



Communities Adapting to Climate Change

Climate Change Impacts on Local Food Security and Agriculture - From Backyards to Global Supplies

Climate Change Impacts on Local Food Security and Agriculture - From Backyards to Global Supplies

Meeting summary

Date/Time: Thursday, March 18, 2010 from 10 am to 3 pm

Location: Castlegar Community Forum – 445 13th Ave.

Total Participants: 23

Brief Overview

The three project communities (Castlegar, Rossland and Kaslo/RDCK Area D) for CBT's Communities Adapting to Climate Change Initiative (CACCI) have identified food security and agriculture as priorities for climate change adaptation planning. This informal workshop brought the Project Coordinators and members of the Steering Committees (SC) from each community together with a small number of technical experts and community representatives to:

- a) collectively explore climate change impacts on food security and agriculture,
- b) begin to understand vulnerabilities, risk and opportunities for communities and,
- c) identify possible next steps.

Discussions were fruitful as participants explored their understanding of the connections between future climate change projections and the food/agricultural sector. People's expertise ranged from their professional work, politics, advocacy, community work, policy and general interest.

Key outcomes of the meeting were that participants gained a better understanding of the impacts of climate change on food security and agriculture along with realizing that food security and agriculture need to be addressed at three levels: the local, regional and global scale.

The following summary outlines the discussions during the workshop. It is intended to be used by the local projects to identify some of the key issues related for food security and agriculture for their communities.

Detailed Overview

Meeting Goal: To further develop the capacity of participants from project communities of Columbia Basin Trust's Communities Adapting to Climate Change Initiative to undertake climate change adaptation planning on the topic of food security/agriculture.

Meeting Objectives:

- Exchange information and perspectives about climate change and food security/agriculture in the Basin at backyard, regional, provincial, national, continental and global scales
- Begin to chart climate change impacts on agriculture at different geographic scales
- Identify potential information sources, research needs
- Identify the potential roadmap for this topic within the adaptation planning process
- Agree on next steps - who will do what



Participants

Castlegar Project

- Kristin Aasen – Local Project Coordinator, Castlegar
- Sandi McCreight – SC member, Director Kootenay Food Security Society
- Shanon Marshall – City Planner – Castlegar
- Suzanne Stansbury – SC member, Fortis

Kaslo/Area D Project

- Tim Sander – Local Project Coordinator, Kaslo/Area D
- John Alton – SC member, West Kootenay Eco-Society
- Aimee Watson – SC member, Local Food Security project coordinator for Kaslo
- Paul Sneed – SC member, GIS Selkirk College

Rossland Project

- Jennifer Ellis – Local Project Coordinator, Rossland
- Dirk Lewis – SC member
- Hanne Smith – SC member, Councillor Rossland

Technical Support

- Darrell Smith – CACCI Technical Support Team (TST), Ministry of Agriculture

- Cindy Pearce – CACCI TST
- Mel Reasoner - CACCI TST
- Abra Brynne – Peeling the Onion
- Deborah Harford – CACCI Advisory Committee, Executive Director, Adaptation to Climate Change Team (ACT), Simon Fraser University

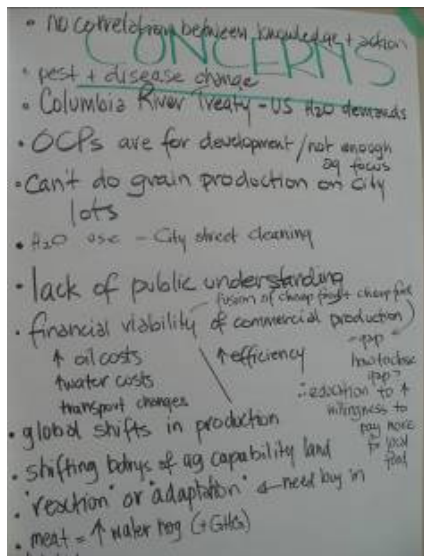
Community Representatives

- Russell Precious – Kootenay Country Store Food-Coop Board Member
- Diana Lunde – Public Health Nurse, Director KFSS
- Mike Thomas – Engineer, City of Rossland
- Robin Thomas – Civil Engineer, Director KFSS
- Andre Piver – Transition Nelson/Future of Food

CBT

- Michelle Laurie – Coordinator CACCI
- Rachael Roussin – Assistant CACCI

Morning session – Food security/agriculture climate change adaptation round table – Sharing information, initiatives, concerns, ideas –



After initial introductions, there was a one hour round table discussion on the impacts of climate change on food security and agriculture to provide participants with an opportunity to bring their initial thoughts, concerns and ideas to the table.

