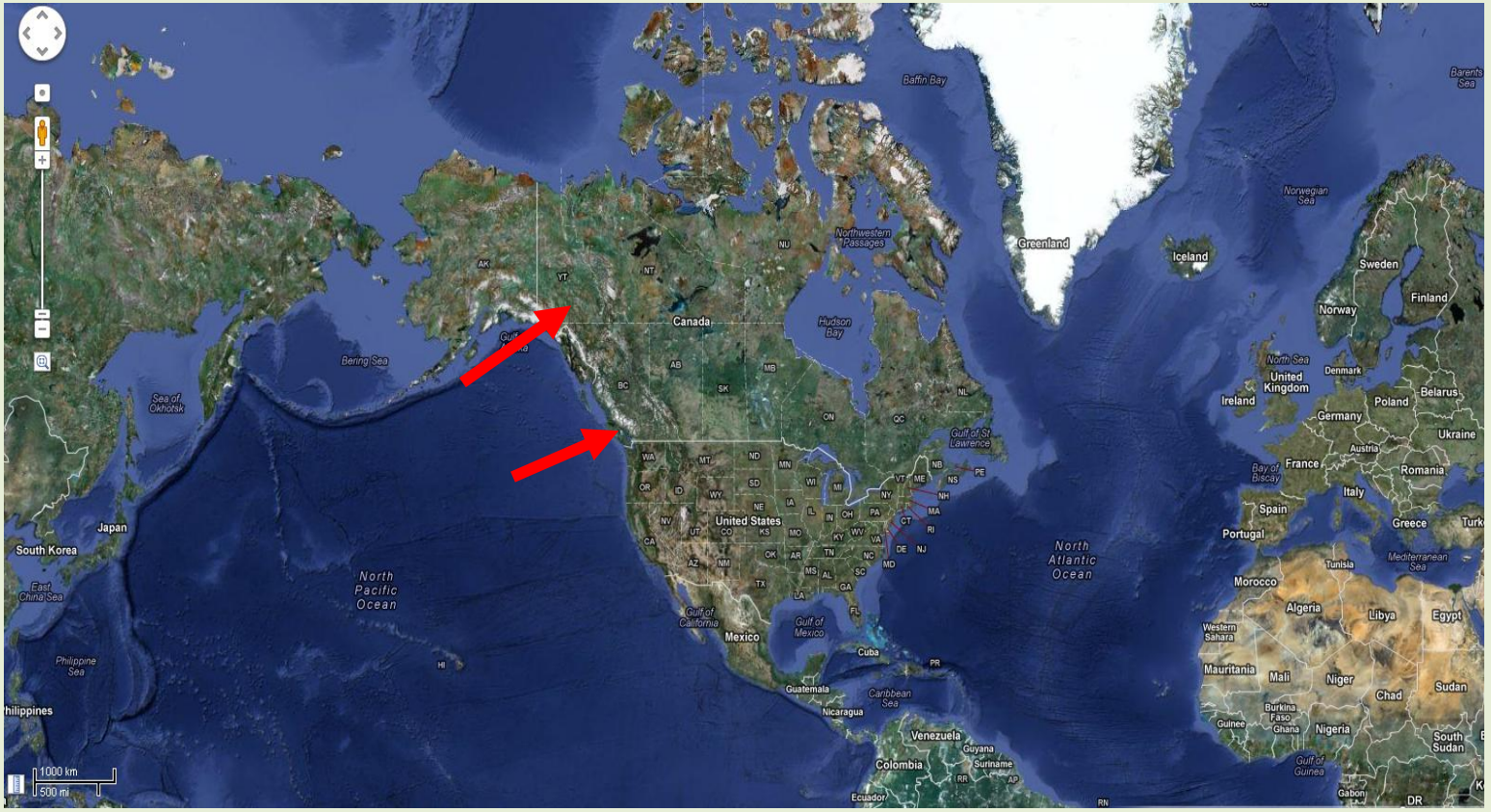
Strategies to enhance the integration of agri-culture with urban culture in British Columbia, Canada



Dr. Arthur Fallick, Sustainable Food Systems Working Group,
Institute for Sustainable Horticulture, Kwantlen Polytechnic University,
British Columbia, Canada

August 2012

Food System Design and Planning in South-West British Columbia and the Yukon

Structure of the Presentation

1. **Sustainable Food Systems Working Group** of the Institute for Sustainable Horticulture - (applied research, new B.Sc. In Sustainable Agriculture, Richmond Farm School)

2. **Context** – BC's Agriculture and the geography of the southwest region

3. **Current food system** (local and regional food system has been hollowed out)

4. **Our focus** – Planning FOR Agriculture – Land+Food+Community - (influenced by Thayer, Ikerd, Ehrenfeld, Benfield, et.al.)

5. **MESA** and **Bio-regional** concepts

6. **Progress** to date - Food System Design and Planning in South-West British Columbia and the Yukon

KWANTLEN POLYTECHNIC UNIVERSITY
INSTITUTE FOR SUSTAINABLE HORTICULTURE

Institute for Sustainable Horticulture

* Applied Research
* Extension Programs & Knowledge Transfer
* Contributions to Education Programs

Southwest B.C. and Yukon Research Team
Dr. Arthur Fallick- Kwantlen Polytechnic University (Co-Principal Investigator)
Dr. Kent Mullinix- Kwantlen Polytechnic University (Co-Principal Investigator)
Greg Harris- Kwantlen Polytechnic U.
Caitlin Dorward- Kwantlen Polytechnic U.
Anna Rallings-Kwantlen Polytechnic U.
Caitriona Feeney- Kwantlen Polytechnic U.

Dr. Sean Smukler- University of British Columbia
Sara Barron- University of British Columbia
Lorenzo Magzul- University of Victoria
Dr. Lenore Newman- Fraser Valley University
Dr. Meidad Kissenger- Ben-Gurion University
Dr. Tara Moreau- Pacific Institute for Climate Studies
Marc Schutzbank- Research Associate
Katie Robinson- Research Associate

Special Project Advisors
Dr. Bill Rees- University of British Columbia
Patrick Condon-University of British Columbia
Dr. Eduardo Jovel- University of British Columbia
Dr. Alejandro Rojas- University of British Columbia
Dr. Scott Green- University of Northern B. C.
Ellen Pond- Pembina Institute

The sustainability imperative

Our challenge as planners, developers and policy-makers of the built environment in an era of climate change is to figure out how to strengthen agriculture systems and the biodiversity of our farmlands, and connect them to livable communities and their consumers.

