



**COASTAL DOUGLAS-FIR**  
& ASSOCIATED ECOSYSTEMS  
CONSERVATION PARTNERSHIP



**UBC**  
**Botanical**  
**Garden**



Photo by Tom Whitford – Brown Property Preservation Society

*A Regional Framework for Nature-based Solutions on BC's South Coast*

## **Policy, Tools and Incentives**

Issues and Opportunities - Local Government Perspective

Compiled Interview Results

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# Executive Summary

The Coastal Douglas-fir Conservation Partnership (CDFCP) secured funding in 2022 from the federal governments Nature Smart Climate Solutions Fund (NSCSF) to develop a regional framework of policies, decision-support tools and incentives for the protection and restoration of nature-based solutions to climate change and biodiversity loss that could be implemented by local government (Regional Districts and Municipalities) and First Nations in south-west British Columbia (BC).

The first phase of the project was to undertake interviews with local government and First Nations representatives (end users) and technical specialists to understand where there are gaps and opportunities in the resources currently available to local governments, First Nations and ENGOS in relation to;

- climate change mitigation (carbon storage and sequestration),
- climate change adaptation (watershed and wildfire resilience),
- biodiversity conservation,
- culturally important ecosystems (i.e. habitats that support plants and animals important to indigenous communities).

The CDFCP partnered with UBC Botanical Gardens for the delivery of this project as the Gardens have secured funding to undertake Climate Adaptation Planning and to produce a Biodiversity Atlas. It was identified that many of our collective objectives aligned and that we could deliver more for the natural environment working in partnership.

This report presents a compilation of responses from interviews undertaken with municipal (x2) and regional district (x8) representatives and a lawyer specialising in municipal law. It should be read in conjunction with a second document titled 'Issues and Opportunities – A Local Government Perspective – Raw Interview Responses'. This supporting document contains the direct comments made by each of the interviewees and can be cross-referenced to this report.

**Table 1** presents a summary of the issues and opportunities highlighted by interviewees and recommendations that respond to the gaps in policy, tools and incentives identified.

**Please note** the comments summarised in this report and within the raw interview results document are the thoughts and opinions of interviewees. These may not reflect the thoughts and opinions of the CDFCP.

**Table 1.** Summary of issues and opportunities identified by interviewees and recommendations developed in response to identified issues.

Theme	Issues and Opportunities	Summary Recommendations
<b>General</b> (relevant to multiple themes)	<p><b>Strategic Direction</b></p> <ul style="list-style-type: none"> <li>Local Governments are vested by the Province with powers to protect the environment, but may not apply them.</li> <li>Local governments have discretion on how they operate under the Local Government Act and the Community Charter.</li> <li>Specific mandates of Regional District Services can constrain staff activities.</li> <li>Regional Growth Strategies may be viewed as a weak tool as the focus of legislation is on local autonomy.</li> <li>Regional Growth Strategies can identify areas of ecological value within and outside urban containment boundaries.</li> <li>Reliance on Qualified Ecological Practitioners (QEPs) is leading to a less consistent approach.</li> <li>Land holdings managed by different legislation effect the role / impact of regional districts e.g. crown, PMFL.</li> <li>Emergency planning can be reactive, so good environmental information needs to be immediately available to decision makers.</li> <li>Tools are being developed to enable the impact of new services to take into account overarching issues e.g. climate change.</li> <li>External organisations and the province are supporting Local Government with climate adaptation planning.</li> </ul> <p><b>Objectives and Targets</b></p> <ul style="list-style-type: none"> <li>The province needs to provide clearer direction to local governments on climate goals, to avoid local interpretation.</li> <li>Climate targets in policy documents need to be quantifiable and linked to activities that local governments can influence.</li> <li>Climate change and biodiversity are big issues and elected officials can use a lack of information as an excuse for not taking action.</li> </ul> <p><b>Environmental Development Permit Areas</b></p> <ul style="list-style-type: none"> <li>Local Governments differ in their views on whether Environmental Development Permit Areas can be an effective tool for protecting ecosystem services.</li> </ul> <p><b>Phraseology</b></p> <ul style="list-style-type: none"> <li>The phrase nature-based solutions is not well known and its not known how it translates to policies and objectives.</li> </ul>	<ul style="list-style-type: none"> <li>Provide local governments and First Nations with case studies demonstrating the delivery of nature-based solutions to climate change and the policy needed to support their delivery.</li> <li>Develop a report card that enables changes to the natural environment to be tracked for local governments and First Nations, including carbon emissions.</li> <li>Quantify the cost of not implementing nature-based solutions using information provided by the insurance sector and others e.g. flooding, wildfire etc.</li> <li>Develop an Atlas that provides consistent, up to date, focused environmental spatial information in one location.</li> <li>Link mapping to policy and guidance documentation to increase understanding of the relevance of the spatial layers.</li> <li>Deliver training to local government staff on the mapping layers to maximise their use.</li> <li>Develop a decision support tool that enables local governments and First Nations to review multiple layers.</li> <li>Develop a protocol for the submission of GIS data by QEPs to local governments to facilitate its use by government.</li> <li>Promote the establishment of Local Conservation Funds as a means of natural adaptation.</li> </ul>

Theme	Issues and Opportunities	Summary Recommendations
	<ul style="list-style-type: none"> <li>• Changing phraseology can exclude people but there is a valid reason for the different phrases e.g. nature-based solutions, green infrastructure etc.</li> <li>• Elected officials and staff have expressed concern about placing a value on nature e.g. ecosystem services and natural assets.</li> <li>• Nature based solutions are best delivered by not for profits as their delivery requires cross jurisdictional work.</li> </ul> <p><b>First Nations</b></p> <ul style="list-style-type: none"> <li>• Foundation Agreements between the province and First Nations will significantly influence how land management is delivered in the future.</li> <li>• First Nations ability to influence land management historically has been impeded by the colonial government structure.</li> </ul> <p><b>Education</b></p> <ul style="list-style-type: none"> <li>• Local governments need to train internal and external engineers and project managers on how to apply a climate lens to projects.</li> <li>• Public engagement is needed if environmental strategies, plans, policy and bylaws are to be effectively implemented.</li> <li>• When the communities first priority is not the natural environment you need to change the messaging to make it relevant.</li> </ul> <p><b>General – Mapping</b></p> <ul style="list-style-type: none"> <li>• Local governments are looking for up-to-date, focused and consistent environmental mapping in one location.</li> <li>• Local governments and First Nations could pool resources to have a collaborative tool for decision making.</li> <li>• Mapping tools should link to guidance documents and training.</li> <li>• Elected official may choose not to use environmental information even when available as they exercise a public interest mandate.</li> <li>• Information submitted by developers and QEPs is not retained by local governments.</li> </ul> <p><b>Regulation vs Incentives</b></p> <ul style="list-style-type: none"> <li>• There needs to be a balance between regulation and incentives.</li> <li>• Conservation Funds need careful planning to ensure they achieve the desired outcomes.</li> <li>• Federal and provincial funds often want projects that are too large for local governments.</li> </ul>	

Policy, Tools and Incentives  
Issues and Opportunities – Local Government Perspective

Theme	Issues and Opportunities	Summary Recommendations
<b>Land Cover and Change</b>	<ul style="list-style-type: none"> <li>Local governments are struggling to track land cover change.</li> <li>High resolution land cover mapping has been used to generate ecosystem connectivity mapping, carbon storage dataset, tree canopy cover etc.</li> <li>Linking heat mapping to tree cover would be advantageous when talking to the local community.</li> <li>LiDAR is collected infrequently, in patches, at different resolutions and is expensive to collect.</li> </ul>	<ul style="list-style-type: none"> <li>Develop an approach to land cover mapping that combines the best, cost effective imagery available.</li> <li>Develop a methodology for tracking land use change at a resolution meaningful for local governments.</li> </ul>
<b>Biodiversity</b>	<p><b>Ecosystem Connectivity</b></p> <ul style="list-style-type: none"> <li>Ecosystem connectivity is being considered by local governments, including the effect of climate change.</li> <li>Ecosystem connectivity mapping needs to ignore jurisdictional boundaries but be completed at a resolution that is meaningful for local governments.</li> <li>Down zoning maybe required to protect ecosystem connectivity.</li> </ul> <p><b>Sensitive Ecosystem Inventory (SEI)</b></p> <ul style="list-style-type: none"> <li>Local governments use Terrestrial Ecosystem Mapping (TEM) and SEI although age and coverage are an issue.</li> </ul> <p><b>Species and Ecosystem Mapping</b></p> <ul style="list-style-type: none"> <li>Local governments would like the province to provide species at risk data linked to legislation.</li> <li>Parks dedications should be reviewed for their recreational and ecological values.</li> </ul>	<ul style="list-style-type: none"> <li>Produce ecosystem connectivity mapping for the region, pulling on existing projects.</li> <li>Develop Environmentally Sensitive Areas layers for the region that pulls on multiple data sources including; SEI, species at risk or of cultural value, vegetation resource index etc.</li> <li>Develop a Species at Risk layer that reflects the value of ecosystems.</li> </ul>
<b>Carbon</b>	<p><b>Carbon Objectives and Targets</b></p> <ul style="list-style-type: none"> <li>No consistent approach for local government to set or achieve greenhouse gas emissions targets.</li> <li>Policies to reduce emissions should be focused on emission sources rather than mitigating effects and should be relevant to the region.</li> </ul> <p><b>Carbon Mapping</b></p> <ul style="list-style-type: none"> <li>Local governments do not typically have access to carbon mapping but when they do they use it in decision making.</li> </ul> <p><b>Carbon Reporting</b></p> <ul style="list-style-type: none"> <li>Land based carbon is being excluded from greenhouse gas (GHG) inventories as numbers are imprecise.</li> <li>Local governments need a clear provincial structure for GHG reporting to create accountability.</li> <li>A big challenge is tracking community emissions.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a methodology for the inclusion of land cover change in the Greenhouse Gas Emissions Inventories completed by Regional Districts.</li> <li>Update the Green Communities Committee Avoid Forest Conversion Calculator to enable local governments to quantify the carbon stores protected through a land acquisition.</li> <li>Promote the Internal Cost of Carbon approach and Carbon Reserve. To ensure all projects consider the resulting GHG emissions.</li> </ul>