Five flip charts were posted on the walls to record participant's ideas along with computer notes being taken.

The titles on the flip charts were:

- Ideas
- Concerns
- Initiatives
- Information
- Next steps

Issues of available data, local community and politician buy-in, education, commercial production vs. backyard gardens and the scope of the project were all important issues brought forward. Although this discussion was supposed to have a climate change focus, many issues went beyond climate change impacts. These notes are recorded in detail at the end of this report and are

organized under headlines that arose organically from the discussion. These notes may be useful to the local coordinators to identify what some of the current issues in their communities are surrounding food security and agriculture.

Conclusions from morning session (also see notes at the end of report)

Climate change impacts to food and agriculture need to be addressed at 3 levels:

- Local
- Regional
- Global

Afternoon Session – digging deeper into climate change impacts



A short presentation on impact assessment was given to provide participant with a background on climate change assessment tools. The introduction on impact assessment was followed with a hands on impact mapping exercise to better understand the possible impacts of climate change on food security and agriculture (see impact mapping charts below). This was done in three groups:

- Local
- Regional
- Global

Participant feedback highlighted that they felt the impact mapping session was helpful for them to better understand food security and agriculture through a climate change lens.



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POSSIBLE NEXT STEPS

Project Communities

- Foster allies in City/Village/Regional District staff and council
- Wide community engagement
- Ground truth impact maps with farmers and backyard gardeners
- Synergies with other asset mapping projects (Contact: Paul Sneed, Selkirk College Geospatial Research Centre: psneed@selkirk.ca)

CBT

- Create a fact sheet on the local impacts of CC on agriculture.
- Foster regional cooperation seeing that three communities have identified this topic as a priority area.
- Impact mapping with farmer's in Creston or Grand Forks to educate them about the impacts of climate change on agriculture (be mindful of the season and the words 'climate change').
- Link with ACT agricultural session in the next year (2011).

Academic

- Identify local/regional and provincial policies to be agriculture friendly in 10+ years/streamline policies surrounding agriculture in local government "friendly" mini legislation.

Others

- Transition Nelson can help create a regional data base.
- Future of Food Paper catalogues action items from this event (available on project wiki).



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VERY DRAFT CLIMATE CHANGE IMPACT CHARTS

Impacts of climate change on food security and agriculture: a global perspective - DRAFT

Impacts of climate change:	Ecosystem response	Key impact areas	Additional factors	Strategies
Less precip	<ul style="list-style-type: none"> ○ Change in timing and water flow ○ Soil moisture decrease ○ Change in soil organisms ○ Increased demand for irrigation ○ Decrease in soil fertility ○ Less water available for irrigation ○ More water demand ○ Less feed for animals 	<ul style="list-style-type: none"> ○ Crops ○ Soil ○ Transportation route distribution ○ H2O availability ○ Species change, movement and extinction (including pests and pollinators) 	<ul style="list-style-type: none"> ○ Cost of fertilizer ○ Global population increase leading to an increase in food demand ○ Less land due to urbanization ○ Impact of people with less resources ○ Obesity, depression and other cultural and social factors. ○ Increase in people migration ○ Cost of fuel (energy) ○ Cost of transportation ○ Change in eating habits (more meat in diets) ○ Fewer farmers and farming 	<ul style="list-style-type: none"> ○ GMO seed and crops ○ Valuation of Ecosystem ○ Trade and political barriers
Increase temp	<ul style="list-style-type: none"> ○ Migration of species shift ○ Crop failures due to heat sensitivity ○ Increase in damaging insects ○ Wild fire ○ Methane release ○ Increase in productivity of some crops ○ Shifting temperate zones ○ Pollination changes ○ Pests and disease increase 			