K. Benefield (2002)

Credit: Tara Moreau

Our research directly ties agriculture to the economic, social and ecological sustainability of communities

Concept Bio-regional food systems (design and planning)

Application Municipally Enabled and Supported Agriculture (MESA)

Tools

- Community Trust Farming
- Farm Schools
- Sustainable production systems
- Green House Gas mitigation strategies

- ❑ Life Place (Thayer)
  - Eco-Region
  - Bio-region

- ❑ Land
- ❑ Food
- ❑ Community

- ❖ Ecology
- ❖ Economy
- ❖ Community

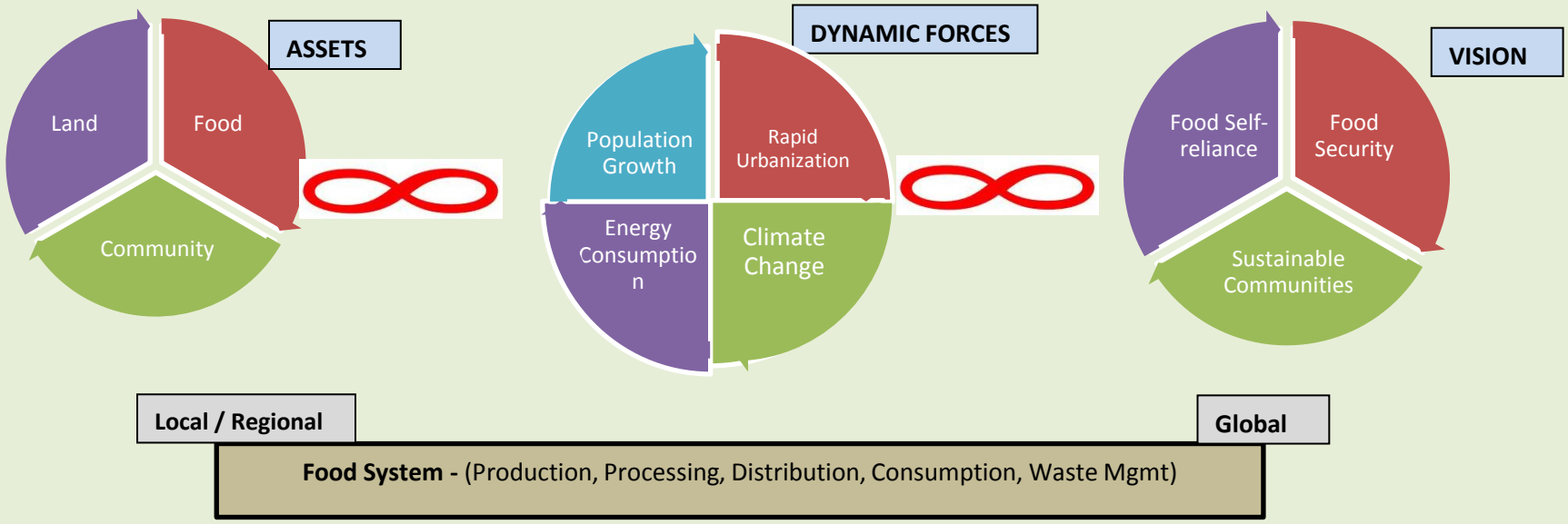
- Natural Capital
- Economic Capital
- Social Capital

- ✓ Feasible
- ✓ Viable
- ✓ Scalable
- ✓ Replicable

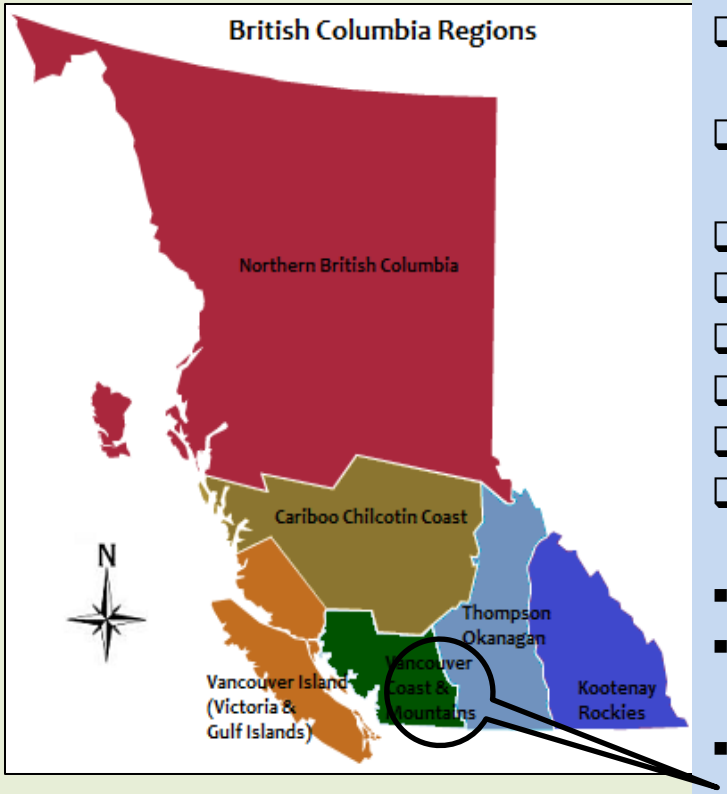
Our research focus

Bio-regional Food Systems Design and Planning
Municipally Enabled and Supported Agriculture (MESA)

MESA describes an approach in which Municipal governments take a lead role to enable or support the full integration of an agri-food system within the planning, design, development and function of human settlements. Beyond the municipal impacts, the **Bio-regional** concept advances food systems based on regional resource capabilities that respect ecological limitations, focus on and nurture place and community, and complement the global system by optimizing land and resource utilization through maximizing regional food self-reliance.



Quick Facts: British Columbia's Agriculture Sector



- ❑ In southwest BC, people spend +$4.5 billion on food annually (pop = ~2.7 million in 2011)
- ❑ Farming is worth $9.6 billion, employing 60,000 people (producing & processing)
- ❑ The Agriculture sector lost ~$87 million in 2010
- ❑ We export $2.5 billion of agriculture products
- ❑ We import 85% of what we consume
- ❑ 38% of BC Farmers are 55+ years of age
- ❑ 50% of farm sales average less than $10,000 annually
- ❑ 41% of land farmed is leased or rented from the owners

- Over 82% of British Columbians live in urban areas
- 79% live in an area of less than 3% of B.C. (centred on the Okanagan Valley and south west corner of the Province).
- In this same small area about 78% of B.C.'s gross farm receipts are generated.

The Agricultural Land Reserve

The primary value of British Columbia's agricultural land - relates to three key factors.

