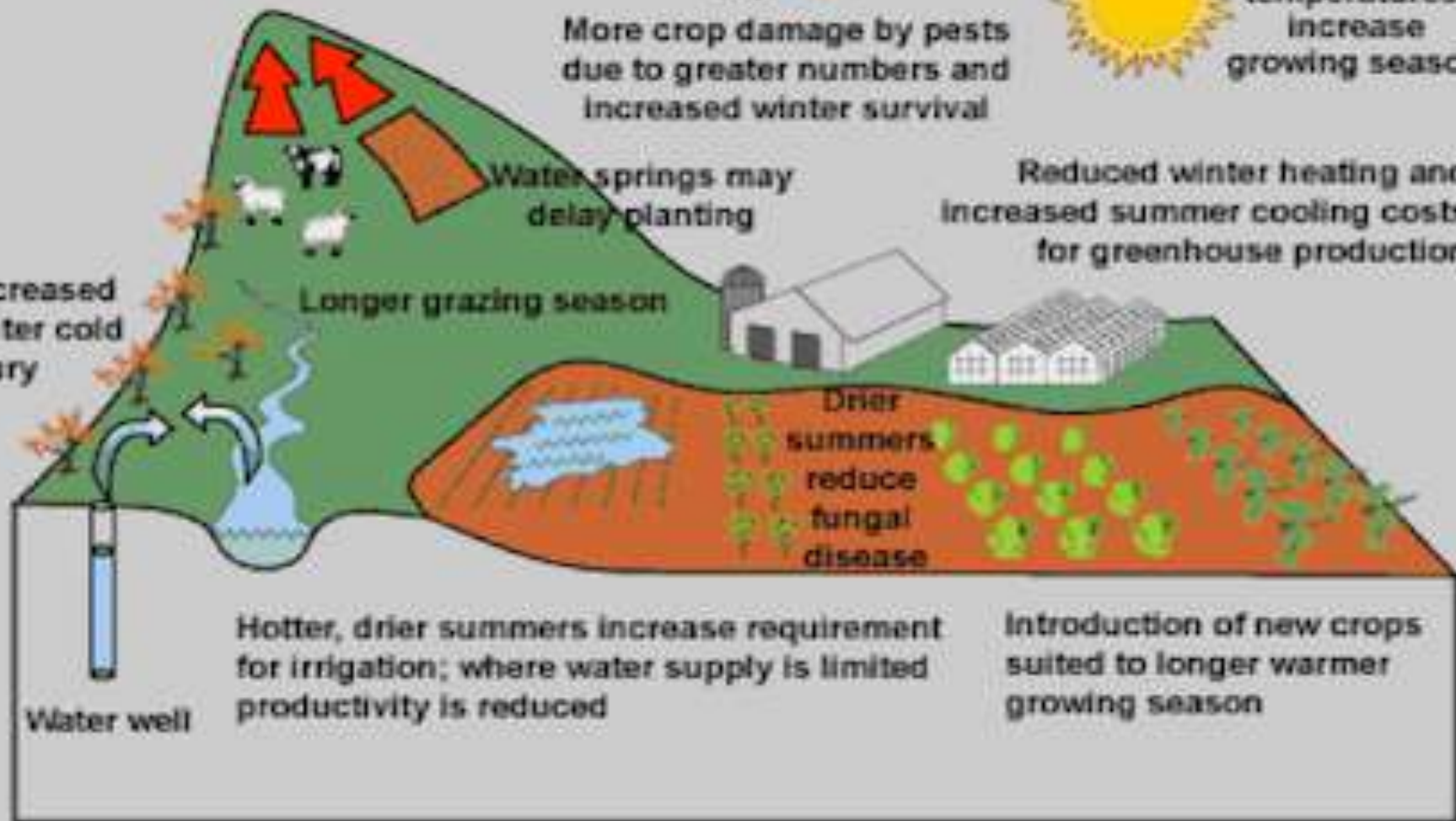
Reduced winter heating and increased summer cooling costs for greenhouse production

Drier summers reduce fungal disease

Water well

Hotter, drier summers increase requirement for irrigation; where water supply is limited productivity is reduced

Introduction of new crops suited to longer warmer growing season



Okanagan Region: Climate Change Projections

- Annual average *temperature increase of 1.4°C* by 2020s, and increase of 2.4°C by 2050s
- *21 more frost-free days* and *249 more growing degree-days* annually by 2020s
- *Annual precipitation increase of 1.2%* and *summer precipitation decrease of 8%* by 2020s
- *Winter precipitation increase of 6%* by 2020s, and *9% decrease* in the amount falling as snow



- *6.8 times as many extremely hot days* by the 2050s (days so hot that in the past they would only occur once every 10 years)
- *2.4 times as many extremely wet days* by the 2050s (days so wet that in the past they would only occur once every 10 years)
- *Increased frequency, intensity and magnitude of extreme rainfall*



Pacific Institute
for Climate Solutions
Knowledge. Insight. Action.