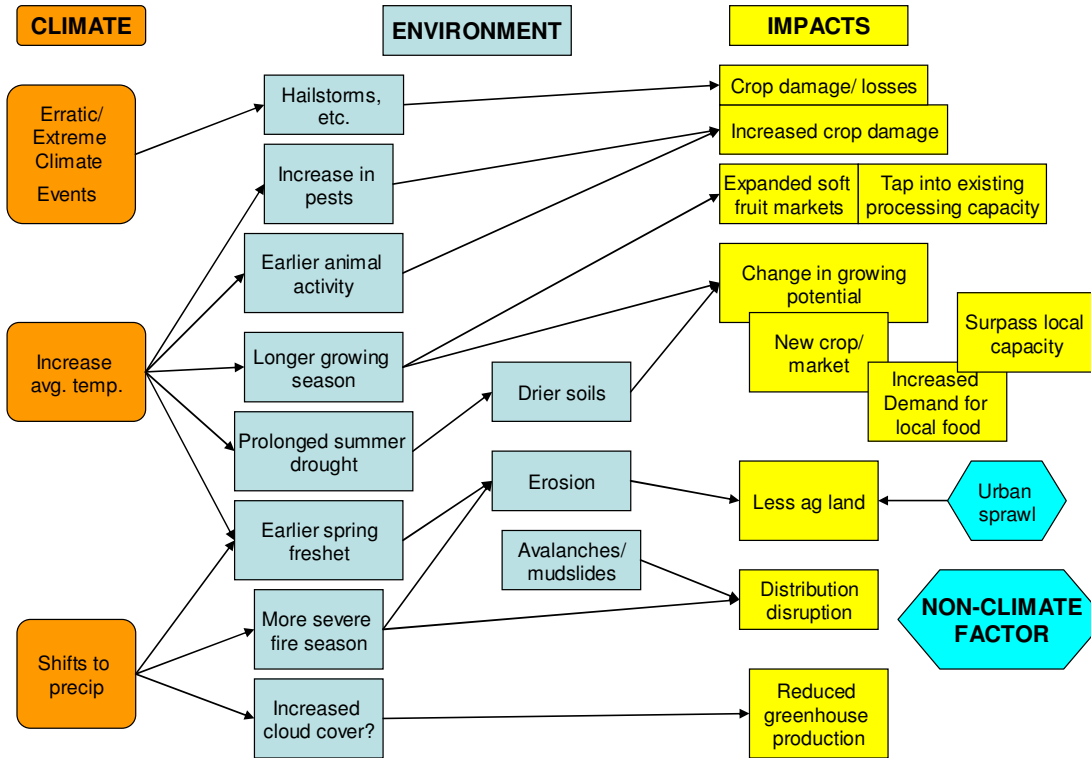
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Increase in precip	<ul style="list-style-type: none"> ○ Increased turbidity and sediment in rivers ○ Sea and marine issues ○ Fish and timing ○ Flooding ○ Soil erosion / soil loss ○ Decrease in productivity in some areas ○ Increase moulds and fungi 					<ul style="list-style-type: none"> skills ○ Rural urban migration ○ War 	
Lower temp (extreme conveyor belt scenario)							
Extreme events	<ul style="list-style-type: none"> ○ Total crop failure ○ Drought ○ Crop damage (hail, wind) ○ Wildfire damage to land and soil 						
Rise in sea level	<ul style="list-style-type: none"> ○ Flooding: less agricultural land ○ Salinization of soil ○ Warming temperatures and rising estuary ○ Less CO2 sequestration ○ Coral bleaching ○ Encroachment ○ Collapse of marine ecosystem 						
Additional Factors:	Social unrest	Rule of Law	Refugees	Universal impact	Global financial system	Global Trade changes	