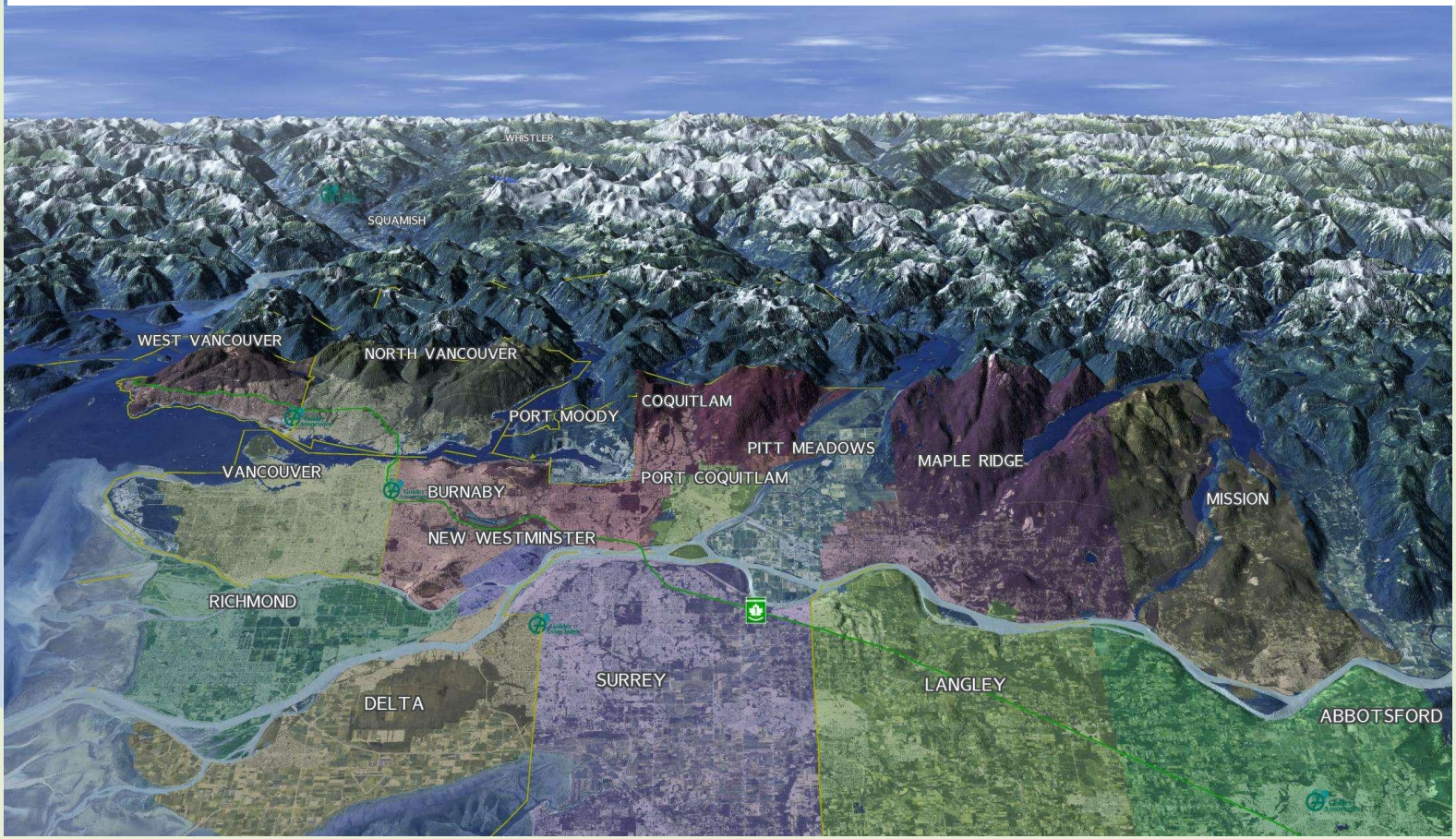
i. **Functionality** - its ability to provide for one of the most basic of human needs.

ii. **Production** from these lands makes an important contribution to the Province's economy, defines part of the Province's social fabric and creates a valued visual characteristic.

iii. In many areas the agricultural land base is of high quality but quite limited in quantity - only about 5% of B.C.'s land is in the **Agricultural Land Reserve (162,000ha)** and only 1% has prime agricultural capabilities.

The Problematic

The local / regional food system is being hollowed out as we increasingly rely on a global, industrial agriculture model. The implications for food security, food self-reliance and ultimately, the sustainability of our communities require careful consideration.



Credit: Metro Vancouver

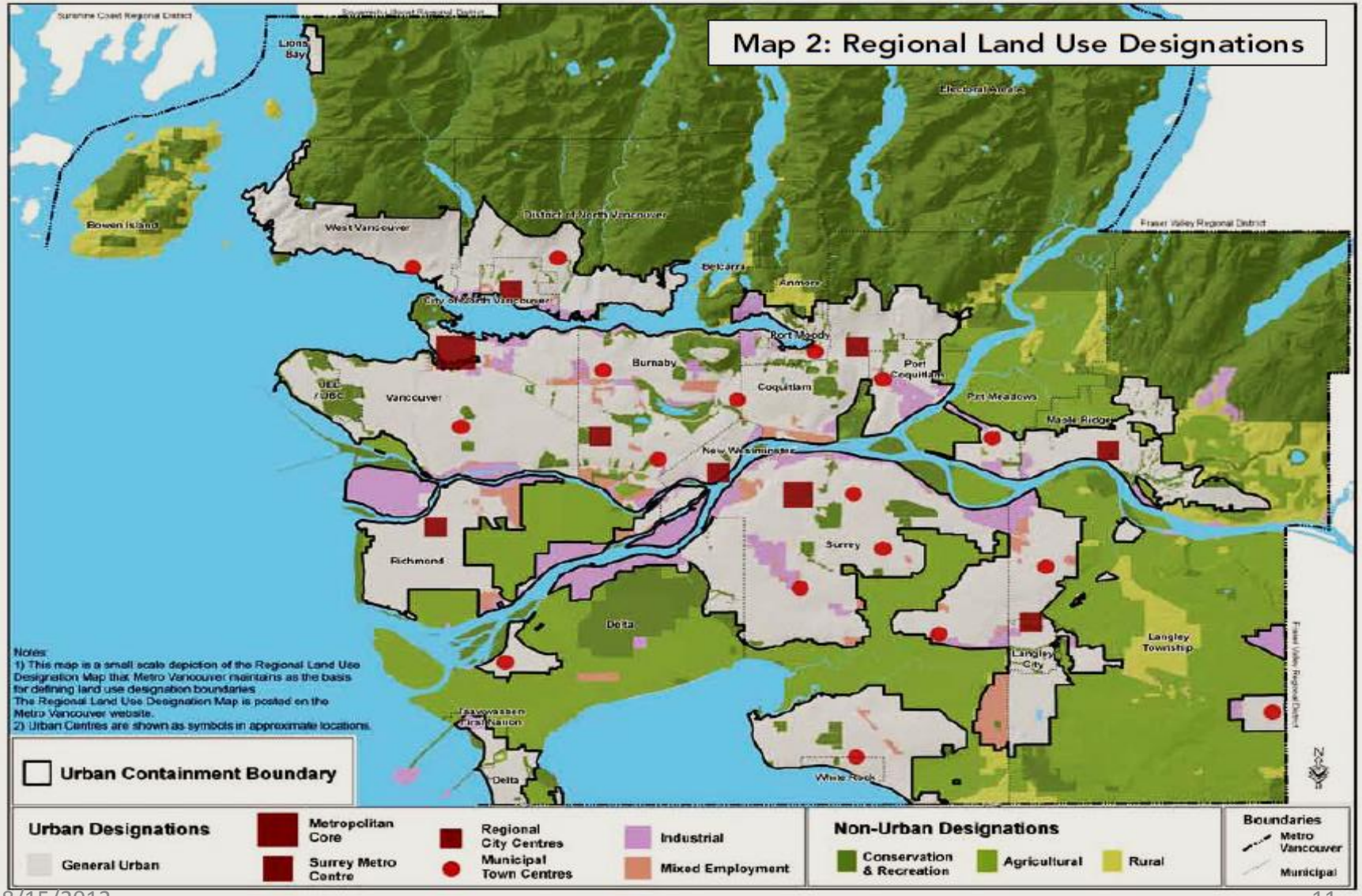
Historically	Currently
Abundant Farmland	Scarce and very expensive Farmland ($250k+/acre)
Family Scale Farming	Industrial Scale Farming (Quotas)
Crop Diversity	Berries + hothouse flowers + vegetables Production for Export
Production for Local Consumption	Agricultural Land Reserve /Edge issues