Theme	Issues and Opportunities	Summary Recommendations
	<p><b>Carbon Offsetting and other Incentives</b></p> <ul style="list-style-type: none"> <li>• Simple carbon calculator for land acquisition has been useful for small municipalities, but it is unclear if it is still valid to use it.</li> <li>• CARIP used to pay back carbon tax if local governments achieved emissions reductions, but the better your emissions reductions the less tax you paid and subsequently received back. LG CAP is now connected to population size not the carbon tax.</li> <li>• Local governments have used offsets locally, nationally and internationally to achieve carbon neutrality.</li> <li>• The method for quantifying carbon during land acquisitions is not clear.</li> <li>• The amendment of provincial policy to accept carbon offsetting in community forests could change the approach to their management.</li> </ul> <p><b>Internal Cost of Carbon and Carbon Reserve</b></p> <ul style="list-style-type: none"> <li>• Internal cost of carbon means that engineers and project managers have to take into account the carbon footprint of their projects.</li> <li>• A carbon reserve linked to the internal cost of carbon provides a means of obtaining funds to deliver climate mitigation / adaptation that was unfunded.</li> </ul>	
<p><b>Watershed Resilience</b></p>	<p><b>Long Term Protection of Drinking Water Watersheds</b></p> <ul style="list-style-type: none"> <li>• Protection of drinking water watersheds is being achieved using several tools e.g. land purchase, Class A Provincial Parks, regulation etc.</li> <li>• Management of drinking water watersheds requires agreements between multiple organisations to be effective.</li> <li>• Reliance on ground water is increasing, but there is limited understanding around recharge and policy relating to water restrictions is being developed.</li> <li>• A lack of consideration of the effects of over extraction has led to water shortages, restrictions and subsequently a change in strategic approach.</li> <li>• Paying private landowners to protect the forested watershed (e.g. covenant) would be considered an unfavourable outcome.</li> <li>• Local governments are looking to improve the flood and risk mapping.</li> </ul> <p><b>Nature-based Solutions for Water</b></p> <ul style="list-style-type: none"> <li>• Wetlands and water storage are needed to ensure an all-year-round supply / storage of water.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete a gap analysis of the protection tools available to protect ecosystems that store / slowly release water e.g. land acquisition, carbon offsetting, covenants, localised incentives schemes for carbon and seek to work with partners on the development of additional tools if gaps are found.</li> </ul>

Policy, Tools and Incentives  
Issues and Opportunities – Local Government Perspective

Theme	Issues and Opportunities	Summary Recommendations
	<ul style="list-style-type: none"> <li>Water conservation is considered a good way for people to understand what nature-based solutions are.</li> </ul>	
<b>Wildfire Resilience</b>	<ul style="list-style-type: none"> <li>Fire Smart advice should be reviewed (adaptive management) to ensure it is applicable to dry coastal forests as they become impacted by climate change.</li> </ul>	<ul style="list-style-type: none"> <li>Develop, with partners, incentives for local governments and private landowners to undertake forest thinning and restoration of hydrology.</li> </ul>
<b>Natural Assets</b>	<ul style="list-style-type: none"> <li>Natural Asset Inventory could provide local governments with a means of monitoring their adaptation to climate change, but uptake has been affected by the absence of clear methodology.</li> </ul>	<ul style="list-style-type: none"> <li>Highlight case studies of local governments who have directly incorporated the information within their Natural Asset Inventories into policy.</li> </ul>
<b>Culturally Significant Ecosystems</b>	<ul style="list-style-type: none"> <li>Local governments are looking to respond to culturally important species, ecosystems and values within their planning process.</li> </ul>	<ul style="list-style-type: none"> <li>Work with First Nations to identify environmental spatial layers that would support their climate adaptation planning.</li> </ul>
<b>Coastal Resilience</b>	<ul style="list-style-type: none"> <li>Policy on coastal resilience is being developed and delivered by First Nations, local and provincial government and ENGOS.</li> </ul>	<ul style="list-style-type: none"> <li>Promote case studies of greenshores as a nature based solution to climate change.</li> </ul>

# Contents

1	Introduction .....	1
1.1	Background .....	1
1.2	Purpose of this Report .....	2
2	General.....	3
2.1	Issues and Opportunities .....	3
2.1.1	Strategic Direction .....	3
2.1.2	Objectives and Targets.....	5
2.1.3	Environmental Development Permit Areas .....	6
2.1.4	Phraseology.....	6
2.1.5	First Nations .....	8
2.1.6	Education .....	8
2.1.7	General – Mapping.....	9
2.1.8	Regulation vs Incentives.....	11
2.2	Recommendations .....	13
3	Land Cover and Change .....	13
3.1	Issues and Opportunities .....	13
3.1.1	Tracking Land Use Change .....	13
3.1.2	Using LiDAR .....	14
3.2	Recommendations .....	14
4	Biodiversity .....	15
4.1	Issues and Opportunities .....	15
4.1.1	Ecosystem Connectivity .....	15
4.1.2	Sensitive Ecosystem Inventory (SEI) .....	17
4.1.3	Species and Ecosystem Mapping .....	17
4.2	Recommendations .....	18
5	Carbon.....	18
5.1	Issues and Opportunities .....	18
5.1.1	Carbon Objectives and Targets .....	18
5.1.2	Carbon Mapping.....	19
5.1.3	Carbon Reporting .....	19
5.1.4	Carbon Offsetting and Other Incentives .....	21

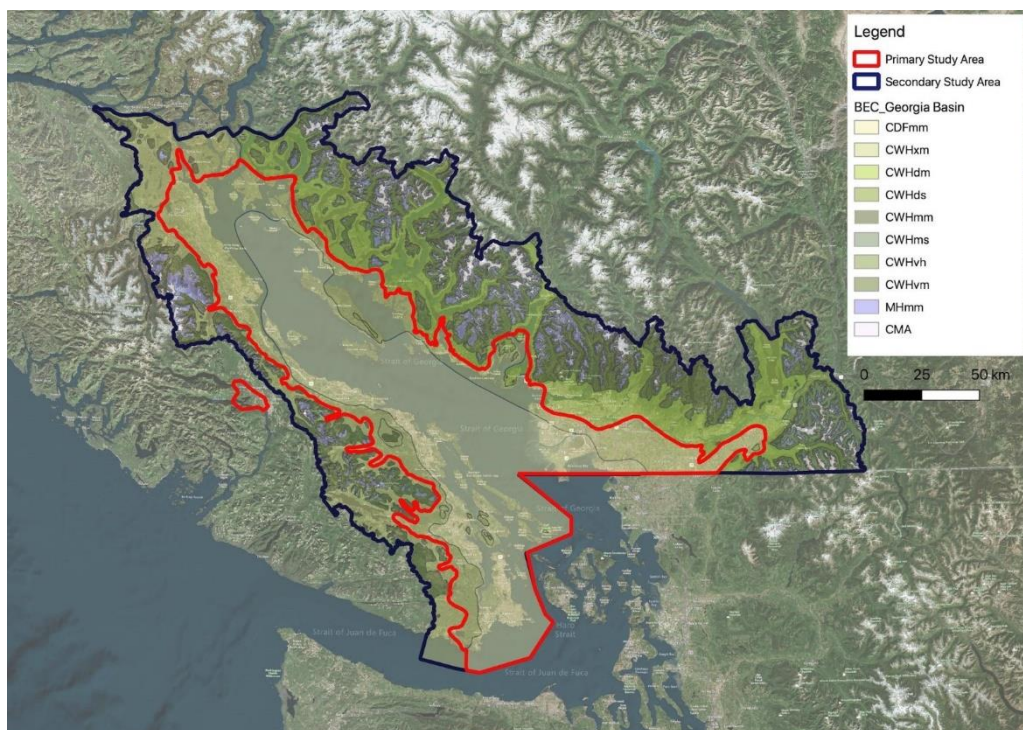
5.1.5	Internal Cost / Price of Carbon and Carbon Reserve .....	23
5.2	Recommendations .....	23
6	Watershed Resilience .....	23
6.1	Issues and Opportunities .....	23
6.1.1	Long Term Protection of Drinking Water Watersheds .....	23
6.1.2	Nature-based Solutions for Water .....	26
6.2	Recommendations .....	26
7	Wildfire Resilience .....	26
7.1	Issues and Opportunities .....	26
7.2	Recommendations .....	27
8	Natural Assets .....	27
8.1	Issues and Opportunities .....	27
8.2	Recommendations .....	28
9	Culturally Significant Ecosystems .....	28
9.1	Issues and Opportunities .....	28
9.2	Recommendations .....	28
10	Coastal Resilience .....	28
10.1	Issues and Opportunities .....	28
10.2	Recommendations .....	29

# 1 Introduction

## 1.1 Background

The Coastal Douglas-fir Conservation Partnership (CDFCP) secured funding in 2022 from the federal governments Nature Smart Climate Solutions Fund (NSCSF) to develop a regional framework of policies, decision-support tools and incentives for the protection and restoration of nature-based solutions to climate change and biodiversity loss that could be implemented by local government (Regional Districts and Municipalities) and First Nations in south-west BC (Figure 1).

The intent is to develop the framework through a collaborative process to ensure that the resources produced are of value to the end users and to maximise the efforts of multiple organisations working within the same area (climate change resilience).



**Figure 1.** Primary study area outlined in red (Georgia Basin’s dry lowlands – CDF and associated ecosystems), and secondary study area outlined in blue (lowlands and adjacent uplands combined).

The first phase of the project was to undertake interviews to understand where there are gaps and opportunities in the resources currently available to local governments, First Nations and ENGOS in relation to;

- climate change mitigation (carbon storage and sequestration),
- climate change adaptation (watershed and wildfire resilience),
- biodiversity conservation,
- culturally important ecosystems (i.e. habitats that support plants and animals important to indigenous communities).

The interviews have been grouped either by end users or in relation to specific topic areas;

- Policy, Tools and Incentives - Local Government Perspective
- Policy, Tools and Incentives - First Nations Perspective
- Spatial data review (Biodiversity Mapping)
- Carbon and other Incentives

In 2022 the CDFCP and UBC Botanical Gardens began working together on the development of a Biodiversity Atlas as interviewees identified that the absence of key spatial information was affecting their decision making.