Backyard/Community Food Security & Agriculture Impacts – VERY DRAFT





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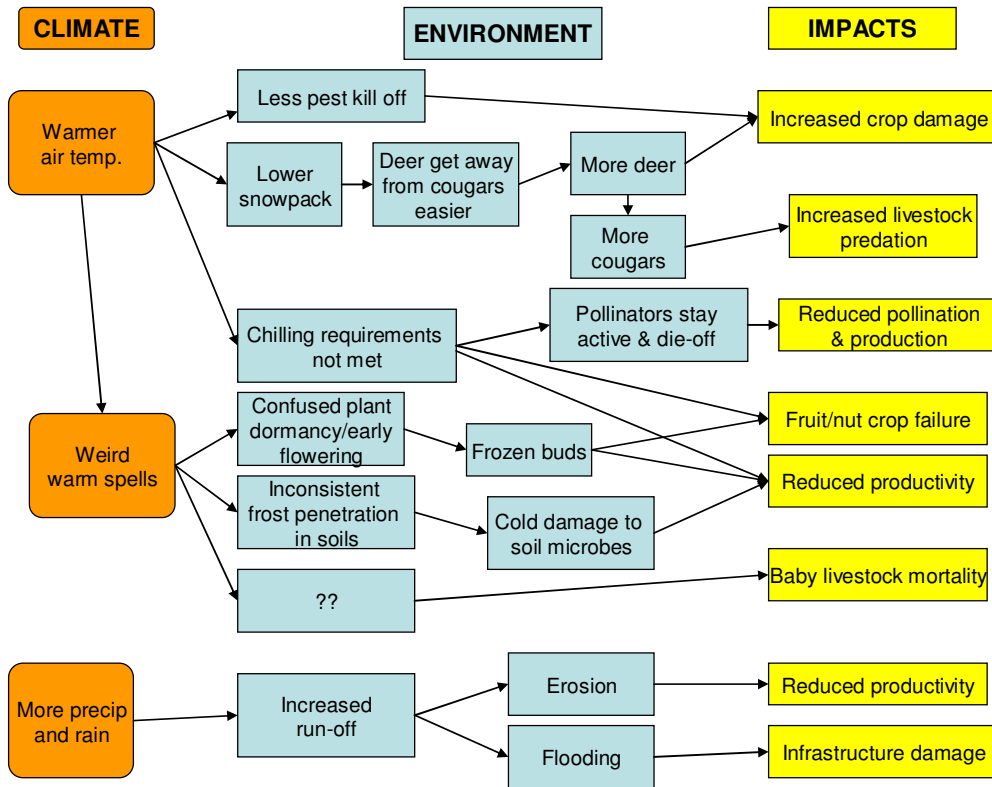
Wildcards

- How do all of these interact
- How are ecosystem services impacted? (ie. Pollinators/watersheds)