Table 1 | **Crop production in Metro Vancouver, 2006**

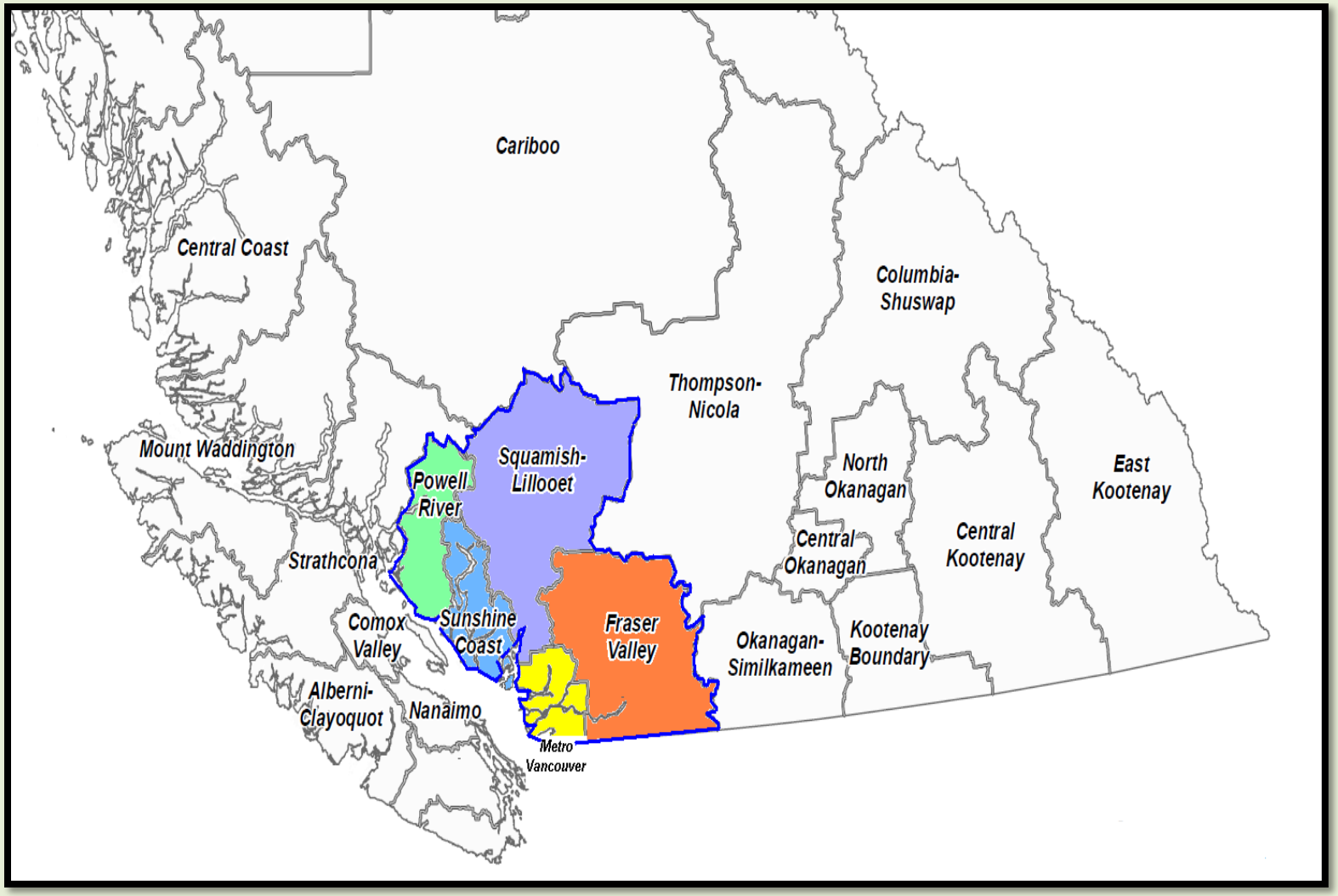
Crop type	Land area (ha)			% Change 1996–2006
	1996	2001	2006	
Berries	**3300**	**3940**	**4643**	**29%**
Blueberries	1506	1746	2734	45%
Cranberries	1218	1505	1503	19%
Strawberries	204	227	208	2%
Raspberries	318	200	198	−38%
Vegetables	**2639**	**3175**	**3025**	**13%**
Potatoes	2097	2085	2285	8%
Green/wax beans	444	627	804	45%
Sweet corn	366	469	405	10%
Squash/pumpkin/ zucchini	186	308	320	42%
Lettuces	271	282	213	−21%
Cabbage	161	197	97	−40%
Carrots	182	259	196	7%
Spinach	29	58	48	40%
Celery	46	20	7	−85%
Rutabaga/turnip	39	44	45	13%
Chinese cabbage	74	96	105	30%
Nursery crops	**1113**	**1235**	**1192**	**7%**

Source: Metro Vancouver (2007) Census Bulletin #2 Census of Agriculture.

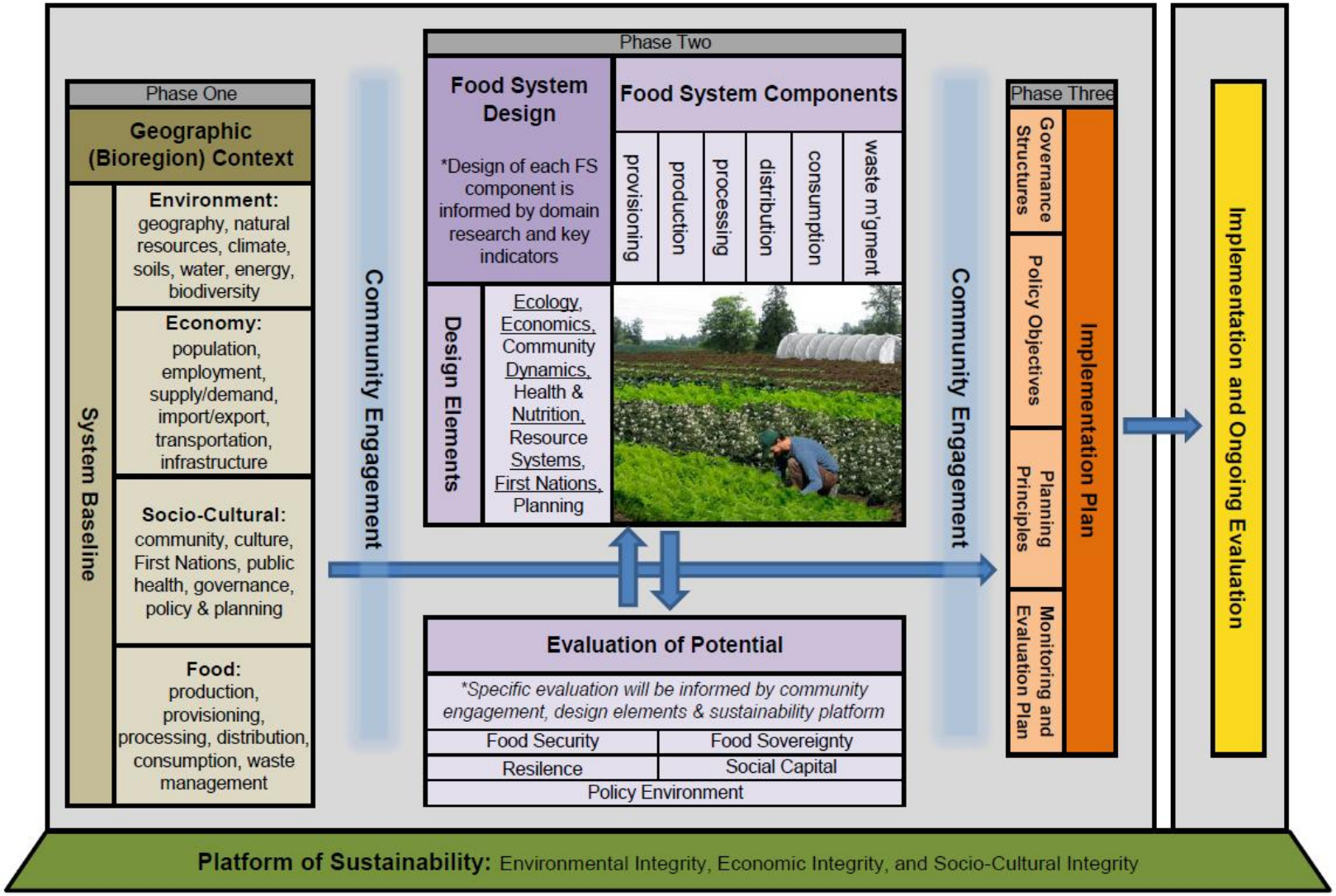
In southwest BC, the relationship between settlement patterns and the need for land suitable for growing food has resulted in many of our urban centres being built on the best agricultural land in the region.



