



October 2000

Sustainability Indicators for the Fraser Basin Workbook



*Fraser Basin
Council*

www.fraserbasin.bc.ca

The Fraser Basin Council

The Fraser Basin Council (FBC) is a not-for-profit, BC society with national charitable tax status. The Council was established in 1997 to enable individuals, organisations and governments of the Fraser Basin to work together to ensure that the Basin is a place where social well being is supported by a vibrant economy and sustained by a healthy environment – a true reflection of sustainability.

The Council's Board consists of 36 directors from federal, provincial, local and First Nation's governments and private and non-government interests throughout the Fraser Basin. The Council facilitates on-the-ground action in support of sustainability in the Fraser Basin — an area that covers one quarter of British Columbia, is home to 2.65 million people and contributes 80% to the provincial economy.

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EXECUTIVE SUMMARY

The Council needs your help!

The Council is initiating the development of a set of sustainability indicators to help in monitoring progress towards sustainability in the Basin.

The Challenge

There are hundreds of indicators to choose from. As individuals and organizations we all have different concerns and perspectives that we want reflected in the indicators. The challenge will be identifying a set of indicators that is:

- reasonable in size;
- provides balanced consideration of all aspects of sustainability; and
- has relevance and support among all interests.

How will they be used?

Some of the ways that sustainability indicators could be used include:

- Monitoring progress towards sustainability,
- Increasing public awareness of sustainability issues,
- Informing policy development and decision-making,
- Priority setting in addressing sustainability challenges,
- Building partnerships among diverse interests, and
- Identifying information gaps.

Who will use them?

In addition to the Fraser Basin Council, others that could use the indicators include:

- Government,
- Non-Government Organizations,
- Private Sector/Business,
- Academics,
- Educators, and
- Individuals.

How can I participate ?

Organizations and individuals are encouraged to:

- Participate in the Indicators Workshop at State of the Fraser Basin Conference,
- Attend a Regional Indicator Workshop (Spring of 2001),
- Fill out the attached Indicator Selection Survey,
- Get on-line and fill out the Indicators Selection Survey @ www.fraserbasin.bc.ca, and/or
- Contact the FBC by fax, mail, email or phone and talk to us!

Finalizing and reporting on indicators

This important work is starting now and will continue over the coming months:

- Opportunities for dialogue (Fall 2000/ Spring 2001),
- Final set of sustainability indicators available to all FBC partners (2001), and
- First reporting period of sustainability indicators (2002).



FBC Sustainability Indicators Workbook

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Indicator Selection Survey attached at end of workbook !

I Introduction

Facilitating progress towards sustainability is the focus of the Fraser Basin Council. In this context, the constitution of the Fraser Basin Council requires that it report regularly to the residents of the Basin on progress towards sustainability.

There has been considerable dialogue among Fraser Basin Council partners regarding the most effective and useful way of reporting on sustainability. From this dialogue, the identification of and reporting on sustainability indicators was chosen as an important mechanism to assist in the Council's efforts to monitor progress towards sustainability in the Basin.

As a result, the Council is initiating the development of a set of sustainability indicators that, when tracked over time, can be used to provide residents of the Fraser Basin with relevant, useful information on sustainability issues.

This workbook has been designed to present a draft set of sustainability indicators and gather feedback to assist the Fraser Basin Council in selecting a final set of indicators.

2 Sustainability Indicators

Before entering into detailed discussion of sustainability indicators, it is important that there is common understanding of a number of key concepts.

What do we mean by Sustainability?

Sustainability can mean a variety of things to different people and after years of wrestling with the concept in nations around the globe, it is still difficult to assign the word a definition supported by everyone. However, most definitions of sustainability relate to the extent to which society can strike a balance, in our decisions and actions, between social, economic, and environmental values.

The Fraser Basin Council defines sustainability as “Social well being supported by a vibrant economy and sustained by a healthy environment”.

What is an Indicator?

Indicators are statistical data that can be selected and observed to gain insight into the functioning of a complex system.

Example: Body Temperature

Body temperature is a common indicator of human health. The body temperature of a healthy human being is 37°C. When body temperature is above or below 37°C, the person may be sick. If the indicator suggests that the person may be ill, then we may seek additional information on the illness (i.e., in addition to a high fever, what are other



symptoms?). Our knowledge of body temperature, combined with information about other symptoms, can give us insight into the specific nature of the illness and identify treatment options.

We already use indicators every day. For example, most people are familiar with indicators such as:

- increase in unemployment rates;
- large drop in the TSE 300; or
- increase in housing starts.

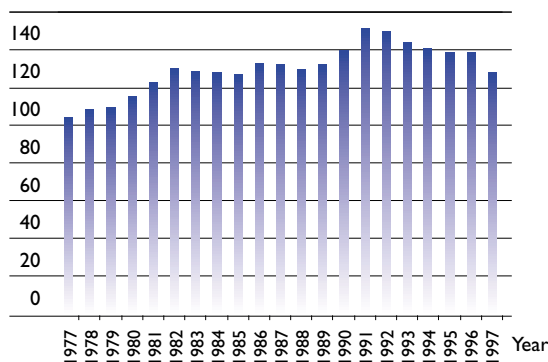
In these examples, the indicator itself tells us very little about why there has been a change, but instead prompts us to ask questions and learn more in order to understand what is happening and what the implications might be for ourselves and our communities.

Sustainability Indicators are:

Specific pieces of statistical information that can be used to measure critical trends in progress towards sustainability.

Crime Rate in BC per 1000 population

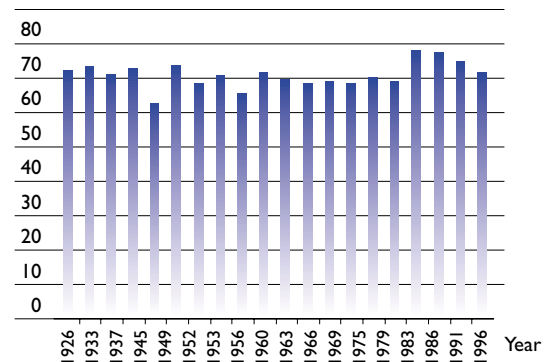
number of crimes



This chart shows the upward trend in total number of crimes (of all types) per 1000 people in BC since 1977.