Climate Change and *Food Security* in British Columbia

Dr. Mark Wilson, University of Victoria, Dr. Christine Menzies, Simon Fraser University
and Rosalind Berryman, University of Victoria

November 2011

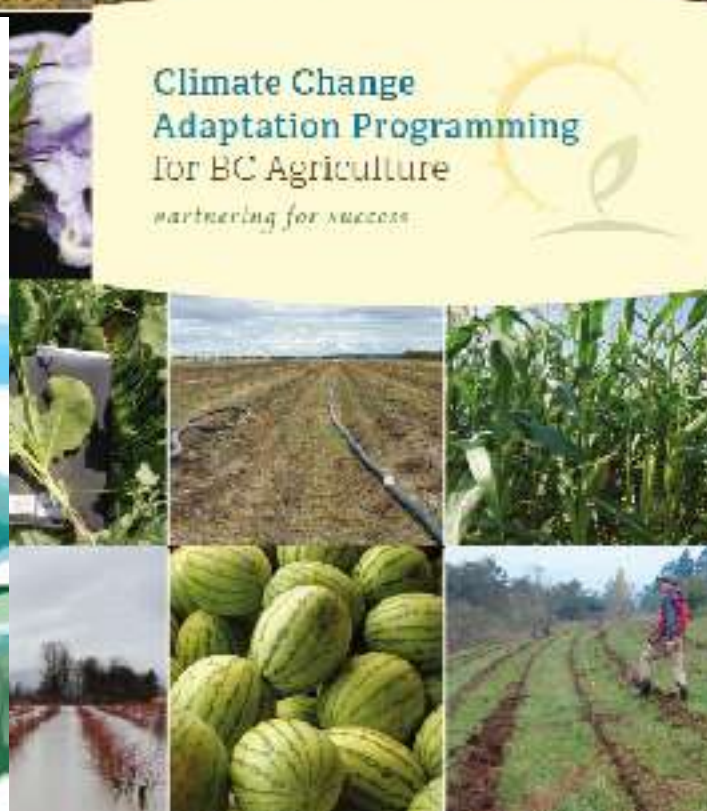
Climate Leadership Plan

AUGUST 2016



Climate Change Adaptation Programming for BC Agriculture

partnering for success

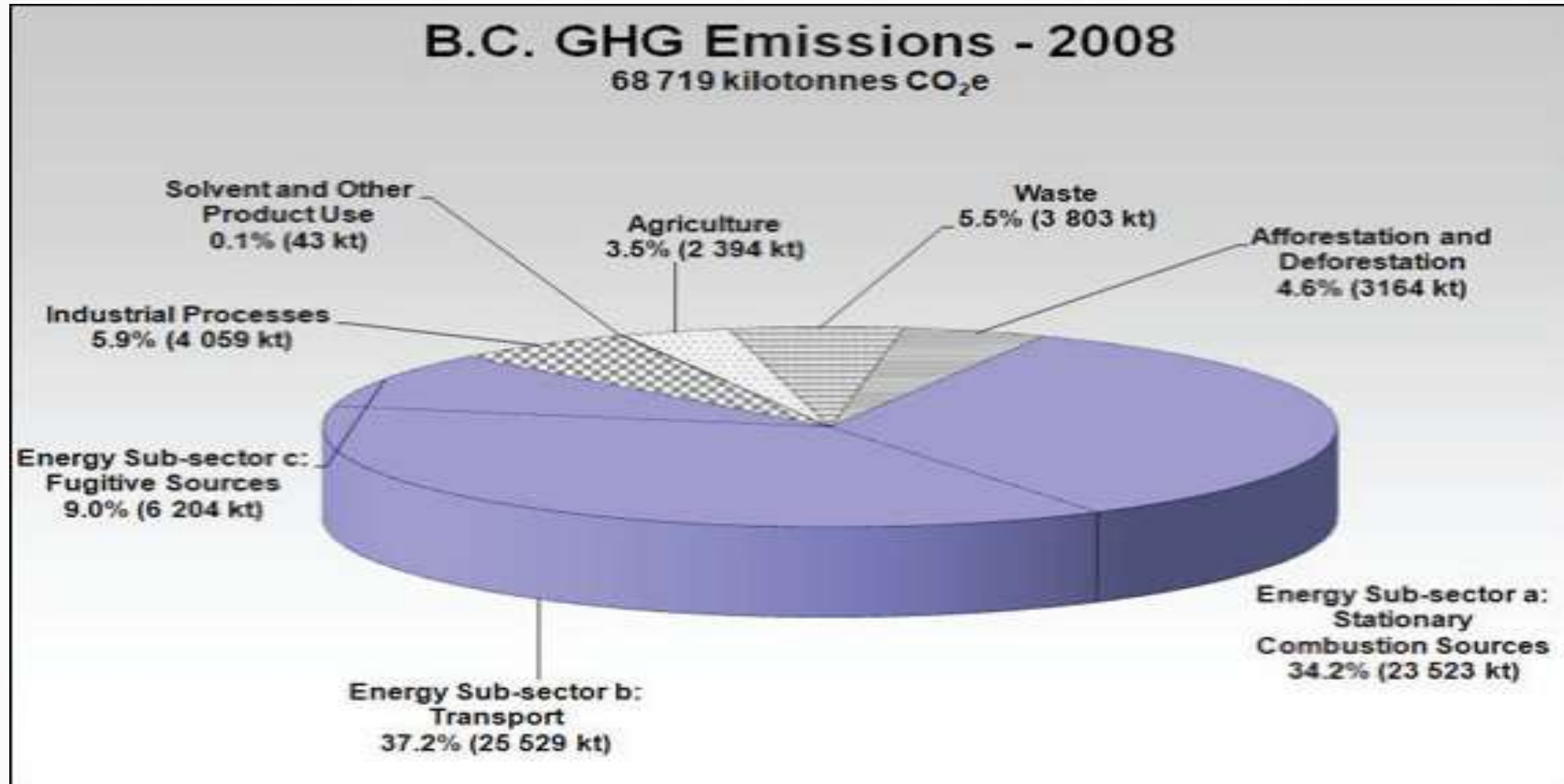


And – we need to think about mitigation too!

“Increasing food self-reliance in Southwest BC has little effect on the size of the ecological footprint. By comparing ecological footprints for food produced in the bioregion with food produced outside and imported to the bioregion, we see that the ecological footprint of our food need is influenced more heavily by the kinds of foods consumed than by where they are produced.”



Agriculture contribution to GHG



Calls for Collaboration