Food System Design and Planning in South-West British Columbia



Regional Food Systems Design Methodology



Institute for Sustainable Horticulture: K.Mullinix, A.Fallick, C.Dorward | DRAFT 7/10/2012; Not for Distribution

Key objectives

Support agriculture and food provisioning by:

Connecting agriculture with key elements of the food system (processing, distribution, sales);
Providing region-specific information for current and future farmers;
Attracting and preparing new farmers;
Delineating climate change adaptation strategies for agriculture; and,
Identifying opportunities and strategies for expanding the regional food sector.

Strengthen the regional economy by:

Retaining more of the "local food dollar" and positioning the food sector to contribute directly to the regional economy;
Creating opportunities for small to medium sized businesses; and,
Creating rewarding, satisfying jobs that will appeal to a new generation.

Promote environmental stewardship and health by:

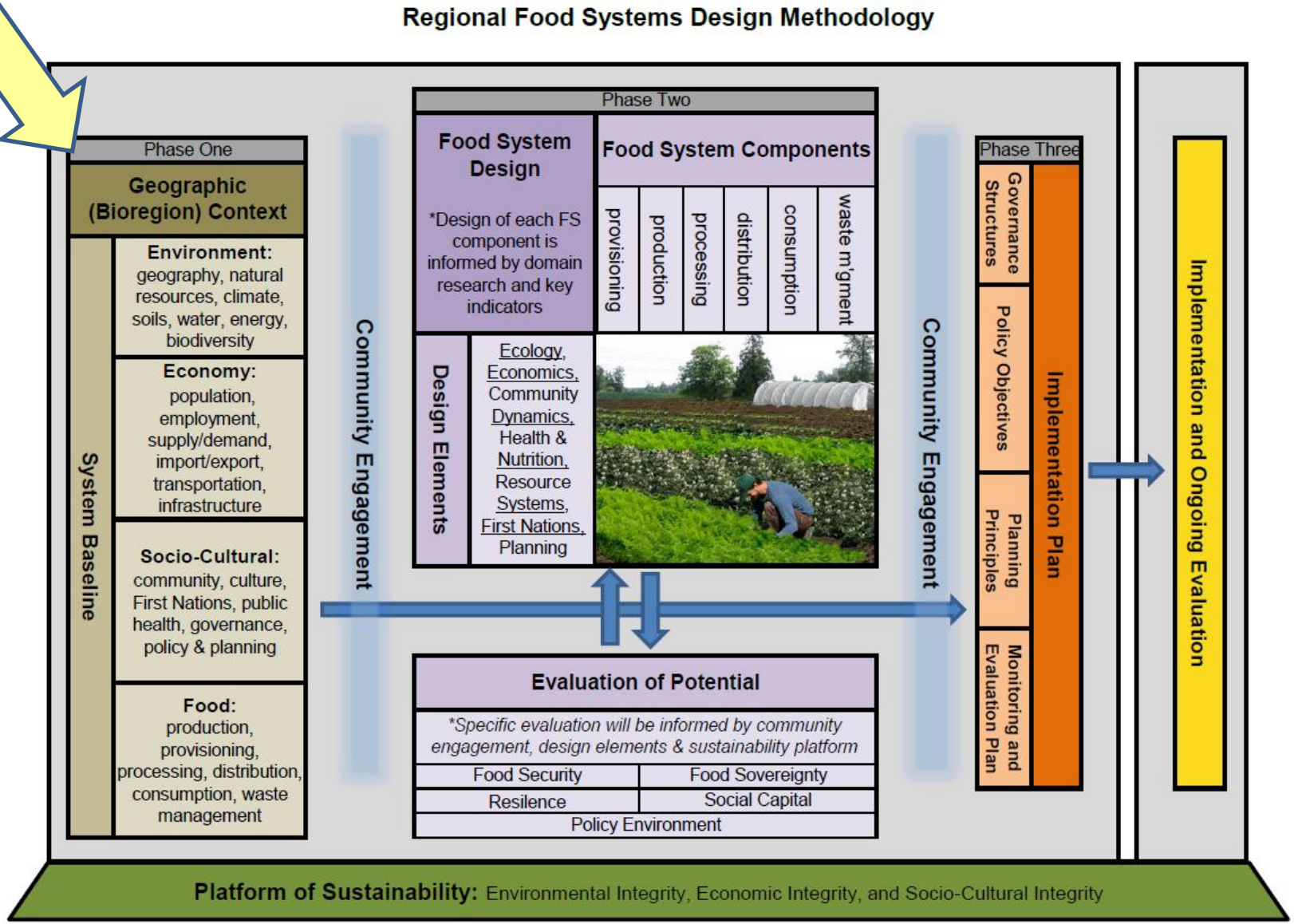
Mitigating environmental degradation and lessening overall ecological footprints;
Contributing to regional greenhouse gas emissions reductions;
Promoting energy efficiency within the food sector; and,
Integrating ecologically sound agriculture with productive natural landscapes.

Foster food security and public health by:

Making healthy, fresh, culturally appropriate foods readily available; and,
Substantially reducing reliance on imported foods.