Voter Turnout to BC Provincial Elections

% registered voters



This chart shows the percent of registered voters who voted in provincial elections within BC since 1926.

Why use sustainability indicators?

Sustainability indicators will be used to facilitate progress towards sustainability goals identified in the Charter for Sustainability by:

- Monitoring progress towards sustainability goals identified in the Charter for Sustainability;
- Increasing public awareness of sustainability issues;
- Informing and influencing policy development and enabling inclusive decision making;
- Assisting in the identification of FBC organisational priorities and workplans;
- Building partnerships among communities, governmental and non-governmental organisations including the private sector; and
- Identifying information gaps and research priorities.

What can sustainability indicators do - or not do?

On their own, indicators only show part of the picture, but they can prompt us to look for more information, especially if we suspect the interaction of our social, economic and environmental systems is not moving our communities in a sustainable direction.

Because indicators are data, changes and trends will be interpreted in different ways by different people. Identifying and tracking changes in indicators will not, on its own, bring consensus to groups of people with different values and interests. Indicators are not decisive measurements, but are windows that “provide a glimpse of the ‘big picture’” (Sustainable Seattle web site, 1999).

Indicators are not solutions and may not even be helpful in identifying “treatments” or options for addressing specific concerns that have been identified.

Who will use them?

The FBC and its partners (i.e., all orders of government, non-government interests including the private sector and all those individuals that live, work and play in the Basin).

In addition to use by the Council, a set of sustainability indicators for the Basin would provide a number of uses for a range of partners that live, work and play in the Basin including:

Government	to monitor issues and assist in developing solutions to sustainability challenges;
Non-Government Organizations	to track progress in addressing sustainability challenges and participate in seeking solutions;
Private Sector	to determine how best to contribute to seeking solutions to sustainability challenges;
Academics	to maintain an awareness of sustainability issues of concern to communities;
Educators	to assist in raising awareness of sustainability issues and the linkages between them; and
Individuals	to maintain awareness of the overall health of the Basin and its communities.

How will the data be tracked over time?

The data will be presented on a regular interval (to be determined) to all residents of the Basin in order to provide some insight into our progress in achieving sustainability in the Basin.



3 Identifying a Set of Sustainability Indicators

Over the past months, the Fraser Basin Council has worked with a group of individuals with knowledge and experience in this area to develop a draft set of indicators (see inside cover for list of advisors). The draft indicators will be used to focus dialogue with a broader audience.

The 40 draft indicators presented in this document were selected using the Charter for Sustainability as a framework. In order to identify indicators representative of the different aspects of sustainability, indicators were selected that corresponded to the 26 goals of the Charter. The indicators are presented in the workbook under the four directions of the Charter



Understanding Sustainability



Caring for Ecosystems



Strengthening Communities



Improving Decision Making

Selection Criteria

The following criteria have been used to guide the selection of draft sustainability indicators for the Fraser Basin. The selection of a final set of indicators will be done in such a way as to meet as many of these criteria as possible.

- Available – Data are available and easily accessible.
- Understandable – Data are easily understood by a diverse range of non-technical audiences.
- Credible – Data are supported by valid, reliable information and interpreted in a scientifically defensible manner.
- Temporal – Data have the capacity to highlight trends over time and progress towards targets/thresholds where relevant.
- Relevant - Data/indicator reflects community values.
- Links to Mandate of FBC – Data/indicator relates to one or more of the Charter goals. (ie., social, economic, environmental and institutional).
- Integrative – Data demonstrates connections among key dimensions of sustainability.
- Comparable – Data can be compared across regions.

Sustainability Linkages

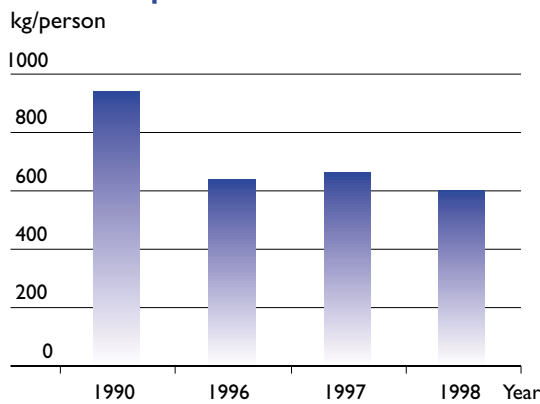
For each indicator, efforts have been made to identify its relevance as a potential indicator to the Four Directions in the Charter for Sustainability. Statements exploring the linkages between specific indicators and the four Directions of the Charter have been developed and can be found adjacent to icons representing the four Directions of the Charter (Understanding Sustainability, Caring for Ecosystems, Strengthening Communities and Improving Decision Making).

Indicator Development

Feedback on the draft set of indicators will be gathered as follows:

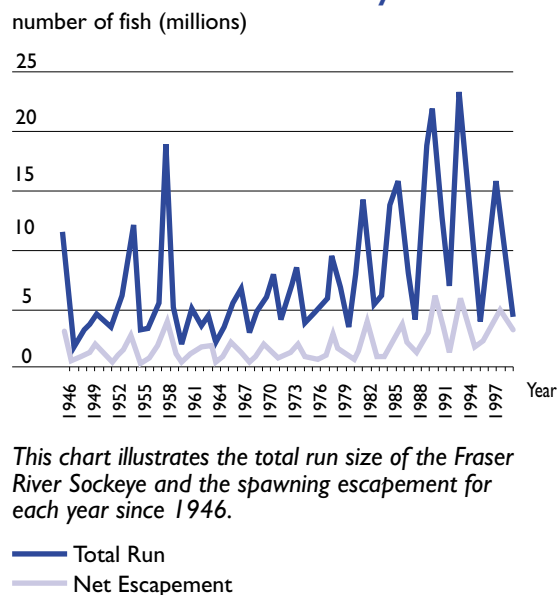
- Workshop on the draft indicators at the State of the Fraser Basin Conference (November 24 & 25, 2000).
- Indicators Workshop at State of the Fraser Basin Conference
- Regional Workshops (Spring of 2001)
- Indicator Selection Survey (insert to workbook and on Website - www.fraserbasin.bc.ca)
- Direct feedback to FBC:
Tel: (604) 605-3450
fax: (604) 605-3459
Mail: Suite 1257 - 409 Granville St.
Vancouver, BC V6C 1T2
e-mail: info@fraserbasin.bc.ca

Waste Disposal



This chart demonstrates the downward trend in the amount of waste going to landfills and incinerators per person in BC since 1990.