- The current state of our food environment is of our collective making, which means that **we need to work together at all levels** to improve it. (Healthy Eating Canada)
- **Invest in collaborative governance** and leverage social innovation in food. (Food Secure Canada)
- Some calls for “Ag. industry” to act collectively to invest in CC responses and there is more of this happening in BC in particular.



Capital Region
Food and Agriculture
Initiatives Roundtable

Foundations for Health

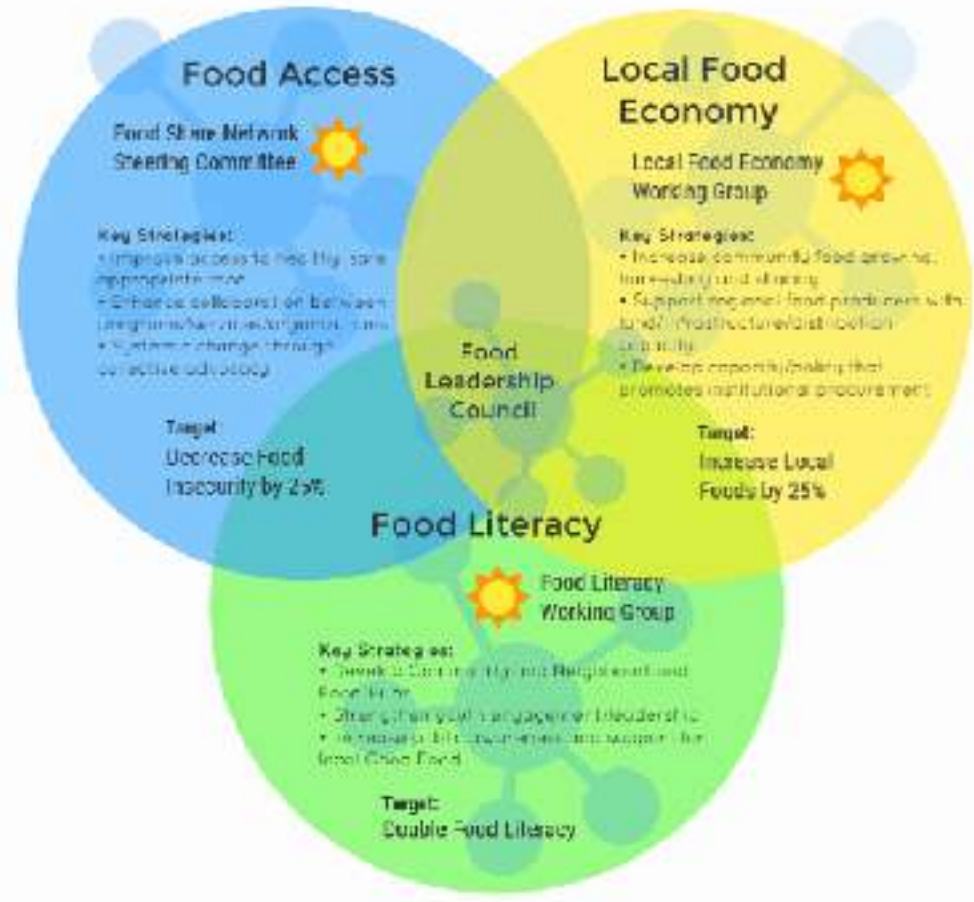
Income Security

Affordable Housing

Family and Culture

Environmental
Sustainability

Greater Victoria - Capital Region Good Food 2025





Food Share Network

Collective food re-distribution systems reduce waste, transportation emissions & get more food to people who need it.



Community preparation for the environment and economy of tomorrow?

KANAKA BAR AGRICULTURE FROM THE GROUND UP



3RD ANNUAL INDIGENOUS AGRICULTURE FORUM



OCTOBER 17 @ 8:00 AM - OCTOBER 18 @ 5:00 PM PST/DT