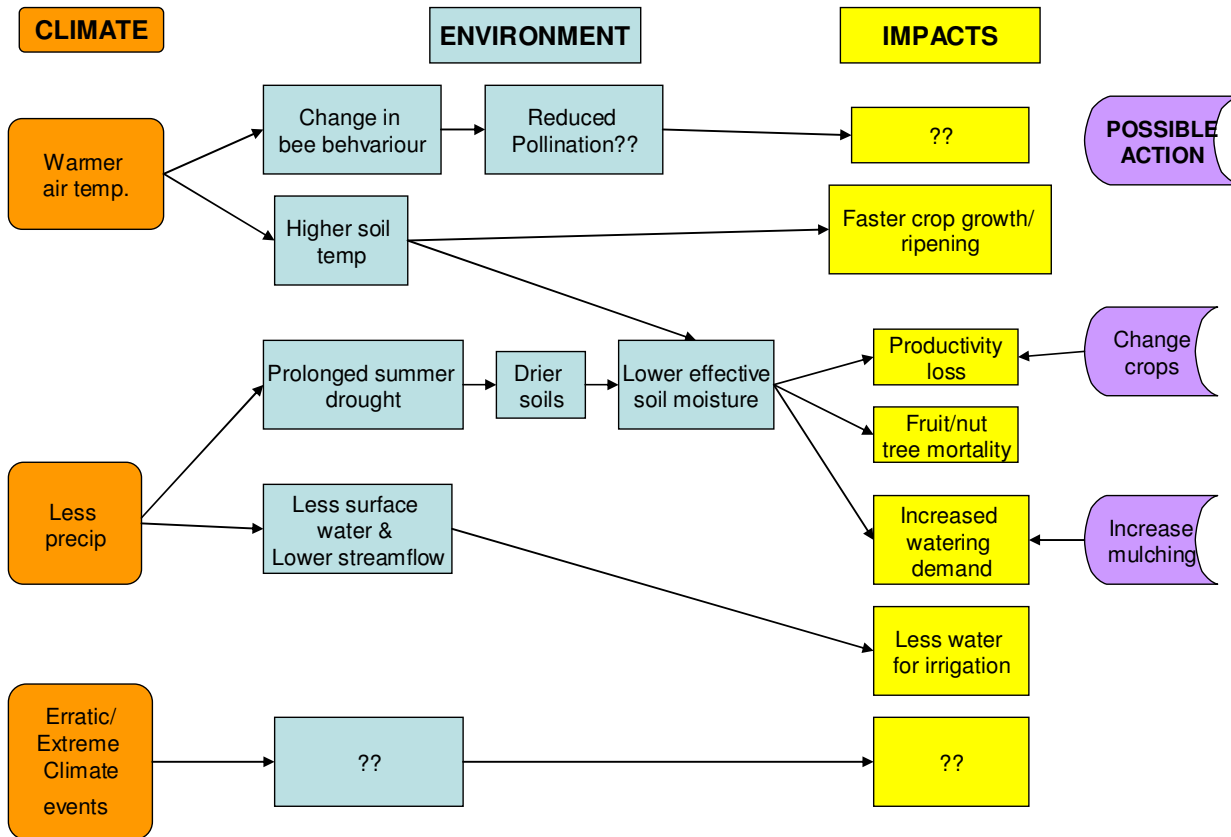
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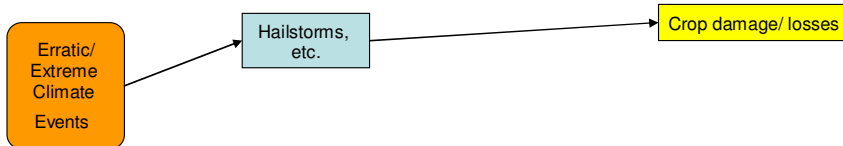
- Water storage
- Rainwater collection
- Water conservation (techniques)
- Diversity in planting
- Protecting crops from hailstorms (agroforestry)
- Seasonal extension
- Water metres
- Water storage in off-season
- Organizing farmers to plan for seasonal shifts, crop diversification, etc.
- Documenting/communicating market needs
- Skills development for storage/food saving
- Fruit stands/farmers markets (community building)
- Harvest rescue partnerships
- Bear aware

Regional Food Security & Agriculture Impacts for WINTER – VERY DRAFT



Regional Food Security & Agriculture Impacts for SUMMER – VERY DRAFT





Conclusions

This meeting focused on building the local project coordinators' capacity for understanding the many issues surrounding food security and agriculture including the possible impacts of climate change on the sector. One of the main outcomes has been identifying that food security and agriculture is more easily assessed from the local, regional and global level. This has provided the local coordinators with a better understanding of where to draw boundaries and further scope the issues.

Next steps were more difficult to determine. Local coordinators agreed to take this information back to their communities to discuss what issues they would like to do more research on. Next steps will be discussed further at the next coordinators meeting April 7, 2010.



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A. ROUND TABLE on INFORMATION, INITIATIVES, CONCERNS & IDEAS (the subtitles arose organically from the round table discussion)

• Concerns

Climate Change Science

- The projections from the PCIC climate maps and other scientists are somewhat conservative and greenhouse gas emissions are currently tracking above these projections.
- The growing degree days by themselves are not the whole story (referring to the growing degree day poster from PCIC). There are many more factors such as drought and transpiration that are not taken into consideration in these maps.
- The number of chilling days may decrease with climate change and the chilling requirements of some crops may not be met which may affect productivity.

Water

- Snowpack: Temperature increases will affect the water stored in the snowpack, and thus our water supply substantially. Last year we were below the average for snowpack and this year we are also below the average.
- We use too much water for everything, including conventional agriculture. Maybe we can look at different techniques like doing more permaculture.
- See Meat section.

Water rights

- We need to protect and conserve what water we have quickly (not in 20 years). This is a political process.
- Global drought may force countries to compete globally for water and food (which is 'virtual' water).
- Water is interconnected to energy as the hydro dams will win the rights. We need political rights to water as agriculture will not win this fight.
- 2014 is the date for parties to signal their views on whether the Columbia River Treaty should be renegotiated – CBT is willing to support Basin residents to prepare for the negotiations.