Status of Fraser River Sockeye Salmon



This chart illustrates the total run size of the Fraser River Sockeye and the spawning escapement for each year since 1946.

Finalizing the set of indicators

Based on input and feedback from workshops, the indicator selection survey (attached and on-line) and direct feedback to the FBC, a revised draft set of indicators will be prepared and made available to all FBC partners with an additional opportunity to provide feedback. (Summer 2001).

A first State of the Fraser Basin Report including the final set of sustainability indicators will be released in 2002. This will represent the initial reporting period for the sustainability indicators (Release and reporting intervals to be determined).

Questions the FBC needs help answering:

- How many indicators do we need? Which ones? Have we missed some?
- How often should we report and in what format?
- Should a report include recommendations for action?
- What information is not collected that should be (i.e., new indicators)?



Changes in the waste diverted from landfills reflect our ability to change lifestyle habits in order to reduce, reuse and recycle materials.

What does this indicator tell us?

...The amount of waste per capita going to landfill now, subtracted from the amount of waste per capita in 1980 - before waste reduction, reuse and recycling programs were introduced.

This amount of waste diverted from landfills gives us an idea of how successful we have been in efforts to reduce, reuse and recycle materials in our homes and in industry, businesses and institutions.

By making changes in how we consume and dispose of materials, we extend the life span of our landfills and reduce the economic and environmental costs associated with the collection and disposal of waste.

Why is this important in relation to sustainability?



Success in reducing, reusing and recycling wastes is partly determined by the success of education activities to raise awareness of the options such as programs focusing on disposal of materials such as batteries, tires, oils, paint, solvents and a wider variety of beverage containers.



Landfills take up valuable and often limited land near Basin communities. This use of land eliminates wildlife habitat, can result in groundwater quality impacts and is a significant source of greenhouse gases.



Waste composting programs – both household and large-scale – can return valuable nutrients and fibre to our soils and reduce the need for chemical fertilisers.



The siting of landfills is often a contentious issue in communities due to concerns over odour, noise, aesthetics, truck traffic and reduced property values.



The costs to manage waste are a huge drain on the economy - cost include landfill purchase, construction, operation and closure; waste collection and transportation; environmental monitoring; labour and administration. Hidden costs include the lost resources we dispose of (rather than recycle or reuse), and replace with new materials.



Solid waste planning processes, at the Regional District level, have provided opportunities for participation in decision making through public advisory committees and public awareness and involvement programs

The Data

Ministry of Environment, Lands and Parks

Collects data on waste going to landfills.





Changes in water use patterns reflect our awareness and willingness as individuals to change the way in which we consume our natural resources.

What does this indicator tell us?

... How much domestic water is used per person each year in the Basin.

Our domestic water use choices are influenced by our awareness of the financial and environmental costs of high volumes of water use and alternative practices for minimising consumption.

The underlying belief is that the more Basin residents understand about sustainability, the more likely they are to change their behaviours and make sustainable choices. A second belief is that water use patterns will reflect a broader range of choices about natural resource use.

Why is this important in relation to sustainability?



Per capita rates of water consumption in the Basin are among the highest in the world and have not changed much over the past 20 years although a great deal of public awareness work on conservation and stewardship has taken place.



When domestic water use rises, costs for water collection, storage, distribution and treatment also rise



Providing sufficient quantities and quality of water to population is critical to maintaining high standards of human health.



Where water supply is limited, domestic water use competes with other uses such as industrial, agricultural and recreational and ecosystem function (e.g., aquatic and riparian habitat).



As demand for this resource, conflicts over water access to water – already seen in drier parts of the Basin – will likely increase.



As economic activity and population increase so does demand for water; resulting in an increase in the total water used.

The Data

Environment Canada, Municipal Water Use Database

- Data available on litres of water used per person on a daily basis.
- Data refer to water used in municipal systems and can be sorted by municipality, water source (surface or groundwater) and end use (domestic, industrial or commercial), not including information on private wells.
- The data are collected every three years.





Changes in the number of communities that have adopted a regional growth strategy (RGS) reflect efforts underway to manage growth in a sustainable manner.

Regional Growth Strategy (RGS)

A regional vision that commits affected municipalities and regional districts to a course of action to meet common social, economic and environmental objectives.

What does this indicator tell us?

... The number of regional districts that have adopted or are working toward a regional growth strategy.

Regional Growth Strategies provide for future planning to address social, economic and environmental issues at a regional level (i.e., regional district) over a period of 20 years.

Monitoring the number of communities with a RGS is a means to gauge long-range planning, at the Regional District level, within the Fraser Basin.

Adoption of a RGS is a significant step a region can make towards planning for and working towards growth that is socially, economically and environmentally healthy.

Why is this important in relation to sustainability?



As public awareness of the challenges associated with population growth and current patterns of growth, there is an increasing demand for alternative methods of managing growth.



A RGS is required to address regional environmental issues, identify environmental goals and actions to achieve those goals.



Through the RGS planning process, strategies are identified to overcome key challenges, and build on the most

promising opportunities to improve regional quality of life (e.g., housing, transportation, economic development).