## 1.2 Purpose of this Report

This report presents a summary of interviews undertaken with municipal (x2) and regional district (x8) representatives and a lawyer specialising in municipal law (**Figure 1**). The conversation during the interviews was focused on policy, tools and incentives that local governments are currently using or have been considering using to adapt to climate change and to respond to biodiversity loss.

The report is broken down into the following topic areas;

- General (relevant to multiple topic areas)
- Land cover and change
- Biodiversity
- Carbon
- Watershed resilience
- Wildfire resilience
- Natural assets
- Culturally significant ecosystems
- Coastal resilience

For each topic area the gaps and opportunities highlighted by the interviewees are presented followed by recommendations that could start the process filling the information gaps.

This report should be read in conjunction with a supporting document titled 'Issues and Opportunities – Raw Interview Responses'. This contains the direct comments made by each of the interviewees and can be cross-referenced to this report.

The interviewees were all asked to identify what they considered to be the legislation, strategies, policy, plans and guidance documents that they use to respond to climate change and biodiversity loss. A list of the documents mentioned by interviewees is presented in **Table 1 – Appendix A**.

The interviewees were also asked to list any funds that they access from the provincial and federal government to respond to climate change and any funds that they offer to private landowners enable them to lower their emissions and / or adapt to climate change. These are listed in **Table 2 – Appendix B**.

## 2 General

### 2.1 Issues and Opportunities

#### 2.1.1 Strategic Direction

- a) *Local Governments are vested by the Province with powers to protect the environment, but may not apply them.*
- Local governments have all the tools they need but they don't have the political will to exercise them.
  - Local governments exercise only those powers given to them by the province.
  - Local government has huge discretion on how they operate under the Local Government Act and the Community Charter, when addressing climate change and ecosystem health.
  - The tools local governments have are discretionary and can be exercised in a wide variety of ways e.g. nature based solutions or to limit urban development.
- b) *Regional District staff feel their Services can limit their activities in relation to protecting the environment and climate change.*
- Some regional districts, have services with specific mandates that are predominantly funded by the municipalities.
  - Services provided by the regional districts vary widely. Some are confined to key topic areas such as; mosquito control, invasives species control, and regional parks, while some Regional Districts provide regional utilities (e.g. drinking water, liquid waste, solid waste), regional planning, air quality management, and other functions, .
  - Regional districts may not have had a discussion with municipalities in relation to climate change and the role they will play.
  - Regional districts are limited by their leadership structure e.g. Board made up predominantly of elected municipal councillors, few are elected directly. Note: not all regional districts have this structure.
  - Regional districts have a lot of power over shaping their services but little regulatory authority.
  - Regional districts have certain tools available to them through the Local Government Act and the Community Charter, but it is fairly limited what Regional Districts can do on private property.
  - For some Regional Districts, regional planning is a service that local governments contribute to.
  - One regional districts has a Regional Climate Action Service which is a requisition to each municipality to pay for staff and programming.
- c) *Regional Growth Strategies may be a weak tool because of the focus of legislation is on local autonomy.*
- The development of the Regional Growth Strategy is a collaborative project. Legislation is focused on local autonomy, therefore, implementation is dependent on municipal agreement.

- The Regional Growth Strategy is the regional districts primary tool, each municipality, through a regional context statement in their Official Community Plan, has to identify how they're going to be in alignment with the Regional Growth Strategy.
- d) *Regional Growth Strategies can identify areas of ecological value within and outside of urban containment boundaries.*
- Urban Containment Boundaries are defined by the Regional District in collaboration with municipalities, but land use within the containment boundary is primarily managed by the municipalities.
  - In the Regional Growth Strategy, the Regional District can specify ecologically sensitive areas within and outside of the Urban Containment Boundary.
  - The downside of keeping development within an urban containment boundary could be the loss of natural connectivity within the boundary, which potentially has ecological health impacts.
  - A challenge for the region is the constrained land base and the different priorities e.g. greenfield development vs the natural environment.
- e) *Reliance on Qualified Ecological Practitioners (QEPs) is leading to a less consistent approach.*
- Federal and provincial staff used to provide environmental advice to local governments that was consistent and neutral. Qualified Environmental Professionals (QEP) are now appointed by the developer to fill this role and it is not the same.
  - Local government planners no longer know who to contact at the province or federal government for environmental information and / or consultation.
  - QEP assessments are high level and planners are often uncertain as to whether they could have missed rare species.
- f) *Land holdings that fall under different legislation can impact on the role of regional districts.*
- If 90% of the region is crown land, agricultural land reserve or private managed forest land then there are a lot of activities in the regional district that the local government would have little influence over.
  - Is it reasonable to expect private landowners to give up some of their ability to develop when other land holdings (Crown) are not implementing the same stewardship approaches?
  - It is hard for the city to talk about protecting forest when the province is logging extensively. Isn't that the elephant in the room?
- g) *Planning is often reactive in response to land-use decisions/emergency events, which means local governments need good environmental information instantly available.*
- Planners struggle to see how nature-based solutions are relevant to them when they are working on a case-by-case basis for land use decisions.
  - Information needs to be instantly available when decisions are made in relation to emergency works. For example, an entire riverbank may be quickly ripped up to protect people and homes when normally it takes years for the permits and applications to be completed.

- h) *Some local government have tools to enable staff to understand the impact of a new service on overarching issues such as climate, affordability etc.*
- We have our own internal business case so that every time you're pitching a new service or a spend we should use a climate lens. There are these over arching lenses such as; affordability, climate, accountability, First Nations engagement etc. that touch on all projects that need to be considered in each business case.
  - A structured decision-making tool would be needed, but we don't have one.
  - Policy indicates that we should consider ecosystems and their services in major development decisions. We can use the carbon storage data and sensitive ecosystem inventory as part of the analysis.
- i) *External organisations and the Province are supporting Regional Districts with their climate adaptation planning.*
- Not for profit organisations such as the International Council for Local Environmental Initiatives (ICLEI) are supporting local governments with their climate adaptation planning.
  - The province has existing programs looking at enhancing carbon storage of forests, selecting seed in response to climate changes, early detection and suppression of fire. Regional districts are advocating that the province continues this work.

#### 2.1.2 Objectives and Targets

- a) *The province needs to provide clearer direction to local governments on climate goals.*
- A decade ago the province mandated all local governments to include in their growth strategy targets and actions for addressing greenhouse gas reductions, but they did not specify what those targets should be. It is an example of how the province could require local governments to meet set climate goals.
  - Specific targets and actions could be mandated through provincial legislation that would then require local governments to take action to meet those provincial requirements e.g. Riparian Areas Protection Act.
  - Decision making is either dependent on a climate lens that we develop internally from a local champion who is constantly poking all his colleagues, or a visionary politician that's applying that carbon logic to decisions at the council or board table.
  - The BC Climate Preparedness and Adaptation Strategy included some helpful information, but it did not lead or push for change, beyond the activities already being delivered by some local governments.
- b) *Climate targets / goals / indicators in policy documents need to be quantifiable and be linked to activities that local governments can influence.*
- Strategic drivers were determined by the board, but it is easy to suggest these have been taken into consideration by good wordsmithing in the absence of a quantitative evaluation matrix.
  - The main focus of a Regional Growth Strategy is on growth management and RGSs usually included performance measures associated with land use change.

- Climate change indicators that reflect the effect of policies implemented by local governments are difficult to define and should be developed in partnership with First Nations to incorporate Indigenous knowledge.
  - Nature-based solutions is a relatively new concept and consequently local governments are working to develop targets that are meaningful and measurable.
- c) *Climate change and biodiversity are big issues and a lack of understanding / the need for more research can be used as an excuse by some elected officials for not taking action.*
- Documenting stored carbon would be beneficial but the effects of trees losses due to development should be intuitive by now as we experience extreme floods and droughts every year.
  - Local governments should take an adaptive management approach. Take action and make corrections if the outcome is not what was desired. Elected officials are indicating they don't want another study or strategy, they want to see action.
  - Analysis paralysis - Not every action needs to be detailed in a 20 year plan and this can be an excuse to not taking action for issues considered too onerous to think about.

#### 2.1.3 Environmental Development Permit Areas

- a) *Local Governments differ in their views on whether Environmental Development Permit Areas can be an effective tool for protecting ecosystem services.*
- Environmental Development Permit Areas (eDPA) are one of the main tools that local government can use to take into consideration the natural environment.
  - eDPAs enable a higher level of scrutiny within them, but in areas outside of the eDPA features of value may be detected late in the process or not at all.
  - Sensitive ecosystems are protected through the implementation of DPAs. Mapping is updated on a regular basis from the province.
  - Local government need extra guidance on how eDPAs can be used to protect the natural environment.
  - A lot of ecosystem services do not fall within the remit of an eDPA, leading to a gap in local governments regulatory ability.
  - Local governments are restricted on what they can consider in areas protected by an eDPA. They could consider the riparian margin, but they would not take a holistic ecosystem approach.
  - Lack of mapping is used as a reason for not establishing an eDPA.

#### 2.1.4 Phraseology

- a) *Not all elected officials, staff or local community members know what is meant by the phrase nature-based solutions, they may be more familiar with natural assets. If they do, they may not know how it can be translated into policies and objectives.*
- Nature-based solutions, natural assets and ecosystems services are too amorphous for elected officials and staff to understand how it would be implemented in their role.
  - Nature-based solutions is difficult to defend to the public as we are not clear what it means in terms of specific policies and regulations.
  - Abstract thinkers understand this term, but other people want to know what it will mean on the ground and how will it effect my daily decision making.