Strengthen communities and build social capital by:

Building capacity within SWBC communities to engage in agriculture and the food system; and,
Bringing together diverse communities by catalyzing action around mutual goals and shared food system values;



Institute for Sustainable Horticulture: K.Mullinix, A.Fallick, C.Dorward | DRAFT 7/10/2012; Not for Distribution

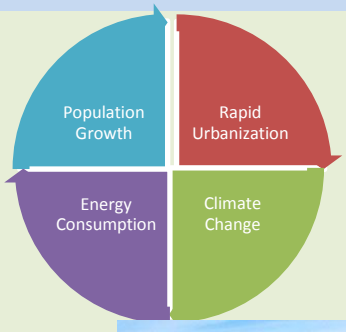
ASSETS

Baseline Assessment

Food System Design

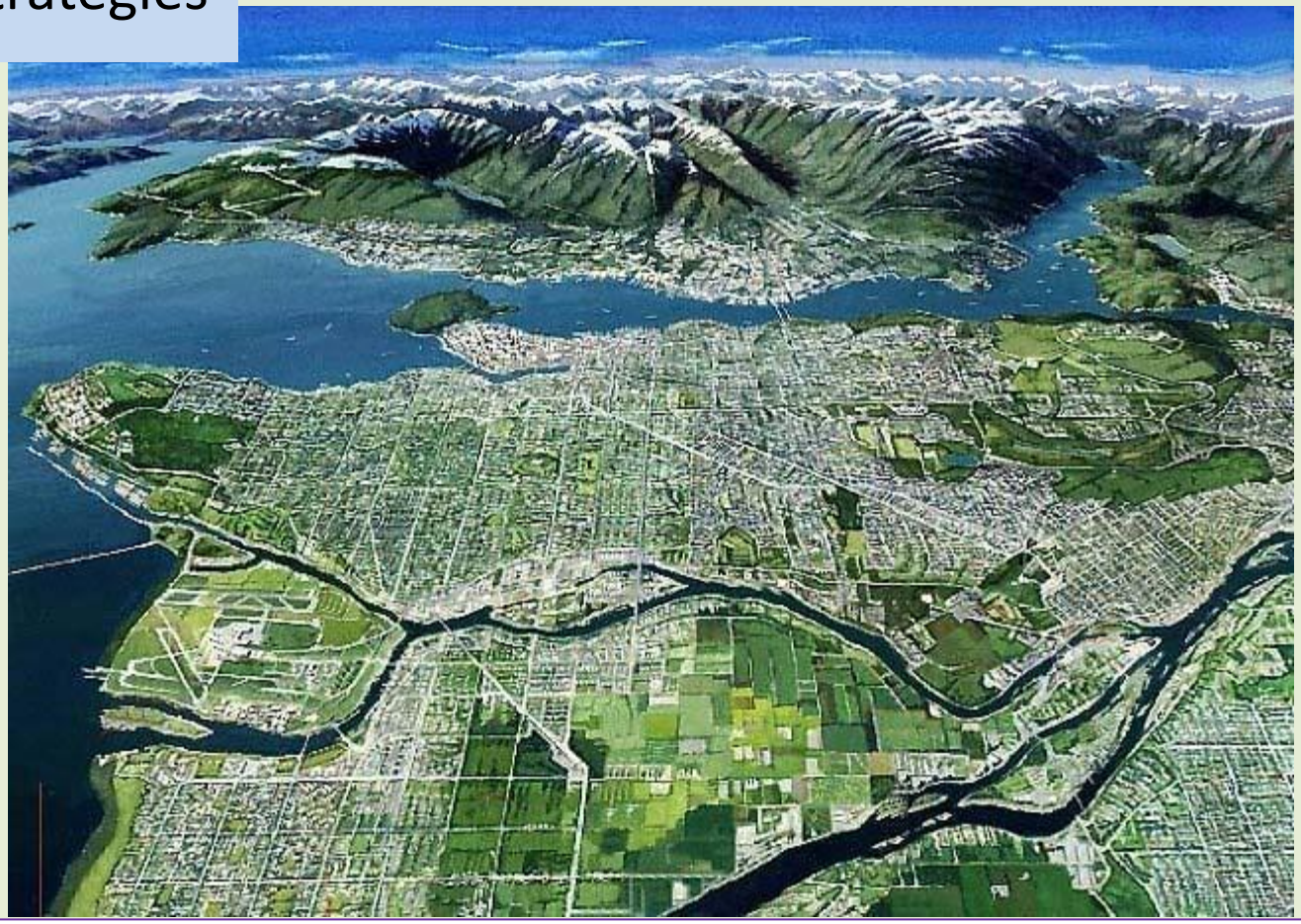
Vision	Goals	Objectives (Non-Prioritized) The Food System….	Indicators	Related Domains
A food System that is ecologically, economically and socially resilient and provides primary, secondary and tertiary food security.	Significantly contribute to overall health and improved nutrition and the mitigation of diseases	1. Provides food choices that meet the population's recommended nutrition requirements and prevent food related chronic diseases		Community Health Economy Dynamics
		2. Ensures that food is safely produced and safe to consume		Community Health Community Dynamics Production/Pre-Production
		3. Promotes healthy eating behaviours by offering basic nutrition education and health promotion		Community Health Community Dynamics
		4. Ensures food is affordable		Community Health Economy Dynamics Community Dynamics (?)
	Enable resilient and sustainable ecological function	5. Maximizes internal material recycling and minimizes material loss		Ecology Supply Chain
		6. Maintains and enhances biodiversity on and off the farm		Ecology Supply Chain
		7. Optimizes soil, water, and air quality		Ecology Supply Chain
		8. Results in a net energy gain		Ecology Energy
	Mitigate GHG emissions and increase the adaptation of food systems.	9. Mitigates Greenhouse Gas emissions and is adaptable to climate change		Ecology Energy Transportation
	Significantly enhance the regional economy	10. Supports economically viable farms and ancillary businesses		Economy Dynamics Land-Use Planning Supply Chain
		11. Creates income that circulates within regional economy		Economy Dynamics Supply Chain
		12. Creates food system jobs		Economy Dynamics Community Dynamics
	Maximize regional self-reliance	13. Satisfies regional demand for as many wild foods and cultivated crops and stock as possible.		Supply Chain
		14. Ensures sufficient local services and infrastructure to support the provisioning of wild and cultivated food from the region year round		Supply Chain Transportation
		15. Optimizes and balances food, forage and feed production within the region in relation to urban settlement and community demands		Supply Chain Land-Use Planning Community Dynamics Community Health Transportation
		16. Supports adequate infrastructure to support the food system		Land-Use Planning Transportation Energy
	Create strong and resilient communities	17. Supports food preferences and cultural food choices		Community Dynamics
		18. Supports development of social capital and strengthens community dynamics		Community Dynamics

Dynamic Forces



Credit: Tara Moreau

Planning Strategies

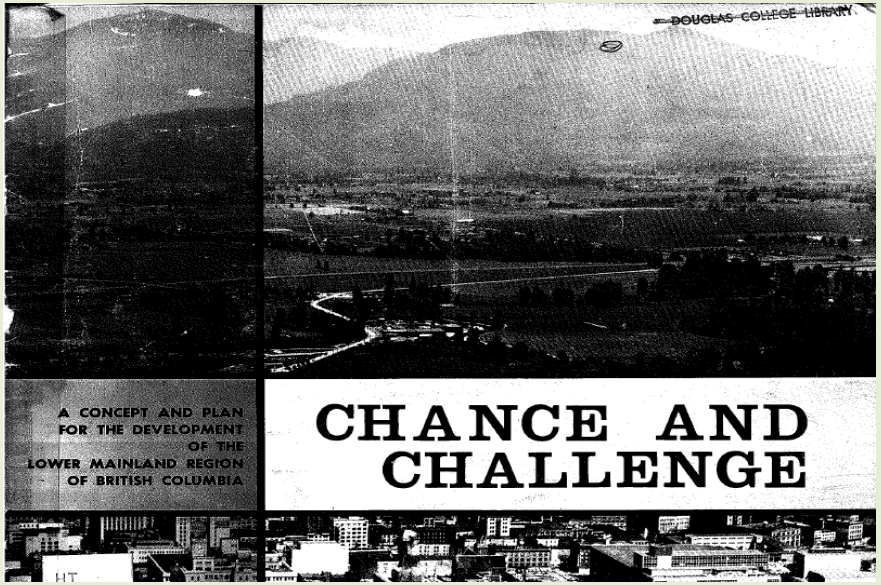


The expansion of urban and peri-urban agriculture in our region ranges in scale from grass-roots activism such as community gardens, SPIN farming (small plot intensive farming) and farmers markets, through design parameters such as green roofs and edible landscaping, to public policy initiatives such as Food Policy Councils, Sustainability Charters, Regional Growth Management and Regional Food System Strategies, and the Agricultural Land Reserve legislation enacted by the Government of British Columbia.