A RGS provides a means to coordinate plans for growth and change among local and regional and provincial governments and other agencies on issues that cross municipal boundaries.



Municipal governments and the regional district prepare RGS as equal partners in the planning process.

The Data

Ministry of Municipal Affairs, Growth Strategies web site

- Data updated regularly in the internet
- Information available by Regional District



Changes in newspaper circulation reflect our awareness of sustainability issues and opportunities to contribute toward sustainability.

What does this indicator tell us?

... The circulation rates for daily and regional newspapers in the Basin.

Newspapers are one important source of information about a variety of issues in local communities and the Basin as a whole.

Knowledge about a broad and diverse variety of issues and the links between them is essential if we are to change behaviours, resolve conflicts and move toward more sustainable lifestyle choices.

Why is this important in relation to sustainability?



While newspapers are only one source of information, awareness of issues and the capacity to share information within communities determines the capacity of communities to address sustainability challenges.



Environmental and land use issues are often in the headlines of our papers, keeping us aware of the most pressing issues and what is or could be done to protect ecosystems.



Community events and organisations are often reported and advertised in newspapers and keep us up to date on how we can be active members in our

community's efforts to promote and achieve sustainability (e.g. volunteer opportunities, car pools, community meetings).



Newspapers are also an important source of information regarding local investment and job opportunities, new regulations and point toward important economic trends.



Our participation in decision-making processes depends, in part, on newspapers to present the issues, clarify our choices and point to public processes where we can participate in decision making.

The Data

BC Media Guide, BC Government Policy and Communications Office

- Information on circulation rates available for both daily newspapers (e.g. Vancouver Sun and Province) and local community papers.
- Updated regularly on-line.





Changes in connection to the Internet reflect a new dimension to the communications capacity of communities and are a measure of our ability to share information and viewpoints.

What does this indicator tell us?

... How many households are connected to the Internet.

The number of households connected to the Internet gives us a measure of how many people in the Basin are able to access and share information and viewpoints about sustainability issues. It also tells us about their ability to trade goods and services in the expanding world of “e-commerce”.

For smaller, isolated communities, Internet access provides access to a more level playing field in terms of lower communications costs and greater access to information.

Why is this important in relation to sustainability?



The Internet is used by many to learn more about important issues in their community - and around the globe - and to exchange ideas. E-mail is also a common way for organisations to keep people informed of events and current issues.



communities - health, safety, education, recreation - and using this information to make better informed decisions.



Access to and exchange of information such as provided on the Internet enhances the exchange of information on the status of ecosystems as well as what efforts are being taken to protect ecosystems and tools and networks to assist in doing so.



The Internet allows cost-effective distribution of information to a wide range of people.



An enormous amount of economic activity takes place via the Internet including job hunting, marketing and sales of products, trading stocks, and economic forecasting. Access to the Internet also means access to the global economy.



Greater access to information is the key to effective governance and decision-making processes. Information, including that provided via the Internet is an important tool for understanding the issues and learning about other points of view. By looking at what is happening in other parts of the world we are challenged to make better decisions.



People are turning to the Internet for information about issues that affect their

The Internet is being used more and more as a vehicle for public involvement in decision making. Web sites provide background information on specific issues and on-line surveys to allow for instant feedback to those making decisions.

The Data

Statistics Canada, Labour Force Survey

- Information collected each year on the number of households with Internet Access.
- It is not clear if provincial data can be further broken out to exclude regions outside the Fraser Basin and remain representative.





Changes in the level of education among Basin residents reflect community capacity to understand and contribute to sustainability.

What does this indicator tell us?

...The highest level of education achieved by Basin residents over the age of 15.

Education is closely tied to our sense of social well being, prosperity, health and our economic future. Communities with higher levels of education are better equipped to address sustainability issues.

Why is this important in relation to sustainability?



Addressing sustainability challenges requires communities to have some awareness of social, economic and environmental systems and the way in which they are linked.



Managing community resources and protecting ecosystems to meet multiple societal needs requires increasing knowledge by professionals and communities.



Level of education is directly related to the economic opportunities for Basin residents. As our economy moves toward a knowledge and information-based economy, higher levels of education and training are required for entry-level jobs and job advancement.



Education is a fundamental building block for our future leaders and participants in our decision-making processes. Those with higher levels of education tend to have higher participation rates in decision-making processes and volunteer activities.

The Data

Ministry of Education

- Data provided on the highest level of education achieved by the population, age 15 years and older.

Statistics Canada, Canadian Census

- Data collected every five years
- These data can be requested for the Fraser Basin along with other linked variables such as age and income.





Changes in water quality throughout the Basin reflect the value we place on and our ability to care for aquatic ecosystems.

What does this indicator tell us?

... The frequency and degree to which water quality objectives are achieved in water bodies where human activities have a high potential of negatively affecting water quality. The objectives are safe limits, set by the Ministry of Environment, Lands and Parks, to protect the uses of a water body (e.g. for drinking, swimming, fish, etc.)

Changes in the quality of water in the Basin give us some idea of the success of our efforts to respond to the causal factors that affect water quality (e.g., industrial discharges, sewage treatment plants, development activities, resource extraction, etc).

Why is this important in relation to sustainability?



Awareness of the linkages between water quality and human activities is essential encouraging personal choices that protect water quality.



Most of our economic activities are dependent upon access to clean water. Where water quality is compromised due to human activities, there are economic consequences to mitigating the impact of degraded water quality.



When water quality declines it has a negative effect on many aspects of the aquatic and riparian ecosystem (including fish and other aquatic species, waterfowl and numerous other animals and plants).



Where water quality is compromised and human uses are limited, conflict related to limited access to the resource and developing prevention or mitigation strategies, may arise.



When water quality declines, human health is at risk and various water-dependent recreation activities are limited.

The Data

Ministry of Environment, Lands and Parks - Water Quality Index

- ▶ Reports on results from fresh-water-monitoring stations throughout the province, using rankings of excellent, good, fair, borderline or poor.