- Natural assets has been discussed because a neighbouring community is looking at it, but not nature-based solutions. Solution to what?
  - It depends on the audience as to the level of understanding of the term nature based solutions. Related terms may be better understood e.g. green infrastructure.
  - Natural assets is the phrase commonly used in local government as there has been a big push for asset management planning. There are a lot of different terms used in local government and this perhaps leads to blurring or silo's of terms.
  - Drinking Water Watershed Protection (DWWP) program refers to the use of nature based solutions as an alternative to constructed water storage infrastructure.
  - I am not using the phraseology nature based solutions. I would like to know how it is being defined.
  - Elected officials engaged on climate will be familiar with the terminology and its becoming the prevailing terminology with natural assets. There will be a whole bunch of people that are not familiar with the terminology.
  - Nature based solutions connects with people across the political spectrum regardless of their political persuasions or feelings on climate.
  - The IUCN [International Union for Conservation of Nature] have established standards for nature based solutions establishing it as a global concept.
  - The terminology natura based solutions has been used in relation to green shores approaches but its not fully embedded or understood.
  - Nature based solutions is a useful phrase as it has global credibility and brings home the notion that there are co-benefits to ecosystem preservation and addressing the communities needs.
- b) *Changing phraseology can exclude people because they don't know what it means but there is a valid reason for the different phrases.*
- Changing phraseology can be off putting. It takes years for new phraseology to bed in. However, there is a solid reason why we are using these different phrases.
  - New phrases can give local governments an excuse not to act e.g. I don't have a service for that. This can lead to missed opportunities.
  - New phraseology can re-engage or disengage people. It is unlikely that a planner on a front counter would use that phraseology.
- c) *Elected officials and staff have expressed concern about placing a value on nature, which has led to a rejection in part to approaches such as ecosystem services and natural assets.*
- Elected officials have indicated that they don't like ecosystems services as it suggests that nature is only there to serve humans as opposed to its intrinsic value.
  - Local governments are struggling to demonstrate the value of biodiversity for biodiversity's sake in Climate Action Planning.
  - I feel like habitat and the environment shouldn't have monetary value. It seems wrong to place a dollar value on an eagle.
  - Ecosystem services language is readily understandable but elected officials do not like the commodification of nature.

- d) *Nature-based solutions are better delivered by not for profit organisations that can build multijurisdictional relationships and are focused on land acquisition.*
  - For nature-based solution to be properly executed, you would require multi jurisdictional strategies and projects. What I have found is that nature-based solutions projects are coming from non-profits in the communities where they maybe partnering with certain levels of government or First Nations, but they have a more restoration focus or land acquisition focus.

#### 2.1.5 First Nations

- a) *First Nations land management will significantly influence how regional districts respond to climate change and biodiversity going forward.*
  - Foundation Agreements being developed between First Nations and the provincial government will significantly influence land management within Regional Districts.
- b) *First Nations ability to influence land management historically has been impeded by the colonial government structure.*
  - Colonial government structure has limited the influence that First Nations have historically had on land management.

#### 2.1.6 Education

- a) *Local governments need to train internal and external engineers and project managers to apply a climate lens to projects.*
  - Contracted engineers deliver on what they have been asked to do. Local governments need to be explicit that there is a requirement to place a climate lens on decisions.
  - Education of local government staff needs to be on going to keep pace with staff turnover and to be target to those individuals with the most influence on the natural environment.
  - What is evident to me with local governments is that education has to be continually done. You have to educate the new generation of planners about what can be done.
  - All local governments staff should be made aware of the Green Bylaws Toolkit and apply it. We don't want people just to do Environmental Development Permit Areas, they're going to fail in the absence of a broader ecological policy framework.
  - Elected officials need to receive training in relation to the natural environment.
- b) *Public engagement is needed if environmental strategies, plans, policy and bylaws are to be effectively implemented.*
  - To implement a Tree Bylaw it needs to be preceded by a public awareness campaign to create a greater sense of pride and ownership of trees and the forest.
  - Outreach is normally focused around the Regional Growth Strategy and Official Community Plans rather than complex discussions around species at risk, climate change adaptation etc.
  - The approach to engagement needs to take into consideration the composition the community e.g. agricultural, urban, forestry etc.
  - Need to engage using topics the resonate with people e.g. with the Riparian Regulations you talk about salmon.

- Climate change adaptation for many is protecting their own property and their personnel well being during extreme weather events. However, by ensuring homes are not impacted by flooding and fire you can also provide other ecosystem services.
  - Messaging should be consistent around conservation and a landowners responsibilities towards the environment.
  - In remote communities where they are surrounded by forest it is a difficult conversation to have in relation to the protection of a single tree. People also believe that they are already carbon neutral. Local governments need support communicating why this is not the case.
  - We focus on co-benefits during communication. For example with active transport we talk about access to child services, independence of seniors rather than climate change and carbon reductions.
  - Local governments are delivering education on ecosystem based adaptation to the community through webinars.
  - Regulation and policy goes hand in hand with the creating a culture of conservation. Local governments need to put more money into creating that public understanding of what is our relationship is with the landscape.
  - Simply having bylaws is not enough to protect trees. Local governments need to piece together plans, strategies and bylaws into a comprehensive environmental management strategy.
  - We have developed resources such as a Tree Regulation Toolkit and the Forest Climate Adaptation Initiative that helps people select climate resilient species.
  - We have held forums for practitioners working within urban forestry to encourage the flow of information and knowledge.
  - We are working with academics looking at the connection between trees, human health and equity, and extreme heat, tree canopy cover and equity. We share this information with member jurisdictions.
- c) *When talking to community members whose first priority may not be the environment you need to change your messaging.*
- Demographics can influence people's priorities and messaging should focus on what they need.
  - If people are on low incomes how can we expect them to sacrifice even more on the little they have.
  - If you want the community to change their behaviour you need to focus on issues that are of concern to everyone e.g. energy prices, rather than niche subjects e.g. protecting Coastal Douglas-fir forest.

#### 2.1.7 General – Mapping

- a) *Local governments are looking for the provision of up-to-date, consistent environmental mapping provided in one location that they can use for decision making and that developers could access.*
- Mapping should be developed with the affected local government to ensure staff understand it. This will increase the potential of it being used.

- Mapping should be applicable to the user, simple yet effective. Local governments can appoint consultants to collect additional information, if needed.
  - Mapping needs to be on GIS to increase access (local governments staff and the general public), readily downloadable and could have a citizen science option.
  - Partial information, without explanation, could lead to misuse of data e.g. certain ecosystems services are given higher priority than maybe they should have.
  - Its hard for local governments to know if they have found the correct information. It would be preferable if there was someone that could be contacted who could pull all the information together.
  - To be proactive for land use decision making, local governments need help having access to comprehensive maps and data, especially considering that smaller local governments have limited staff/resources.
  - Smaller local government need additional funding and do appreciate resources such as toolkits or access to an expert/resource to help with development proposals.
  - I have been to the BC Conservation Data Centre but I get lost as there is so much information in there.
  - Local governments need mapping that is simple yet effective, rather than very detailed. They can hire a consultant if more detailed information is needed.
  - Ideally Regional Districts would host GIS mapping that municipalities feed into.
  - Local governments are reliant on a professional reliance model, but they could be proactive if they had comprehensive data rather than piecemeal information.
  - QEP's specialise in certain areas, and this could potentially lead to species or ecosystems at risk being missed.
  - We have a sustainability check list that is geared towards pre-applications for larger developments. Mapping should be available to developers so that conversations around feature of value occurs early.
  - The lack of access for landowners to mapping means they can be disappointed when environmental constraints are identified at a later stage.
- b) *Local governments and First nations could pool resources to update data and produce a collaborative tool for decision making that leads to having collective language across the region.*
- There is a need for shared information so that at a regional scale everyone is using the same information for decision making. Methodologies at a municipal level may differ and this makes following trends difficult.
  - There are potentially silos for each of the ecosystem services that aren't currently integrating. I think ideally we would want a spatial tool that overlays each of the layers of information and highlights biodiversity hotspots or where ecosystems are most at risk from climate change.
  - In Maryland (<https://geodata.md.gov/greenprint/>) there is a pretty good example of an online tool that enables you to evaluate multiple ecosystem services for multiple ecosystem types at once.
- c) *Mapping tools should link to guidance documents and training.*

- Mapping tools should be linked / presented with relevant guidance documents (e.g. Develop with Care) and / or Strategies.
  - All mapping tools should be shared with training as there is always the need to be able to interpret the information provided.
- d) *Data / spatial information is important for guiding decision making, but elected official may still choose not to use this information.*
- If mapping and data is not available then evidence based decision making can not occur.
  - Decisions are obviously based on information, but a lot of it is not necessarily purely evidence-based decision making because local governments exercise a public interest mandate. Ultimately at the end of the day, they can say that this project doesn't fit with the neighborhood and they can turn it down.
- e) *Information submitted by developers and QEPs is not retained and used in future planning decisions.*
- It would be beneficial if the information submitted by QEPs was extracted and presented on local government maps.

#### 2.1.8 Regulation vs Incentives

- a) *There needs to be a balance between regulation and incentives for private landowners.*
- There is resistance in some local communities to regulation (top down government policy approach).
  - You can't get away from the need for regulatory mechanisms, but the community is asking for local governments to tell them what they can do not just what they can't.
  - Incentivization is well received by the public compared to regulation and meaningful nature-based solutions projects are being delivered where funding has been provided.
  - You need both. Regulation can not cover all the loopholes without being stifling.
  - If legislation permits activities on private property (e.g. timber harvesting) then you need other incentives to prevent actions that would compromise services provided to the wider community. I don't know that this argument of they shouldn't because the forest is providing services to the community is always going to be enough.
  - When rules are broken there is little that local governments can do.
  - A private landowner being incentivised to protect something is probably looking for a revenue stream.
  - Local governments have historically indicated support for a Conservation Tax Incentive Program.
  - Environmentally sensitive areas are predominantly on private land. They may be protected in part by regulation e.g. Riparian Protection Regulations, but not all of it will be so you need other incentives.
  - It is difficult for Regional Districts to bring in levies, but it is easier for municipalities.
  - Incentives can have unexpected negative effects, for example agricultural land tax reductions can lead to marginal land being converted that probably provided better ecological services.

- Regional Districts could develop something akin to the land acquisition fund for wider environmental issues / outcomes outside of the regional parks.
- It feels wrong to place a monetary value on the environment, but could other incentives be found that speak to private landowners, e.g. public recognition.
- Regulation can lead to unexpected outcomes, for example a Tree Bylaw was proposed and announced in the paper and community members cut down trees before the Bylaw was established as they did not want to be controlled.
- Local government staff do not have the training to navigate the issue of private property rights, and they have the impression that the community thinks they have more rights than they do.
- We looked at paying landowners for the goods and services their land provides but my impression was that it was challenging with too many complications involved.
- I do think there's the potential for some kind of conservation fund discussion, especially if it is geared more towards these sorts of climate mitigation actions that is topical right now.
- Land values are so high it is unlikely that a local government could pay enough to stop development.
- Individualised tools for land protection such as covenants have limited impact and are often expensive and require a lot of administration to implement. A positive policy framework will lead to more significant change.