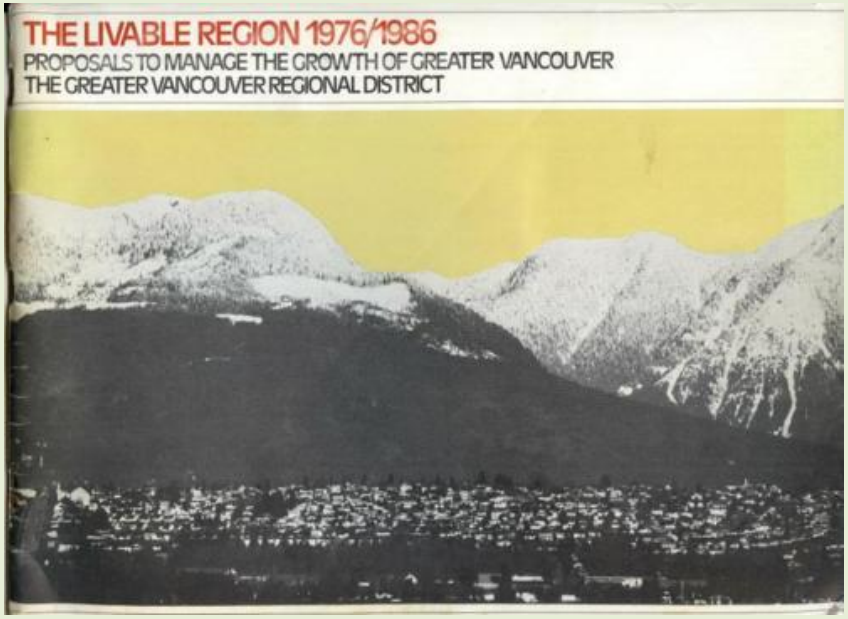
Condon, Mullinix, Fallick and Harcourt. Agriculture on the Edge: strategies to abate urban encroachment onto agricultural lands by promoting viable, human-scale agriculture as an integral element of urbanization. *International Journal of Agricultural Sustainability*, Vol. 8, Issue 1&2, 2010