Indicator: Status of Fraser River Sockeye

Changes in the run size and escapements of Fraser River Sockeye salmon reflect the health of this fish stock's habitat and the communities that depend on the resource.

What does this indicator tell us?

... run size and spawning escapements of Fraser River Sockeye.

This indicator provides a measure of the health of the salmon resource in general and the economies that are dependent on the resource. Stock status of sockeye also give an indication of the success of efforts to address challenges to fish habitat in the Basin.

Why is this important in relation to sustainability?



Protecting all fish habitat, requires awareness of the human activities that can threaten stocks and how the risks can be avoided or minimised.



Awareness of threats to sockeye runs, have helped raised awareness of threats to a wide variety of fish species including non-salmonid species.



The ability to maintain sockeye stocks is determined by our collective capacity to preserve and maintain the ecosystems of the Basin which are home to all fish species – as well as other species of wildlife.



Fraser River Sockeye are the basis of an important commercial fishery in Canada and the United States. Aboriginal and sport fishing of sockeye also play important cultural and economic roles in the Basin.



Governance and decision making with respect to the management of fisheries resources, are extremely contentious issues in the Basin and the health of fisheries resources is influenced by the capacity of different interest groups to work in collaboration.

The Data

Pacific Salmon Commission

- Data collected annually of total run size and escapements of Fraser River Sockeye Salmon (since 1946).





Changes in the status of salmon stocks reflect our ability to care for fish and fish habitat.

What does this indicator tell us?

... The percentage of salmonid stocks that are extinct, at moderate to high risk of extinction or of special concern.

Extinction of stocks represent a loss of genetic diversity that is essential to the long-term sustainability of salmon. In addition, extinction of any species is a warning about general ecosystem well being.

Why is this important in relation to sustainability?



Awareness of the links between human behaviour; the health of salmonid species and the role of such species in contributing to community well being is essential to encouraging people to make choices that protect and enhance the resource.



Salmon are woven into the culture, heritage and economy of the Fraser Basin. Commercial, aboriginal and recreational fishing industries make important contributions to the social and economic well being of Basin communities. .



Changes in salmonid populations reflect the success of our efforts to address factors that have contributed to their decline, including loss of spawning habitat due to logging, hydroelectric and urban development, over-fishing, pollution, changes to the marine environment and climate change.



Aboriginal communities have a close relationship to salmon, using them for cultural, spiritual and sustenance activities



Decisions about salmon management and harvesting rates are increasingly being made in an open and participatory way, with extensive stakeholder input.

The Data

T.L. Slaney et al, 1996 Status of Anadromous Salmon and Trout in BC and Yukon, Fisheries, V21, No 10.

► It is not clear if this data will be monitored in the future.





Changes in the number of threatened or endangered species within an ecosystem reflect our ability to care for a variety of species and habitats.

What does this indicator tell us?

...The percentage of known species that are threatened or endangered.

The percentage of species at risk is a measure of biodiversity and provides a measure of ecosystem health. As the health of an ecosystem declines so does the number of species it is able to support.

The loss of species is the ultimate sign of environmental degradation and speaks more broadly to community well being (e.g., economic well being, human health).

Why is this important in relation to sustainability?



As Basin residents become more aware of the status of species and of the need to protect biodiversity, they can make choices to preserve and enhance biodiversity.



Both rural and urban communities depend on healthy functioning ecosystems for clean and healthy air; water and food.



The Basin is a very biologically diverse region. Maintaining the integrity of the Basin's ecosystems requires maintaining the region's biodiversity.



Recreational and tourism activities provide for significant benefits to local and regional economies.



How populations of species are affected by environmental change is key to assessing the impact of human activities on the environment.



Decision makers are increasingly considering the economic, social and ecological value of biodiversity in economic and policy decisions and land use planning efforts.

The Data

BC Ministry of Environment, Land and Parks, Conservation Data Centre

- Data updated annually
- Information can be provided on a regional basis





Changes in the concentration of contaminants in Great Blue Heron eggs reflect our ability to reduce introduction and persistence of contaminants in the environment.

What does this indicator tell us?

...The amount of persistent organochlorides (POCs) in Great Blue Heron eggs.

Persistent Organochlorides (POCs)

DDT, PCBs, dioxins and furans. POCs linger in the environment for decades and even centuries before breaking down and have been found to have a variety of harmful effects on living things.

Great Blue Herons feed on small fresh and saltwater fish. Herons are at the top of the food chain so substances that tend to bioaccumulate, e.g. persistent organochlorides (POCs), become concentrated in their flesh and can be found in their eggs.

Resident populations of herons are found year-round throughout the Fraser River Estuary and feed on local fish species. Contaminants found in their eggs and flesh provide a direct measure of the contaminants present in the Fraser Basin. The way concentrations change over time provides information on the effectiveness of measures designed to minimise or eliminate exposure to contaminants.

Why is this important in relation to sustainability?



Awareness of the changes in concentrations of various toxics – like PCBs – in the environment, helps link changes in the way we use such materials to changes in environmental quality.



Awareness of the use and impacts of toxics helps influence choices at the individual and household level regarding the release of such contaminants into the environment.



The impacts of such substances threatens the integrity of ecosystems and ultimately can jeopardise community and economic well being that rely on healthy ecosystems.



Reductions in the quantities of chemicals used and produced by our society and improvements in the way chemicals are handled can help to decrease the concentrations of toxic chemicals present in the environment.



In cases where mitigation is required to address the impacts of toxic chemicals in the environment, the economic costs to communities is enormous and takes away from other societal needs (e.g., health, education etc.).



Our capacity to minimise or eliminate the negative impacts of toxic chemicals, is determined by the degree to which there is collaboration and dialogue among all interests.

The Data

Environment Canada, Canadian Wildlife Service
Ministry of Environment, Lands and Parks

- Analysed and raw data available via MELP web site
- Data collected annually from the Great Blue Heron rookery near UBC since 1977





Changes in the composition of forest lands reflect our ability to support a range of forest dependent activities while minimising our impact on forest ecosystems.