*b) Tools such as Conservation Funds need careful planning to ensure they achieve the desired outcomes.*

- There could be the potential for a local government believe that they could stop investing in their environmental programming if they established a Conservation Fund.
- Incentive funds should be focused on the hard to achieve outcomes like land acquisition.
- Funds supported by property tax have clear parameters, therefore, funding from a land acquisition fund could not be diverted to deliver other conservation outcomes.
- Development taxes collected by the province or a municipality could be diverted into incentive tools.
- We need examples of how other regional districts have implemented Conservation Funds, specifically the costs of establishing and the financial benefits.
- It would not be easy to establish a Regional Conservation Fund as it would need to go through a referendum.

*c) Federal and provincial funds often want projects that are too large for local governments.*

- Recent funding opportunities could not be accessed, even when organisations collaborated due to the scale of projects sought by the provincial / federal government.
- The focus is on shovel ready projects, and local governments need assistance with the planning to develop them.

## 2.2 Recommendations

- a) Provide local governments and First Nations with case studies demonstrating the delivery of nature-based solutions to climate change and the policy needed to support their delivery.
- b) Develop a report card that enables changes to the natural environment to be tracked for local governments and First Nations, including carbon emissions.
- c) Quantify the cost of not implementing nature-based solutions using information provided by the insurance sector and others e.g. flooding, wildfire etc.
- d) Develop an Atlas that provides consistent, up to date, focused environmental spatial information in one location.
- e) Link mapping to policy and guidance documentation to increase understanding of the relevance of the spatial layers.
- f) Deliver training to local government staff on the mapping layers to maximise their use.
- g) Develop a decision support tool that enables local governments and First Nations to review multiple layers.
- h) Develop a protocol for the submission of GIS data by QEPs to local governments to facilitate its use by government.
- i) Promote the establishment of Local Conservation Funds as a means of natural adaptation.

## 3 Land Cover and Change

### 3.1 Issues and Opportunities

#### 3.1.1 Tracking Land Use Change

- a) *Local governments are struggling to track land cover change.*
  - We have some old mapping which shows percentages land conversion, which is a very powerful visual tool.
  - We are working with GIS to improve our land use change mapping capability to feed into our Greenhouse Gas Inventory, completed every two years.
  - We have been incorporating the latest Vegetation Resource Inventory data, but that now dates back to 2016 orthophotos.
  - It's the incremental change that is occurring in neighbourhoods that is not captured but is having a significant impact.
  - Land use change decisions can be controversial so it is important to have good accurate data to support decision making. Having data on land use change would be good.
  - A Regional Growth Strategy could pull together natural asset information for the region but that project hasn't started.
  - Using an established methodology will inform our progress indicators of change over time.
  - We're working towards policies, whether it's in a regional growth strategy or our climate action planning related to ecosystem protection and loss, being able to have those metrics on where losses are occurring, I think is helpful to inform conversations.

- b) *High resolution land cover mapping has been used to generate ecosystem connectivity mapping, carbon storage dataset, tree canopy cover etc.*
  - The landcover mapping was used to generate ecosystem connectivity mapping, carbon storage and tree canopy cover and if we can get to a place where we have regular updates we will be able to track change.
  - We are updating our land cover and SEI layers to track change. A future step will be to reflect these changes in the connectivity, canopy cover and carbon datasets.
- c) *Linking heat mapping to tree cover would be advantageous when talking to the local community.*
  - It would be great to get heat mapping or microclimate data to show which areas could use more tree cover to cool surface temperatures. To be able to show how there is a strong correlation between tree cover and temperature.
  - We have produced a tree canopy cover and impervious surfaces layer that will be updated every 5-6 years.

### 3.1.2 Using LiDAR

- a) *LiDAR is collected infrequently, in patches, at different resolutions and is expensive to collect.*
  - LiDAR is collected at different levels of quality / scale and its expensive. It really needs to be done like Ortho's every few years.
  - This data is needed for decision making. Ideally the province would collect aerial LiDAR for the province on a routine basis because all local governments need it.
  - The IT department will collaborate with municipalities if LiDAR is being collected to maximise the value of the data. The way the model is set now the funding would have to come from an electoral area or municipality to fly LiDAR.
  - It would be useful if the municipalities and the regional district could set aside funding every year for LiDAR collection which is then flown every 5-10 years and shared to municipalities in the region.
  - We have money for orthophotos but LiDAR is a value added product.
  - Orthophotos are collected routinely, but LiDAR is collected for specific reasons.
  - We don't collect LiDAR for more of the Regional District because most of it is uninhabited Private Managed Forest Land / Crown Land.
  - We adjust our methodologies to work with the LiDAR / aerial photo information available.

## 3.2 Recommendations

- a) Develop an approach to land cover mapping that combines the best, cost effective imagery available.
- b) Develop a methodology for tracking land use change at a resolution meaningful for local governments.

## 4 Biodiversity

### 4.1 Issues and Opportunities

#### 4.1.1 Ecosystem Connectivity

- a) *Ecosystem connectivity is something that is being considered by local governments particularly in relation to climate change.*
- Urban densification is leading to fragmentation of wildlife corridors and contiguous forest corridors. We have had policies for 20 years indicating an aspiration to create a network of protected areas, but they haven't been implemented. We are working on this.
  - Habitat connectivity is a big issue particularly in the context of climate change, where species will be stressed into migrating.
  - We were looking to apply a climate lens to connectivity and to identify climate refugia.
  - First Nations have been talking about connectivity and have a lot of data that they may be able to share with local governments.
  - Connectivity of ecosystems is really important. I would love to see the use of trees within urban areas for shade and water management. Ownership of land is a problem when considering the protection of connectivity.
  - In the development of the Conservation Strategy are considering the inclusion of targets on protecting sensitive ecosystems and corridors, which could link to climate adaptation.
  - One of the outcomes of the Conservation Strategy a network or network options, providing connectivity between core areas representing a range of different ecosystems.
  - Land acquisition has a role in delivering connectivity. Corridors could be identified using tools such as Marxan Analysis.
  - The Land Acquisition Strategy could be a good tool to get people thinking about connectivity.
  - It's too bad we don't have a Biodiversity Strategy that we have developed together [cross jurisdiction]. We are not trying to reach a goal in relation to connectivity, but maybe the Land Acquisition Strategy is the next best thing to get people talking about priority land and connectivity.
  - Functional connectivity mapping can be undertaken where representative species are selected, and suitable habitat is identified using software such as Conefor. Zonation can then be used to bring together the individual species layers to develop a prioritised multi-species network that can be linked into the Regional Growth Strategy.
  - Using existing species data we will look at high value areas and then go through a process to rank the landscape in terms of connectivity.
  - I've never heard of habitat connectivity being mentioned at the City. I don't think there's awareness around that at all. We are relatively urban as we are a small city.
  - Ecosystem connectivity datasets are pretty informative for future policy and planning even if they are not used right now.
  - There's going to be a process on how we work together with member jurisdictions to map out and identify a network of green infrastructure based on local data etc.

- In the general urban areas, we have less authority. So that's why we have focused on developing best practices and guidelines to incorporate green infrastructure into urban areas.
- b) *Boundaries between Regional Districts and Municipalities have prevented cohesive ecosystem connectivity mapping.*
- The establishment of a Regional Parks Service means there is the potential to improve consideration ecosystem connectivity across jurisdictional boundaries.
  - A connectivity map would need to be developed to cross land managed by regional districts, municipalities and First Nations.
  - There is a missing piece still around habitat connectivity, between jurisdictions, to ensure that there is adequate migration of flora or fauna in the face of changing climate. Connectivity needs to be addressed at a high level and filter down to the local governments to implement.
  - Connectivity mapping should include suboptimal areas as these could be used to re-establish lost linkages.
  - Habitat connectivity mapping can be undertaken by Regional Districts as part of their planning jurisdiction. They already have a service for planning and developing regional connectivity corridors.

- c) *To protect important connectivity corridors, it could be required that local governments downzone areas.*
- To deliver ecosystem connectivity effectively local governments may need to consider downzoning, which is considered to be politically unpalatable.
  - Political leaders need to be brave to implement ideas and concepts, and we need to aid them by giving them the tools they need by identifying areas that need extra protection.

#### 4.1.2 Sensitive Ecosystem Inventory (SEI)

- a) *Local governments are using Terrestrial Ecosystem Mapping (TEM) and SEI although age and coverage are an issue and it does not take into consideration the effects of climate change.*
- We use TEM and SEI data sets a fair amount. Although the age of the data varies and not all areas are covered by the high quality TEM.
  - Additional SEI mapping would be welcomed to fill in data gaps.
  - Sensitive Ecosystems Inventory is considered a core dataset that informs policy work. At a regional scale it is updated every 5-6 years. We also track gains and losses through the inventory, which provides a benchmark for habitat and species protection.
  - Decision making at regional and local scale is a little different, and that's probably because at the local scale they may have more up to date imagery. Our sensitive ecosystem inventory may be a bit behind what's actually on the ground based on more up to date local mapping.
  - There is policy to update the SEI with a climate vulnerability layer, but it has not been produced yet.
  - Determining bio-regional carrying capacity was an idea suggested for incorporation in the Environmentally Sensitive Areas Strategy, but how that would be achieved is unknown.

#### 4.1.3 Species and Ecosystem Mapping

- a) *Local governments would benefit from the provision of species at risk data from the province that is consistent and supported by legislation.*
- At a federal scale we have the Species at Risk Act, but at a provincial scale we don't have specific species protection laws.
  - Local governments would benefit from species at risk mapping provided by the province that linked to provincial legislation to protect species and ecosystems at risk.
  - Mapping should be used to flag the potential for species at risk like the SEI. This could then be incorporated into a DPA.
  - We can't show specific areas for species at risk but we could provide suitability mapping. This can however be a challenge when our planners and the public want black-and-white rules and answers.
  - I think our data is pretty good from an ecosystem loss and protection perspective. But when you start getting into metrics of biodiversity, that gets challenging, in terms of not having the most robust data.

- b) *Parks dedications are typically reviewed from a recreation perspective but there could be an opportunity to consider its ecological value.*
  - The criteria for parks determining if they accept a proposed parks dedication could be expanded from recreation to include ecological value.