Regional Growth Management

1963



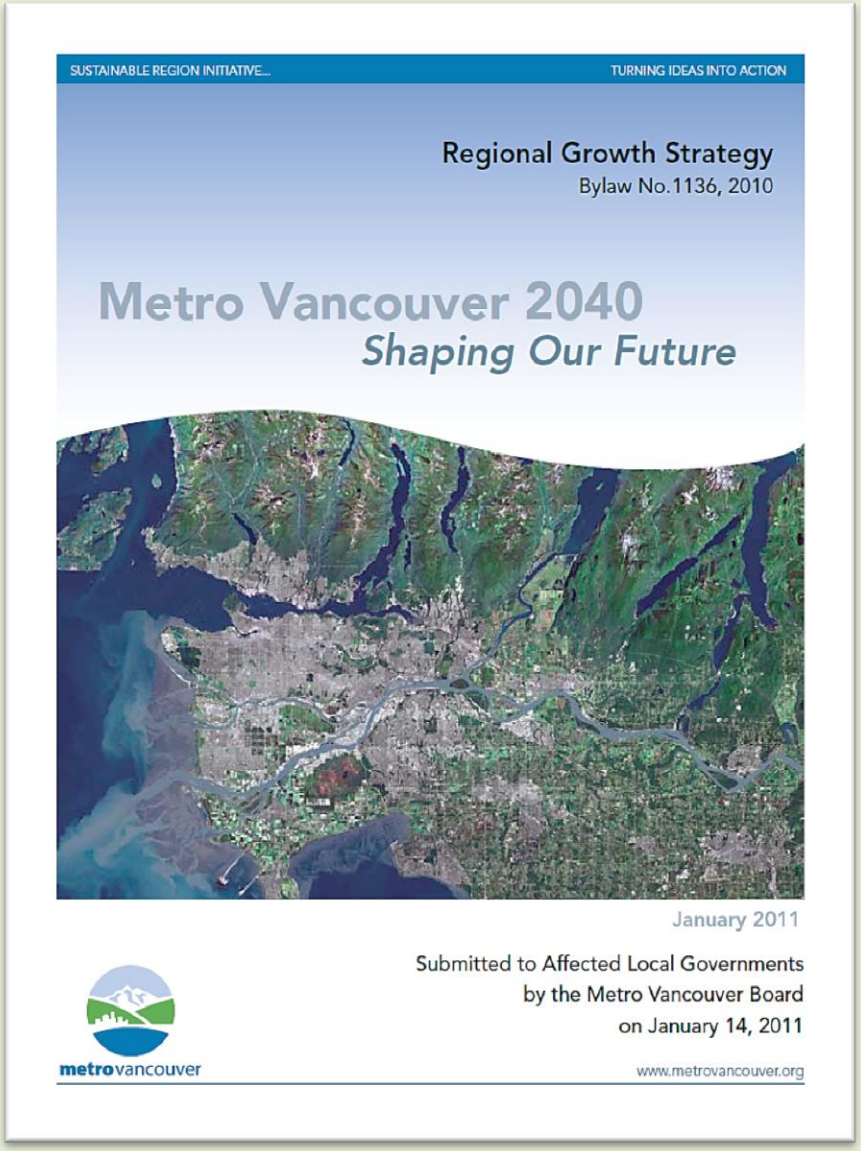
1976

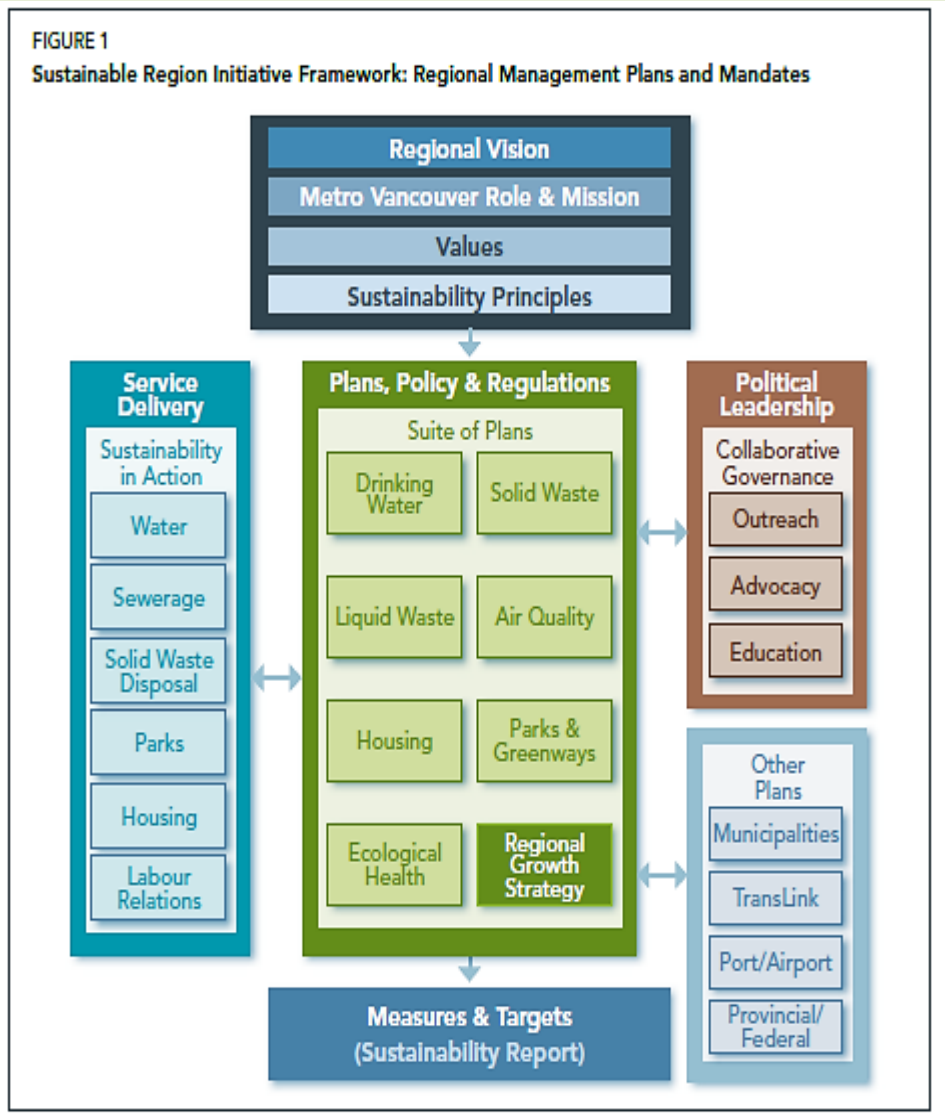


1996

Regional Growth Management

2011





Regional Food System Strategy

Regional Food System Strategy

FEBRUARY 2011

PERFORMANCE MEASURES

Goal 1: Increased Capacity to Produce Food Close to Home

1. Total hectares of land in the ALR in Metro Vancouver
   - 1a. Annual number of hectares excluded from the ALR
   - 1b. Annual number of hectares included into the ALR
   - 1c. Annual number of hectares approved for non-farm use in the ALR
2. Total hectares of land categorized as farm property
3. Estimate of the amount of actively farmed land in Metro Vancouver
4. Average age of farmers in Metro Vancouver

Goal 2: Improve the Financial Viability of the Food Sector

1. Total number of food sector jobs as a percent of total regional employment jobs in the food sector
2. Food sector jobs as a percent of total regional employment
3. Ratio of farm businesses gross receipts to operating expenses
4. Number of farmers markets
5. Annual gross receipts for farmers markets
6. Value of production per hectare of agricultural land
7. Total receipts from fishing and fish processing

Goal 3: People Make Healthy and Sustainable Food Choices

1. Proportion of Metro Vancouver residents that eats fruits and vegetables 5 or more servings per day
2. Proportion of Metro Vancouver residents with an overweight or obese self-reported Body Mass Index (BMI)
3. Proportion of Metro Vancouver residents with Type II Diabetes
4. Number of schools in Metro Vancouver participating in "Agriculture in the Schools"

Goal 4: Access to Healthy, Culturally Diverse and Affordable Food for Everybody

1. Annual cost of a nutritious food basket as a proportion of median income for a two parent family with two children in Metro Vancouver
2. Annual cost of a nutritious food basket as a proportion of after tax Low Income Cut-Off for a single parent family with two children in Metro Vancouver

Goal 5: A Food System Consistent with Ecological Health

1. Number of farmers participating with Environmental Farm Plans in Metro Vancouver
2. Fish habitat health indicator
3. Percentage of food waste diverted from disposal

Vision

Agricultural, residential and commercial land uses must be integrated in the process of redesigning an efficient food distribution system for a world running out of fossil energy. If we continue to allow parcels of land to be allocated to their highest economic use, enough productive land simply will not be left in the right places to meet the food needs of future generations.

John Ikerd (2011) Land use planning for sustainable food systems. Journal of Agriculture, Food Systems, and Community Development, Vol. 2, Issue 1, Fall 2011

Credit: Michael Marrapese via Farm Folk / City Folk

Application

Municipally Enabled Sustainable Agriculture (MESA)

Our research illustrates how local governments can support local-scale, human-intensive, environmentally sound agri-food systems that can have direct and positive impacts on local and regional economies, protect and preserve farmland against urban sprawl and promote increased food production, distribution and consumption self-reliance.

KWANTLEN POLYTECHNIC UNIVERSITY
INSTITUTE FOR SUSTAINABLE HORTICULTURE

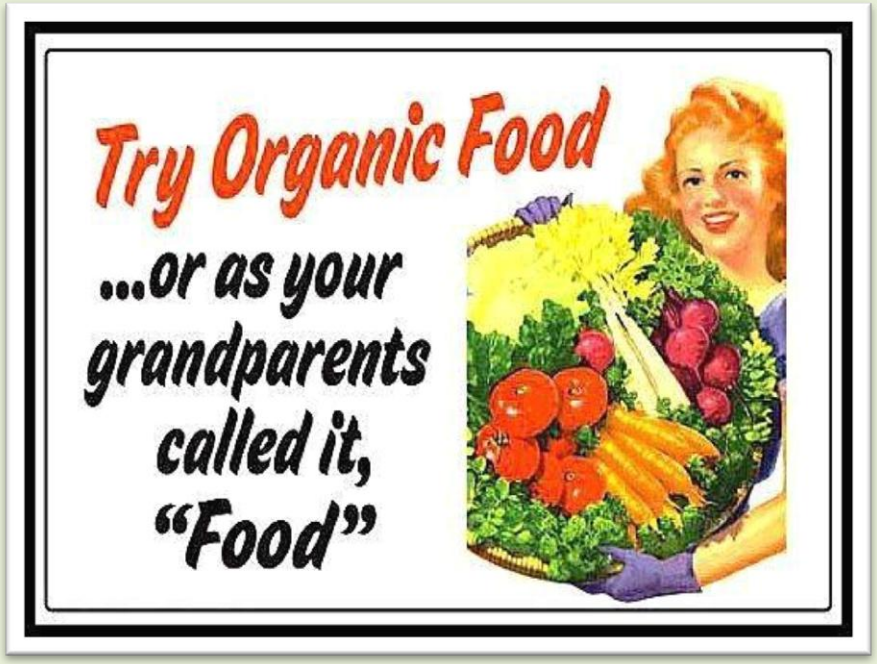
Economic, Job Creation, and Food Production Potential on Underutilized Agricultural Land In Surrey, British Columbia

The goal is not the creation of a global economy, but rather a global network of regional economies.

David C. Korten. The Post-Corporate World. Life After Capitalism. 1999. Berrett-Koehler Publishers Inc. and Kumarian Press Inc.

Photograph by: Chung Chow , Delta Optimist

www.kwantlen.ca/ish



Thank You / Merci