What does this indicator tell us?

... Percentage and extent of area by forest type and age class relative to historical condition and total forest area.

Forest type – determined by the grouping of species found in an area

Age class – forest age - the distribution of age classes is an important indicator of forest diversity

Forests naturally consist of a mosaic of forest types, species and ages, which perform a variety of ecosystem processes and human uses. Changes in the composition of forest lands gives an indication of how forest management practices are ensuring the capacity of the forest to meet ecological and societal needs.

The historical condition of forests within the Fraser Basin can be reconstructed using early forest inventory data, land surveys and analysis of tree pollen in lakes and peat bogs. Comparing this information with the extent and range of forests that currently exist allows us to assess the impact of human disturbances on ecosystem diversity.

Why is this important in relation to sustainability?



Awareness of the need for and value of different types of forests helps to maintain forest lands for diverse uses, including resource harvesting beauty, ecological function, recreational opportunities and spiritual significance.



A wide range of forest types and age ranges is important to maintaining species diversity. Different types of forest provide habitat for a wide range of species.



Maintenance of ecosystem diversity will help to ensure genetic diversity is also

preserved which safeguards species ability to evolve and adapt to change.



Forests provide food, medicines, educational opportunities and places for recreation and spirituality. A diverse forest ecosystem can encourage a diverse economy.



Forests provide food, medicines, education opportunities and places for recreation and spirituality. A diverse forest can encourage a diverse economy.



Dialogue among diverse interests is essential to appreciating and protecting forest resources to meet multiple uses.

The Data

Provincial Timber Inventory:

- Contains data gathered from aerial photos on dominant tree species
- May not be updated regularly to reflect fires, insect outbreaks and timber harvesting





Changes in farm practices reflect a commitment to maintaining a productive agricultural base and reduce negative environmental impacts.

What does this indicator tell us?

... Area of farmland serviced by integrated pest management (IPM) consultants and the area of farmland where soil and water conservation is practiced.

Soil erosion occurs naturally, but farm practices can increase the rate of soil erosion, which decreases soil fertility and ultimately productivity. The number and area of farms employing techniques to minimise soil erosion and conserve water indicate the transition of farming towards more sustainable practices.

Integrated pest management (IPM) uses a combination of alternative techniques to suppress pests (e.g. vegetation, insects, etc.). The number of farms employing IPM techniques is an indirect measure of the extent to which alternatives to chemical pesticides are available and being adopted.

Why is this important in relation to sustainability?



Changes in farm practices illustrate the level of awareness among farmers and consumers of the link between farm practices and associated social, economic and environmental issues.



Agriculture plays an important role in the economy of many Basin communities and assists the region in maintaining a significant measure of food security (i.e., the ability to provide for the food needs of residents through local production).



In addition to ensuring the economic viability of farming, sustainable farm practices can help to maintain adjacent natural environments and their proper function. Unsustainable farm practices can endanger the well being of natural systems.



Like many other economic activities and sectors, the potential impacts of farm practices can contribute to conflict among farmers, government and communities. Adoption of sustainable farm practices speaks to the capacity of communities to reconcile this conflict.

The Data

Statistics Canada, Census of Agriculture 1991-1996.

- Soil and Water Conservation Practices
- Data collected every 5 years

Ministry of Environment Lands and Parks, Pollution Prevention and Pesticide Management Branch

- Areas of Land Serviced by IPM, 1991-1995
- Data has not been updated since 1995





Changes in the availability and accessibility of parklands reflect our ability to preserve open greenspace for recreational use and environmental benefits.

What does this indicator tell us?

...The area of parkland available for public recreation for every 1000 people.

This indicator provides a measure of ease of access to and availability of parkland for recreation.

Maintaining such areas is important, especially in an urban context, for maintaining ecosystem function. Where there is limited green space, it is more likely to be intensively managed and cultivated potentially at the expense of natural systems.

Why is this important in relation to sustainability?



Parks and natural areas provide an opportunity to understand, appreciate, and protect natural systems.



Natural greenbelts and parks contribute towards controlling air, noise and water pollution.



Parks preserve open, natural space and provide habitat for plants and animals.



Parks and natural areas provide for important leisure and recreation activities that support longer, healthier, more productive lives. This has positive social and economic implications.



Property located near or adjacent to parks and green space have higher land values, the proximity of parks is often an important factor in decisions to move to these areas.



The development of park and recreational facilities requires that competing interests are equitably reconciled. (i.e. resource use versus park designation).

The Data

- Ministry of Municipal Affairs
- Statistics Canada



Changes to participation in outdoor recreation activities reflect our recreational patterns and how we enjoy the natural environment.

What does this indicator tell us?

... Number of park user days, by type of use.

The level and type of outdoor activity people participate in provides important information on environmental conditions, the availability of recreation services and the amount of leisure time and economic resources available for these activities.

The type of activity being pursued in parks (e.g. camping and hiking) and whether these activities have an impact on environmental quality also provide important information on changing attitudes towards the environment.

Why is this important in relation to sustainability?



Rates of use in parks and natural areas reflect the value that is placed on such areas and awareness of the benefits of recreational activities.



In addition to providing recreational opportunities to residents, parks and natural areas directly and indirectly support local economies and provide opportunities for community stewardship.



When park user days increase beyond the carrying capacity of a park, the environmental values people seek to connect with become degraded (e.g., through litter, vandalism, habitat degradation, reduced water quality etc.).



While most residents recognize the value of parks and natural areas, there is competition among interests for access to land and the designation of such areas provides challenges for government and communities.

The Data

- Ministry of Environment, Lands and Parks
- Ministry of Forests (recreation sites)





Changes in the number of mines on the contaminated site registry reflect the potential social, economic and environmental risks associated with contaminated sites.

What does this indicator tell us?