## 4.2 Recommendations

- a) Produce ecosystem connectivity mapping for the region, pulling on existing projects.
- b) Develop Environmentally Sensitive Areas layers for the region that pulls on multiple data sources including; SEI, species at risk or of cultural value, vegetation resource index etc.
- c) Develop a Species at Risk layer that reflects the value of ecosystems.

# 5 Carbon

## 5.1 Issues and Opportunities

### 5.1.1 Carbon Objectives and Targets

- a) *Local governments do not have a consistent approach to setting and achieving greenhouse gas emissions targets.*
  - Achieving carbon neutrality was not taken seriously leading to under resourcing and a reliance on staff initiatives / interest to take the transformative steps needed to achieve carbon neutrality.
  - We are now aiming to move from carbon neutrality to net zero, which means that emissions would not be offset by purchasing credits, there would need to be real change.
  - Carbon offsets are not considered to be the solutions for working towards carbon neutrality, the whole region needs to be net zero.
  - Local governments are moving from only considering municipal emissions to considering community emissions.
  - Federal / provincial targets on community emissions reductions are unrealistic as local governments do not feel ownership and the targets don't take account of differentiated responsibility.
  - We have obligations under the Regional Growth Strategy to have targets and to measure emissions. Many municipalities are also doing that.
  - The Climate Charter required a formal commitment to reduce community emissions not to be carbon neutral.
- b) *Policies to reduce emissions should be focused on emission sources rather than mitigating effects and should be relevant to the region.*
  - Exciting announcements about planting trees can distract elected official attention from delivering real reductions in emissions.
  - Every municipality is going to have a climate action plan. Not all of these plans will include nature based solutions. This is an advocacy action for us to encourage their inclusion.
  - Reviewing clean energy applications that will not deliver emissions reductions locally, as energy is provided by hydro, is taking up a lot of local government staff time to process.

### 5.1.2 Carbon Mapping

- a) *Local governments typically do not have access to carbon mapping, but when they do it is able to influence decisions relating to land acquisition and land use change.*
- The carbon mapping we have is used for land acquisition and conservation planning, decision making by land use planners and in climate action education material, albeit the mapping is a little dated.
  - Carbon mapping can be used to tell the story that protecting nature has multiple benefits; drinking water protection, reducing GHG emissions and the effects of climate change.
  - I'm not a fan of carbon offsetting but it enables us to quantify stored carbon which allows us to offset our emissions on paper, while we phase out our vehicle fleet.
  - We currently have no way to quantify stored carbon unless we undertake project specific quantification. Carbon mapping would enable staff to demonstrate the fiscal benefit of protecting land.
  - We wanted to include requirements for carbon sequestration relating to land acquisition in our Climate Strategy but the data wasn't available.
  - There is a need for a decision tool to determine where reforestation could occur without compromising other ecologically valuable habitats.
  - Our carbon storage inventory is another key data set that we have developed. We haven't used it a lot yet in planning and policy work as it is a new data set.
  - We have a good understanding of some ecosystem services such as carbon storage and sequestration of forest, but less information on carbon storage and sequestration of soil and intertidal ecosystems. These gaps in information hinder the use of ecosystem valuations.
  - The carbon storage inventory is a new dataset. The confidence in the calculations is variable e.g. marine and coastal environments.
  - We don't have good maps of carbon in ecosystems such as eel grass, but researchers are looking at this e.g. SFU. However blue carbon is a hot topic and we try to support the research albeit we do not have a lot of jurisdiction in the coastal and marine ecosystems.

### 5.1.3 Carbon Reporting

- a) *Consultants on behalf of Regional Districts have looked to include land-based carbon in their Greenhouse Gas (GHG) Inventory Reports, but excluded it from final calculations as it was felt to incorrectly distort the numbers.*
- The Greenhouse Gas Inventory Reports use the GPC BASIC+ methodology which includes land use change, but it is challenging to report on. The report does not usually include the detail of the analysis.
  - When land use change was included in the carbon calculations it looked like the biggest emitter. This may have occurred because the consultant used provincial data that would have factored in wildfire in the province, even though there were no fires in the region.
  - Local governments have chosen not to disclose land use change numbers as they are notoriously inaccurate.

- Tracking emissions from land use change were affected by the quality of imagery e.g. cloud in the way. Better direction on how to track the effect of land use change on emissions is required.
- We need to take account of the gains (land acquisition) and losses (land conversion) otherwise it could look hypercritical if only the gains are reported on.
- Obtaining data to track emissions from land use change from 2010 to the currently day was our primary stumbling block during inventory preparation. Imagery collected by local governments is collected at the wrong time of year (leaf not out) for use to calculate stored carbon.
- I've been working with the consultant doing our national assets inventory, to see what data sets they're aware of that we might be able to use to monitor year on year estimate of emissions from land use change, and then monitor trends over time. Monitoring changes in carbon are important because it is the constant ebbing away of the natural capital.
- Every two years we do Greenhouse Gas Inventories for the region, there's a framework that's called the GPC Framework, which is an international protocol that we use, and it's got a land use change component, and even with that data we found it was really swaying the numbers every two years. It didn't make sense, so we decided to pull it out.

*b) Local Governments need a clear provincial framework (regulation) for reporting GHG emissions that provides accountability.*

- We need accountability, if local governments achieve carbon neutrality by offsetting, does that achieve what we set out to achieve e.g. reductions.
- There is a lack of a consistent framework from the province on how local governments achieve carbon neutrality. This means that implementation is dependent on each of the local governments, and they are not accountable.
- Climate Action Revenue Incentive Program (CARIP) reporting requirements have ended but some local governments continue to report in the same manner.
- Small communities will not have a person dedicated to reducing carbon emissions. Therefore, emissions reporting will only occur if required by the province.
- Reporting was undertaken by someone who was funded by CARIP, when that ended I'm not sure how reporting will be delivered.
- The province should reflect on other mandatory reporting requirements and apply this to emissions reporting e.g. Housing Needs Report. The province provided initial funding to establish reporting.

*c) A big challenge is tracking community emissions.*

- Carbon Disclosure Project was established to enable businesses in the community to report on their emissions and to access advice on ways to reduce emissions. This approach is needed if community emissions reductions are to be achieved.
- We're part of the ecoCity footprint pilot with BCIT, which includes a consumption-based inventory. It doesn't provide year on year tracking because it is based on estimates.
- To develop a Climate Plan we will need a process to measure and track regional carbon emissions.

- A staff led initiative began the process of trying to track community emissions in the electoral areas. The focus was on electoral areas because regional staff could provide the information needed rather than contacting the municipal staff.
- Seventy percent of community emissions come from transportation and there is no way to directly measure emissions. A formal resolution was sent to UBCM asking that the province collect odometer readings as part of the ICBC process.
- A lot of communities have strong language in their plans about reducing emissions, but no meaningful way of measuring community emissions.
- We have GHG reduction targets but we don't have a clear pathway as to how we will achieve them or make measurable progress.

#### 5.1.4 Carbon Offsetting and Other Incentives

- a) *Climate Action Revenue Incentive Program (CARIP) enabled local governments to offset carbon through land purchase. The quantification of carbon could be achieved by applying a simple calculator or by appointing a registered forestry practitioner. It is now unclear (post CARIP) if the simple calculator is a valid approach.*
- We used to use the framework (spreadsheet) provided by the province to calculate offsets from land purchase. We didn't go through a formal offset calculation process which would have been expensive.
  - We are running out of offsets and now there is a lack of clarity around how they can be gained as we used to use the provincial framework that was part of CARIP. For the amount of offsets we will generate it is not worth paying a consultant to make the calculation.
  - We usually appoint a registered forestry practitioner to calculate stored carbon rather than defaulting to the conservative values provided by CARIP.
  - There was push back from local governments in response to the suggestion that they should buy offsets to achieve carbon neutrality.
- b) *Local Government Climate Action Program (CAP) has led to positive outcomes not seen under CARIP.*
- Under CARIP if you produced carbon reporting the province would then issue a refund on the carbon tax that was paid as a corporation. However, this was counter productive because the more you reduced the less tax back you got. Now the payment is linked to population.
  - CAP funding is guaranteed for three years as long as the reporting requirements are met.
  - Leadership led to the establishment of a Climate Action Fund into which CAP/CARIP funding is placed and staff can apply to spend on emissions reductions activities, which most municipalities have not done. Other municipalities placed the funding in general revenue which is not necessarily spent on emissions reductions.
- c) *To achieve neutrality local governments have offset residual carbon through purchasing forest, restoring wetlands, methane capture, buying credits from brokers etc.*

- We bought offsets from a broker for a residential thermal aggregation project (heating a commercial pool with solar panels). We have historically bought cheap offsets in other countries but we decided to only buy in Canada and hope to buy locally.
  - Our board indicated that if we were to pursue carbon neutrality we should do it in the region where we have influence through land acquisition, protection of parks, methane gas from landfill, restoration of wetland etc.
  - We are carbon neutral due to offset gained from early adoption of methane capture from landfill prior to regulation. We have a corporate direction to move away from offsets and drive down emissions.
  - I think we bought offsets once but they are expensive and local governments with small budgets were being asked to buy credits for projects elsewhere in the world. We have decided to focus on implementation of emissions reductions rather than offsets.
- d) *Calculating the carbon stored in parks acquisition would be beneficial when understanding gains and losses, but the methodology for quantification is not clear.*
- We haven't used carbon storage directly in relation to land acquisition but we could, so we tried to leave the policy open. We have been through a process where colleagues have calculated stored carbon and it would be possible to apply a dollar amount using carbon pricing (e.g. \$150 per tonne), but we want to avoid inflating the value of carbon to decision makers as there are many reasons that parks should be protected.
  - We usually include language around avoided deforestation and carbon when providing reasons for land acquisition.
  - We tried to measure stored carbon in one of our forests, but we could not agree on the methodology.
  - Ten years ago, we looked to see if we could purchase land and then sell the credits through the Pacific Carbon Trust. We determined it was not financially viable due to administrative costs.
  - We don't have a Land Acquisition Policy but if we were to develop one, we could include carbon offset value as part of the dedication for development.
- e) *There could be opportunities for local governments to amend management of their community forests if provincial policy supported carbon offsetting.*
- If the province had a vision to improve how communities manage their forests to consider values such as carbon storage and ecosystem services, current management practices could be influenced.
  - Income from the Community Forest goes into a reserve fund from which staff can apply to deliver emissions reductions schemes. It would be interesting to know if more significant reductions are delivered by projects than would be from carbon offsetting.
  - The Forest Carbon Protocol being developed by the Federal Government could provide local governments with the means of entering into a carbon offsetting scheme for new land acquisitions.