Land

- Farmers and potential farmers need land.
- Access to land is a big issues.
- We need OCPs (Official Community Plans) to support land reserves as OCP usually support economy and growth. So we are fighting between developments vs. agriculture.
- The Regional District Agriculture Strategies are designed to help regional districts but agriculture is such a low priority that these priorities never get pushed to the front.
- No grain production on city lots.



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Agro forestry

- Needs to be considered

Soil

- Less ground water and drier conditions can lead to soil degradation.
- More fertilizer use to produce higher yields can lead to soil degradation.

Pollinators

- What is climate change going to do to pollinators? Vancouver Island farmers have indicated that pollinators have dropped by %80. We have to keep it simple in terms of technology. We have to make them easily ...
- Aimee: with KLAS new beekeeping workshops there are 30-40 new beekeepers in the area.
- No bees allowed in City of Castlegar.

Pests and disease

- This will be a big issue in the face of climate change

Crop varieties/seeds

- We need to protect our seed resources and it would be helpful to have data associated with varieties.
- Seed growers have to predict 10 years in advance.

Meat

- Industrial meat is a water hog. Reducing the amount of meat that we eat would reduce the water demand.
- Local meat can no longer be slaughtered locally because of changes in legislation, which means farmers can't sell their meat at the farmer's markets. There are fewer cattle being raised in the region because of this legislation.
- Abra Brynne has been working on meat policy/local abattoirs for 3.5 years.

Commercial production and backyard gardens

- We need grain! We have a real conflict between what we can produce and what we eat.
- It's very important to separate the difference between backyard garden production and commercial food systems: we need to address commercial production to really address food security.

First Nations

- Engage with the First Nations as they have a lot of knowledge about changing climates and food systems. See Abra Brynne's report for her work with First Nations (also on the project wiki): http://www.cbt.org/uploads/pdf/Food_Security_in_the_Columbia_Basin_Jun2009.pdf

Economics of agriculture

- The economics of agriculture in BC are not viable.
- How does food production take off until it's financially viable for a farmer to farm?

- Farmers need to be the price makers and not the price takers. Farmers are stuck having to take what they are offered. The only way we can do this is if the farmer's can make profit.
- Agriculture and farming is undervalued in our society.
- Other food stuffs are too cheap.
- You have to get people to buy into this system. She is a spoiled consumer.
- The cost of energy is likely to rise soon.

Farmers

- Less than 2% of Canadians are farmers.
- We need more farmers (commercial farmers).
- Access to land is a big issue and also skills.

Farmer's markets

- Issues that Nelson is facing for expanding the farmer's markets:
 - New farmers – there aren't any.
 - Policy and regulations – this gets in the way and frustrates the farmers.
 - Meat regulations- people can no longer slaughter their meat and sell it at the market.

Global food supply

- Transportation will change.
- Some species will move and shift.
- We need to look at the global supplies – maybe we will not have these in the future and maybe we can produce these things in Canada or around here (pistachios, oranges etc...)
- Are we willing to accept genetically engineered (GE) foods?
- Competition for food against larger countries like China and India.
- US monetary value could decrease.

Human migration

- If we have a more desirable climate as a result of climate change, then we will have added pressure in the form of migration and people who want to take advantage of our resources. This has implications for land use and social structures.

Communication and education

- Educating the community is key to influence local politicians. We need to get the message out there.
- How do we bring our issues to the forefront of the decision makers when there are mountains of information for the politicians to know? How do we get them to prioritise these issues?
- Politicians are not over worked, they are uninformed.
- A big tool that Aimee Watson used to communicate with city Council is relating to them. It has made a huge difference.
- The Kootenay Co-op will be expanding into the current Extra Foods building soon. We need to educate people that it is better to pay more for local and we need to help the farmer's sell their food.

- Local vs. global – it's not what we put on our plate but what we choose to put in our shopping basket. If no one chooses to buy local food and if the distribution systems are not in place then we are lacking education in our community.
- We cannot entice politicians until people are aware of the problem. This is something that can be improved upon for this adaptation project: putting more effort into getting the word out in the community. Then you start to get traction in the community.
- Education doesn't always transfer to action.
- How to get people on board that are not already Foodies. How do we push food security on the investment community?