...The number of mine sites in the Basin listed on the contaminated site registry as a suspected or remediated site (as defined in the *Contaminated Sites Act*).

This provides an indication of the extent to which mining activities are being conducted so that environmental impacts and long term economic costs (i.e., clean up) are minimised.

Why is this important in relation to sustainability?



Awareness of the impacts of mine development and operation is important for ensuring that future developments consider and minimise such impacts.



The establishment and operation of mines are associated with a number of impacts on regional ecosystems. In recent years, efforts have been made to minimise impacts associated with mining where possible.



Decreases in the number of new contaminated sites may indicate safe more effective handling and management of substances that could pose a threat to the environment



The mining sector contributes to the economic well being of a number of Basin communities. Where the environmental impacts of mining are minimised, important social, economic values and opportunities remain available to local communities.



In order for mining activities to contribute to the economy of the Basin while minimising environmental and community impacts, there is a need for ongoing dialogue between the mining sector, government and community interests.

The Data

- Ministry of Environment, Lands and Parks
- Ministry of Energy, Mines and Petroleum Resources





Changes in the number of mines on the non-compliance list reflect the industry's ability to meet environmental standards.

What does this tell us?

... The number of mines that do not meet environmental standards and appear on the non-compliance list.

Environmental standards have been set to minimise or prevent mining-related pollution from damaging the environment. As mining practices change, the impacts of mining on the environment will decrease. Non-compliance is an indication of mining-related pollution.

Why is this important?



Increased understanding of compliance with standards and regulations, provides a tool to encourage dialogue between the mining sector and communities on the operation of mines.



Pollution from mines can contaminate the soil on or near the site, which can limit development opportunities on the site and impair reclamation of the land back to a natural state or for other uses.



Processes used to extract minerals from rock produces mine tailings. Run-off from mine tailings can be acidic, pollute rivers and lakes and be harmful to aquatic organisms.



In order for mining activities to contribute to the economy of the Basin while minimising environmental and community impacts, there is a need for ongoing dialogue between the mining sector; government and community interests.



Mineral pollution can have adverse effects on human health by increasing levels of heavy metals present in the environment. Consumption of contaminated water, plants, fish or wildlife can be harmful to humans.

The Data

- Ministry of Environment, Lands and Parks Pollution Prevention Department.
- Ministry of Energy, Mines and Petroleum Resources





Changes in total and alternate energy consumption reflect shifts in energy use decisions and changes to energy use efficiency and patterns.

What does this tell us?

... Total per capita energy consumption and total alternate energy consumption.

Canadians are the largest per capital consumers of energy in the world. The majority of our energy sources are non-renewable which are associated with pollution in the form of greenhouse gases, particulate matter and toxins released into the environment.

Wind and solar power and micro-hydro projects using river, tidal and wave energy are considered alternative energy technologies. Large hydroelectric projects are not considered an alternative energy source because the flooding of lands required for a large reservoir can have negative impacts on the environment.

Why is this important in relation to sustainability?



Understanding of the social, economic and environmental costs of energy use and the options available for increasing efficiency of use are key to reducing total consumption and encouraging the development and application of alternative sources of energy.



A large proportion of air pollution comes directly or indirectly from creating and consuming energy. Renewable energy sources emit few, if any pollutants and do not deplete finite resources.



The majority of electricity consumed in the Fraser Basin is produced by hydro-

electric dams which flood large areas of land and have result in a variety of negative impacts on the environment.



As the population and the economy grows so to will the need for energy. Meeting the increased need for energy will require reconciling a range of important social, economic and environmental needs.



Meeting the energy demands of the future, in such a way as to protect and maintain economic, social and environmental values will require that all interest be engaged in dialogue and decision making.

The Data

Statistics Canada

- ▶ Energy Statistics Handbook, updated monthly
- ▶ The Canadian Socio-economic Information Database, updated on an ongoing basis



Changes in PM10 levels reflect our ability to make lifestyle and policy choices that reduce air pollution.

What does this tell us?

... The number of 24-hour periods when fine particulate matter (less than 10 microns in size - PM10) measurements exceed maximum acceptable levels.

Fine particulate matter is generated by combustion processes such as vehicle exhaust and wood burning. Efforts to reduce PM10 emissions include standards to reduce motor vehicle emissions, phasing out beehive burners and smoke control regulations such as emission standards for new wood burning appliances.

Why is this important?



Understanding of the causes and impacts of air quality concerns is essential in order to develop and successfully implement measures to address such concerns. Changes in PM10 levels reflect the success of air quality, energy and transportation education programs.



Air pollution can be detrimental to wildlife and natural ecosystems and air quality is one element of general ecosystem health.



Fine particulates can affect people with respiratory problems and over the long-term increase the incidence of bronchitis, asthma, pneumonia and

emphysema. Fine particulates have also been linked to premature deaths due to heart and lung disease.



PM10 is a major component of smog, which contributes to reduced visibility, which can have negative impacts on safety, aesthetics, business and tourism.



A variety of decision-making and governance processes affect our capacity to address fine particulate levels (e.g., energy, air quality and transportation planning). Addressing air quality issues such as fine particulate requires consideration and reconciliation of a number of important social, economic and environmental issues.

The Data

Ministry of Environment, Lands and Parks, Air Resources Branch

- Data reported annually
- Analysed and raw data available via MELP web site.
- Locations of data collection station will determine if data represents the Fraser Basin.





Changes in greenhouse gas emissions reflect our ability to reduce activities that produce greenhouse gas.

What does this indicator tell us?

... Total greenhouse gas emissions, expressed as megatonnes of CO₂ equivalents.

Many human activities, such as the burning of fossil fuels and deforestation/removal of vegetation, are adding significant quantities of greenhouse gasses into the atmosphere. Elevated levels of greenhouse gases are linked to changes in global climate patterns.

Monitoring greenhouse gas emissions will measure our ability to curtail activities that produce greenhouse gases and reach goals set for green house gas reductions.

Why is this important in relation to sustainability?