### 5.1.5 Internal Cost / Price of Carbon and Carbon Reserve

- a) *The Internal Cost of Carbon (ICC) is a tool that has been developed to ensure that decision makers are always considering carbon.*
- We have a policy that establishes the Internal Price on Carbon. When we are considering project options we use the price of \$150 per tonne of carbon.
  - We have used it when developing new facilities and to demonstrate that while one option is more expensive initially it will lead to fewer greenhouse gas emissions.
  - The carbon implications of projects get calculated. I don't know that there's always the checks and balances in place to stop things going ahead that don't meet the objectives of our plans and strategies.
  - We are considering applying the internal cost of carbon to the purchase of parks.
  - In our water services group and our liquid waste services group they are doing a full carbon cross accounting and ecosystem service valuation in the construction operation of the Regions water and wastewater infrastructure.
- b) *A Carbon Reserve, which receives funding from the Internal Cost of Carbon could be a means of delivering change that was previously unaffordable.*
- The carbon reserve generated by the Internal Cost of Carbon could provide funding that is currently absent to deliver projects that would meaningfully reduce carbon.
  - The finance team is supportive of establishing a Carbon Reserve and is currently looking for models of how this has been achieved.
  - We looked at establishing a carbon reserve when we brought in the Internal Price of Carbon but the elected officials decided they could not justify the additional cost to the tax payer.

## 5.2 Recommendations

- a) Develop a methodology for the inclusion of land cover change in the Greenhouse Gas Emissions Inventories completed by Regional Districts.
- b) Update the Green Communities Committee Avoid Forest Conversion Calculator to enable local governments to quantify the carbon stores protected through a land acquisition.
- c) Promote the Internal Cost of Carbon approach and Carbon Reserve. To ensure all projects consider the resulting GHG emissions.

## 6 Watershed Resilience

### 6.1 Issues and Opportunities

#### 6.1.1 Long Term Protection of Drinking Water Watersheds

- a) *The long term protection of drinking water watersheds is currently being achieved through the implementation of different tools e.g. land purchase, Class A Provincial Parks, regulation etc.*
- Our main drinking water watershed is protected by a Class A Provincial Park. We don't have control over the management but it is protected from development.
  - We bought our drinking water watershed in which we are now undertaking remediation.

- Only Greater Victoria and Metro Vancouver own their drinking water watersheds, which is a problem across the province as operations upstream could impact on the quality of drinking water.
- We need to prioritise water quality and regulate the way in which Private Management Forest Land can be managed under the Private Managed Forest Lands Act. Local governments could collectively request a change in legislation to protect drinking water as the Auditor General has indicated that it comes first before forestry or mining.
- It might be private land but they still operate within a public interest context. None of us can manage our land in a way that causes harm to others, so it makes sense that the forestry sector change the way they manage the land. This can be through agreement if they do not want to be regulated.

*b) Management of drinking water catchments for local governments requires agreements with multiple organisations to be effective.*

- Most of the forest that surround the upper watersheds is within Private Managed Forest Lands .
- Our Drinking Water Watershed Protection (DWWP) program was established as a regional initiative that partners with all of our municipal partners and other stakeholders within the district, to take a regional approach to water quality and quantity.
- We don't have regulatory jurisdiction over the Private Managed Forest Lands, but the DWWP program provides a foundation for good working relationship.
- We are getting more pressure from the province to work on flood management and drinking water but we don't have control over the land.
- We are going to see a devolution of decision making to a watershed level. To say the province manages water is a bit of a joke, because they don't manage water they allocate water, and only in areas of conflict or severe shortage do they actually perform a management function.
- The province allocates water they do not manage it. To do that you will need a multi-party conversation. This conversation will be led by the indigenous community who are the authority holders.
- I know that some communities on the island have been impacted by logging undertaken on steep slopes, which effected slope stability leading to the possibility of a mudslide into their community. We do not have the same problems potentially because of the amount of forested land that's around the City. Forest managers know that they can prevent objections from the local community by operating away the city boundary and watercourses.

*c) Reliance on ground water is increasing, but there is limited understanding around recharge and policy relating to water restrictions is being developed.*

- We are becoming increasingly dependent on ground water, so we need to understand more about recharge.
- We are actively looking for new ground water sources as we are experiencing wells running dry. We've revamped our watering restrictions in coordination with

municipalities and other major water providers. They're more explicitly linked to the provincial drought conditions. We are establishing hydrometric sensors and flow sensors to increase understanding around water quantity and flows across the region.

- We do not have a good water layer that indicates where stream originate or information on subsurface water. We don't have comprehensive information on how above ground flow links to groundwater flows.
- We are struggling with reduced capacity in wells and ongoing drought issues. A lot of the people in the region, have their own water licenses and their own wells. In some watersheds, there's been really severe restrictions due to the drought conditions .

*d) A lack of consideration of the effects of over extraction has led to water shortages, restrictions and subsequently a change in strategic approach.*

- We don't talk about carrying capacity we talk about ecological health, ecological thresholds, limits, cumulative effects as we are seeing water shortages due to overallocation and without consideration of the effects of climate change. No one has to report on how much water they use in British Columbia.
- In the Nicola Valley and the Koksilah there's a move towards Integrated Watershed Management Plans which are called Water Sustainability Plans under the Water Sustainability Act. When those are instigated then they can trigger very specific regulations that can bind upstream or land based decision makers. It's not just limited to water. It's not just doing a plan that changes the way we're doing allocation, it can actually limit or change the way that forestry, mining or land development decisions are made.
- We are seeing a change in approach to cumulative assessment and water management by the province in response to Declaration on the Rights of Indigenous Peoples Act and *Yahey vs British Columbia* and it's relation to the Blueberry River First Nation. It has meant that the province is now undertaking cumulative assessments in a more meaningful way.
- In response to the supreme court decision the province is developing a Cumulative Effects Framework more meaningfully because the Nation's would have said the process has historically been useless.
- We have had law reform through the Water Sustainability Act leading to a watershed planning mechanism that will hopefully be taken forward by the indigenous community.

*e) Paying private landowners to protect the forested watershed (e.g. covenant) would be considered an unfavourable outcome.*

- We have had conversations around quantifying the value of ecosystems services so it would be a logical outcome to pay private landowners for services from their land, but water is essential for us all and it would be an unfavourable outcome to have to pay for this service.
- Extensive regulation is the norm in Canada, so we do not need to pay landowners to do things like protect the quality of drinking water.

f) *Local governments are looking to improve the flood and risk mapping that is currently available to them.*

- We hope to do better mapping and modelling of riverine flooding risk.
- We expect flooding and landslide risk to increase with climate change due to more intense rainfall events. Consequently, there is a lot of work needed in developing policy relating to natural hazards and risk.

#### 6.1.2 Nature-based Solutions for Water

a) *Wetlands and water storage are needed to ensure an all year-round supply / storage of water.*

- We get a lot of water but at the wrong time of year so if farmers can store water it could solve the problem of water shortages.
- We looked at the potential for restoring existing wetlands for storage to mitigation flows downstream.
- We have created wetlands along our path network where historically they would have flooded. This approach protects the infrastructure while providing habitat. These weren't called nature-based solutions, but they are, they would have been considered a practical solution.
- We are still in the early stages of climate change adaptation and are focused on making pipes bigger, but the majority of stormwater management is delivered by the municipalities and they are considering green infrastructure such as bioswales.

b) *Water conservation is considered a good way for people to understand what are nature based solutions, because people connect with water issues readily.*

- Talking about water conservation is a good way to introduce the principle of nature-based solutions as people connect with water issues readily.

### 6.2 Recommendations

a) Complete a gap analysis of the protection tools available to protect ecosystems that store / slowly release water e.g. land acquisition, carbon offsetting, covenants, localised incentives schemes for carbon and seek to work with partners on the development of additional tools if gaps are found.

## 7 Wildfire Resilience

### 7.1 Issues and Opportunities

a) *Fire Smart advice is being delivered by regional districts and funding is available from the province to implement the advice, but it is not clear if this advice is suitable in dry coastal forests and as these ecosystems change due to climate change.*

- The Regional District Fire Smart Officer will visit private properties and provide advice such as clearing lower branches, and funding is available from the province to do these works.
- There needs to be more information on how fire smarting can be delivered without removing all the trees.
- The Fire Smart Coordinator is operating a wood chipping program for private home owners to get rid of branches and debris.

- We have a Community Wildlife Protection Plan, but when we cut down trees the area is colonised by Himalayan blackberry. We submitted a UBCM resolution asking for the science behind fire smarting on the coast to be updated to respond to changing ecosystems due to climate change. We do not have sufficient funds to remove all of the dead cedar in our forested lands.
- The FireSmart Program is great for educating homeowners and promoting awareness around reducing fire risk, but not as much emphasis on retention of natural vegetation/biodiversity, this could be a missed opportunity and also lead to more trees than necessary being removed in the name of wildfire prevention.
- We have wildfire management guidelines in our DPA on steep slope areas.

## 7.2 Recommendations

- a) Develop, with partners, incentives for local governments and private landowners to undertake forest thinning and restoration of hydrology.

# 8 Natural Assets

## 8.1 Issues and Opportunities

- a) *A Natural Asset Inventory could provide local governments with a means of monitoring their adaptation to climate change (performance), but uptake has been affected by the absence of a clear methodology on how to undertake an inventory and the respond to it.*
  - It is hoped that natural asset management will push us to measuring outcomes of our actions and to establish nature-based solutions targets.
  - We are developing our Asset Management Strategy, but the focus remains on built assets for the moment but the hope is that natural assets can be brought into that process, but we haven't a mechanism for that.
  - We are working with Municipal Natural Assets Initiative (MNAI) on the development of a Natural Assets Inventory and a condition assessment.
  - MNAI tends to be stormwater focused and they are building knowledge around daylighting creeks, stream side riparian vegetation and ecosystem services relating to flooding. I think we're starting to get a little bit better understanding of those types of ecosystem services. But some of the others related to resilience, we're still a little bit ways away.
  - The Regional Parks Program established a natural asset policy, which aims to change the way natural assets are considered in parks. We have started developing a natural asset inventory for the regional parks.
  - We are hoping to provide guidance to municipalities on how to produce their own Natural Asset Inventory from the information collated by the region.
  - The key is to understand how to implement natural asset management in response to the inventory.
  - We may be able to develop an inventory of trans boundary natural asset management. This is not eminent, but it would be part of the supporting role we have.
  - We looked at undertaking a Natural Asset Inventory, but decided not to at the time as the methodology was in development and we decided to focus on development of financial and built asset management first.