Politics & politicians

- Political processes to protect land, seeds and water, needs to happen now, not in 20 years.
- This project is too big for local politicians to take on. We need a champion that is connected to local politicians but we don't leave this to them for action. This person needs money and time.
- Local food initiatives vs. local politicians: local food initiatives will run out of steam without the support of local politicians. Policies and regulations get in the way of local people moving food security forward.
- The City has to be on board and the City has to take responsibility.
- Council needs to be informed, on board and active.
- Regional district: they can only provide services if there is a taxation service (they can only give money and resources to things that they get money from).
- City council wants to be leaders but they are also representatives of the community. Without the push of the community, they are not as able to take action (especially considering the lack of funds). Educating the community is key.
- How does council or anyone make climate change a high priority?
- Important next step is to get politicians involved. For example give a presentation to local government.
- It's really important how you bring the climate change topic to the table.

Outcomes

- There were concerns about getting us all together and then this turning into a report that gets filed or shelved.
- As a species we are reactive. Adaptation is useful but if there is not a real strong push, then people will not change.

• **Information/Data**

- There exists broad scale agriculture data for the province and Canada, but not locally for a) how much is being grown and b) where things are being grown.
- It's easy to talk to farmers and backyard gardeners, but it's much more challenging to put this into a data base.
- Darrell, Ministry of Agriculture: there are funding initiatives to track what the ALR is doing. There is also data available at the ministry.
- We need data on provincial and local consumption.

- The provincial data shows statistics on consumption but doesn't really address what we are bringing into our communities.
- Data bases: It's important to separate the commercial production vs. backyard gardens.
- Reference materials are being posted on the CACCI project wiki - the local coordinators can connect individuals with the project wiki

- **Ideas**
 - It would be useful to have a simple document that goes to everyone in the community about the basic information of climate change.
 - Example provided by Aimee Watson: There is one American State that is providing direction to lower levels of government about local agriculture. This way each municipality will not have to go through the chicken in the backyard fight. It would be beneficial if we could follow this model.
 - Visioning is cheap: we need to empower people. We need to give people the tools and information to feel optimistic – what does a Kootenay diet look like and can we achieve this?
 - CO2 labelling of food products.

- **Current Initiatives**
 - KLAS (with info on beekeeping workshops and heritage seed variety saving): <http://www.klasociety.org/>
 - Transition Nelson: <http://www.transitionnelson.org/>
 - Kootenay Coop expansion, taking over the Extra Foods space in Nelson – 2 years
 - West Kootenay Eco-Society – market expansion: <http://eco.kics.bc.ca/>
 - Sustainable Initiative Venture Capital Fund (George Penfold, Community Futures, etc.)
 - Invermere greenhouse
 - ACT water scoping workshop in May and ACT agriculture study in 2011 (email Deborah at: adapt@sfu.ca)
 - Kimberley visualizations of CC and adaptation (see Adaptation Tool Kit: www.cbtadaptation.squarespace.com/)
 - 'Community Farms' - The Land Conservancy and Farm Folk City Folk: <http://blog.conservancy.bc.ca/agriculture/community-farms-program-for-bc/>
 - Rossland water conservation: www.visionstoaction.ca
 - RDCK and Boundary area of Kootenay-Boundary Regional District (RDKB) agriculture strategy projects (RDCK contact: Ramona Mattix: rmattix@rdck.bc.ca)
 - Kaslo/Area D stream modelling (contact local coordinator, Tim Sander: timsander@columbiawireless.ca).
 - George Penfold has a lot of information on local agriculture. Email: gpenfold@selkirk.ca

B. CLIMATE CHANGE IMPACTS on FOOD SECURITY AND AGRICULTURE



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The participants identified global, regional, community and backyard scales for food security & agriculture. Small groups crafted VERY DRAFT impact charts for global, regional and community/backyard scales. These charts are included previously in this summary.

C. POSSIBLE NEXT STEPS

Project Communities

- Foster allies in City/Village/Regional District staff and council
- Wide community engagement
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