- Ecological Accounting Protocol has been used by some local governments as an alternative approach to Natural Asset Management.
- There may be legal and accounting barriers that inhibit local jurisdictions from doing their own local asset management inventories. We can do some research at the regional scale to see what type of barriers exist, and how you can overcome them.
- Climate is embedded into the natural asset management process, and this can help with delivering nature-based solutions to climate change.

## 8.2 Recommendations

- a) Highlight case studies of local governments who have directly incorporated the information within their Natural Asset Inventories into policy.

# 9 Culturally Significant Ecosystems

## 9.1 Issues and Opportunities

- a) Local governments are looking to respond to culturally important species, ecosystems and values within their planning process.
  - We're bringing reconciliation into our work and I think that brings in talking about how the impacts of climate and land use change effects culturally important species and life for First Nations.
  - First Nations hold mapping of culturally important features which are not publicly available. Local government refers applications to them regularly as part of the referrals process and then their comments are taken and incorporated.
  - I don't know if we have a ton of information on the culturally important ecosystems as well, and I think there's probably an opportunity for collaboration.

## 9.2 Recommendations

- a) Work with First Nations to identify environmental spatial layers that would support their climate adaptation planning.

# 10 Coastal Resilience

## 10.1 Issues and Opportunities

- a) *Policy on coastal resilience is being developed and delivered by First Nations, local and provincial government and ENGOS.*
  - The First Nation worked with the province to produce a Dock Management Plan focused on the protection of eelgrass beds (store carbon, softens the impact of waves).
  - The region has developed incentives to encourage green shores along water front properties to protect them against storm surges.
  - We have developed a demonstration of a green shores approach in our park to enable people to view what is required.
  - I would say we have policies that actually go beyond encouraging because it's set up so that if a property owner comes forward with a proposed green Shoreline Management project they bypass the committee process/ board approval, and they would go through a staff decision. It's essentially an expedited process. This approach is meant to incentivise the property owner to implement the green shores approach.

- The Stewardship Centre BC has done a lot of work to prove the resiliency of green shores. There's been a lot of capacity building in the region, and municipalities are doing some pilots looking into it.
- Since 2014 our OCP has been working to discourage hardening of the shoreline.
- The National Disaster Mitigation Program provided funding for the production of coastal flood map, which were previously absent. This information was fed into the development of a Coastal Flood Adaptation Strategy.

## 10.2 Recommendations

- a) Promote case studies of greenshores as a nature based solution to climate change.

# Appendix A – Table of Legislation, Strategies, Plans and Guidance Mentioned by Interviewees.

**Table 1.** List of legislation, strategies, policy, plans and guidance documentation listed by local government interviewees.

Legislation	Strategies	Plans	Bylaws	Guidance / Studies	Agreement / Declaration
<ul style="list-style-type: none"> <li>Local Government Act</li> <li>Community Charter</li> <li>Vancouver Charter</li> <li>Islands Trust Act</li> </ul>	<ul style="list-style-type: none"> <li>Provincial Adaptation Strategy</li> <li>CleanBC Roadmap to 2030</li> </ul>	-	-	-	-
	<ul style="list-style-type: none"> <li>Regional Growth Strategies</li> <li>Regional Context Statement</li> <li>Islands Trust Policy Statement</li> <li>Islands Trust Mandate</li> </ul>	<ul style="list-style-type: none"> <li>Official Community Plan</li> <li>Corporate Plan</li> </ul>	<ul style="list-style-type: none"> <li>Tree Bylaw</li> <li>Development Permit Area</li> </ul>	<ul style="list-style-type: none"> <li>IUCN documents</li> <li>Coastal Adaptation Study</li> <li>Natural Asset Inventory</li> <li>Greenshores</li> <li>Design Guide for Sustainable Buildings</li> </ul>	<ul style="list-style-type: none"> <li>BC Climate Action Charter</li> <li>Climate Emergency Declaration</li> </ul>
	<ul style="list-style-type: none"> <li>Regional Parks Strategy / Strategic Plan</li> <li>Regional Green Infrastructure Network</li> <li>Climate 2050</li> <li>Corporate Asset Management Strategy</li> <li>Coastal Adaptation Strategy</li> <li>Climate Adaptation Strategy</li> <li>Conservation Strategy</li> <li>Biodiversity Protection Strategy</li> <li>Parks and Trail Strategy</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability Charter</li> <li>Integrated Community Sustainability Plan</li> <li>Climate Action Plans</li> <li>Climate Adaptation Plan</li> <li>Nature and Ecosystem Roadmap for Climate 2050</li> <li>Sustainable Building and Infrastructure Policy</li> <li>Land Acquisition Policy</li> <li>Green Buildings Policy</li> <li>Hazard Risk Tolerance Policy</li> <li>Urban Forest Plan</li> <li>Air Quality Management Plan</li> </ul>	-	<ul style="list-style-type: none"> <li>Natural Hazard Risk Assessment</li> <li>State of the Environment Report</li> <li>Agricultural Water Demand Model</li> <li>Low Impact Development Guidelines</li> <li>Agricultural Land Use Inventory</li> <li>State of the Parks Reporting</li> <li>Forest Carbon Protocol</li> <li>CARIP Reporting</li> <li>Green Bylaws Toolkit</li> <li>Develop with Care</li> <li>Living Waterfront</li> </ul>	

Legislation	Strategies	Plans	Bylaws	Guidance / Studies	Agreement / Declaration
<ul style="list-style-type: none"> <li>First Nations Land Management Act</li> <li>Declaration on the Rights of Indigenous Peoples Act</li> </ul>	<ul style="list-style-type: none"> <li>Land Code</li> <li>Foundation Agreement</li> </ul>	<ul style="list-style-type: none"> <li>Dock Management Plan</li> </ul>	-	-	-
<ul style="list-style-type: none"> <li>Water Sustainability Act</li> <li>Riparian Areas Protection Regulation</li> </ul>	<ul style="list-style-type: none"> <li>Watershed Protection Strategic Plans (WPSP)</li> <li>Critical Environmental Flow Protection Orders</li> </ul>	<ul style="list-style-type: none"> <li>Integrated Watershed Management Plans</li> <li>Water Sustainability Plans</li> <li>Drinking Water Watershed Protection Program</li> <li>Regional Water Supply Plan</li> </ul>	-	-	-
<ul style="list-style-type: none"> <li>Parks Act</li> </ul>	-	-	-	-	-
<ul style="list-style-type: none"> <li>Farm Practices Protection (Right to Farm) Act</li> </ul>	-	-	-	-	-
<ul style="list-style-type: none"> <li>Forest and Range Practices Act</li> </ul>	<ul style="list-style-type: none"> <li>Forest Landscape Planning</li> </ul>	<ul style="list-style-type: none"> <li>Forest Management Plan</li> <li>Community Wildfire Protection Plan</li> </ul>	-	-	-

## Appendix B – Financial Incentive Programs Mentioned by Interviewees

Federal and Provincial Funds		Local Government Funds	
CleanBC Communities Fund	Funding for local governments from the federal and provincial government to deliver community infrastructure projects that reduce greenhouse gas emissions through a decreased reliance on fossil fuels, focusing on renewable energy, access to clean-energy transportation, improved energy efficiency of buildings, and the generation of clean energy	Climate Action Reserve Fund	Established by the City of Powell River to receive CAP funding thereby ensuring that these funds were only spent on activities that would reduce GHG emissions.
Climate Action Revenue Incentive Program (CARIP) - obsolete	The province gave back local governments carbon tax that they had paid provided they measured progress towards achieving their Charter goals.	Internal Cost of Carbon and Carbon Reserve	Local governments (Metro Vancouver, Regional District of Nanaimo, City of Victoria) have established a scheme to quantify the carbon footprint of projects to support decision making. There is an option to take an additional step and for a Carbon Reserve. If a project option is selected that is not the most carbon efficient then funds are placed into the reserve to offset the effect. These then become available to fund local government emissions reduction schemes
Local Government Climate Action Program (CAP) (replaced CARIP)	The province will provide funding to local governments and treaty First Nations to implement local climate action that reduces emissions.	Community Carbon Marketplace	Established by the District of Squamish as a means of reaching carbon neutrality by providing a route through which local businesses could sell carbon credits.
Better Homes BC	Provides home owners rebates when they implement energy efficiency upgrades to their homes e.g. heat pump.	Woodstove Changeout Program	City of Nanaimo established a scheme to provide a rebate to homeowners who switched their woodstove for a low emissions appliance.

Federal and Provincial Funds		Local Government Funds	
Natural Infrastructure Fund	Provided by the federal government to provincial and local government, indigenous governing bodies, not for profit organisations and for-profit organisations in partnership with an eligible recipient, for natural infrastructure projects involving the creation, expansion, restoration, improvement, or enhancement of natural or hybrid infrastructure that is primarily for public benefit.	Parks / Land Acquisition Fund	Either a regional or municipal government will establish a property tax for land acquisition. This is in response to the need to protect areas of greenspace for recreation and biodiversity during urbanisation, but acknowledges that land acquisition is very expensive.
Disaster Mitigation and Adaptation Fund	The federal government provides funding to the province, local governments and indigenous governing bodies for projects that will reduce risk of harm during extreme natural events e.g. flooding.	Carbon Disclosure Project (CDP)	Voluntary declaration of emissions by businesses within the Regional District of Nanaimo and they receive support on delivering reductions – advice.
BC Salmon Restoration and Innovation Fund	Is a fund established by the federal and provincial government to support the protection and restoration of habitat to protect Pacific Salmon and other wild fish stocks.	-	-