Greenhouse gas emissions are closely linked to population increases and energy consumption. Actions taken by the public to conserve energy will assist in reducing greenhouse gas emissions.



Climate change could include changes to temperature, precipitation, weather systems, ocean circulation and result in decreased biodiversity if the rate and magnitude of environmental changes surpasses the natural capacity of species to adapt.



Climate change could affect where we are able to live through rising sea levels and our ability to produce food through changes in rainfall. Ecosystem impacts could also affect natural resource upon which local economies are based.



When energy prices are high and economic activity is low, greenhouse gas emissions decrease.



Canada is a signatory to the Kyoto protocol to the United Nations Framework Convention on Climate change, which when ratified will commit Canada to reduce greenhouse gas emissions to 6% below 1990 levels by between 2008 and 2012.



Simply meeting greenhouse gas emission targets is leading to conflict between government, industry, NGO's and communities about what is an acceptable pace of change and how the costs of transition might be shared.

The Data

Estimates of greenhouse gas emissions are available from:

- Ministry of Environment Lands and Parks.
- Environment Canada
- BC Ministry of Finance





Changes in the number of households defined as “low income” reflect the capacity of Basin communities to meet basic social and economic needs.

What does this indicator tell us?

... The percentage of families, in the Basin, below the “low income cut-off”.

Statistics Canada’s defines low-income cut-offs (LICOs) as, “the income level at which a family may be in “straitened circumstances” because it has to spend significantly more of its income on the basics (food, shelter and clothing) than does the average family. The LICOs depend on family and community size.” In 1998, 9.8% of Canadian families were defined as being below the LICO.

There are a number of ways of considering the economic well-being of families and communities in the Basin. Another possibility is to look at changes in the median family income compared to the cost of living.

Such indicators provide insight into a wide range of variables related to an individual’s ability to meet their needs and care for others. Changes in the percentage of low income households reflect the overall economy and social wellbeing of Basin.

Why is this important in relation to sustainability?



Increasing understanding and awareness of changes in income levels and the root causes of low income levels is essential to building sustainable communities.



For those living in low income or poverty, there are more pressing basic needs that take precedence over interests in caring for ecosystems or participating in conservation efforts.



Communities with high percentages of low income households, often exhibit poor health and nutrition, poor quality

housing, reduced training and education levels, decreased employment opportunities, higher crime rates and reduced abilities among children.



People with low incomes tend to have low participation rates in decision-making processes and elections and communities with high rates of low income households tend to have less capacity for participating in decision-making processes.



People with low incomes tend to have low participation rates in decision-making processes and elections.

The Data

Statistics Canada, Canadian Census

- Collected every five years
- Data available by region
- Special tabulations can be requested to report on income in relations to age, education levels and occupations.





Changes in crime rates reflect the sense of security Basin residents have with the economy and their communities.

What does this indicator tell us?

...The rate of crime (by type of crime) for regions within the Basin.

Crime rates reflect a variety of social issues that contribute to its existence and proliferation: e.g., unemployment, poverty, and drug and alcohol addiction.

Crime rates provide an indication of feelings of community security and well being and also reflect the ability of all residents meet their basic needs within our economy.

Why is this important in relation to sustainability?



Awareness of crime rates can inform discussion on the causal agents of crime and can assist residents to take steps to prevent crime and to address the causal factors (e.g., lower education levels, high unemployment)



Fear of crime results in costs to society such as installation and monitoring of alarm and security systems for homes and businesses, training and maintenance of police and private security forces, security devices for vehicles and property.



The socio-economic conditions associated with high crime rates are also conditions that make it difficult for communities to address environmental issues.



A concentration of high rates of crimes in localised areas can result in fear among residents, out-migration and an erosion of community.



Crime has a profound effect on a community's safety and sense of security and quality of life for the residents.



Addressing the root causes of high rates of crime requires tremendous collaboration between all interests within communities.

The Data

The Police Services Division, Minister of the Attorney General

- Collect data on crime rates by a variety of categories, e.g. household crimes, car theft, personal theft, violent crimes, murder, rape, robbery and assault.
- Information available by region
- Reported annually





Changes in the morbidity rate reflect our ability to control and prevent disease among our residents and our overall well being.

What does this indicator tell us?

... The number and percentage of Basin residents that suffer from serious disease, by type of disease.

Many factors influence the spread of infectious disease and our vulnerability to both infectious and non-infectious diseases. Clean air; clean water; access to health care services, the opportunity for healthy child development, personal health practices and coping skills, employment/working conditions, education, income, biology and genetic endowment may all contribute to our overall health.

Changes in morbidity demonstrate trends in disease control and prevention.

Why is this important in relation to sustainability?



Education and awareness campaigns related to specific diseases are providing residents with valuable information on how to prevent, diagnose, treat and cope with disease.



The type and incidence of disease will vary among communities depending on a range of social and economic factors and conditions.



Environmental factors, such as the presence of pollutants or contaminants in the air we breathe and the water and food we consume is related to the prevalence and severity of some diseases.



Making decisions in order to address specific diseases in the Basin and in specific communities requires dialogue among a broad and diverse cross section of communities.

The Data

- ▶ The Ministry of Health tracks services provided by physicians through the Medical Services Plan. All services are coded with a diagnosis using the International Classification of Diseases (ICD) standard.
- ▶ Data are available by Local Health Area and are updated every two weeks. Data are available starting in the early 1990's and will continue for the foreseeable future.





Changes in mortality rate reflect our ability to meet the health needs of our residents and our overall social well being.

What does this indicator tell us?

...The age and natural causes of death, and life expectancy for residents within the Basin.

A number of factors are reflected in our overall health and mortality rates, including the opportunity for healthy child development, personal health practices and coping skills, physical environment, employment/working conditions, education, income, biology and genetic endowment and access to quality health care services

Why is this important in relation to sustainability?



Education and awareness programs are important because of the individual lifestyle choices people make (e.g. choices related to cigarettes, drugs, alcohol, diet, exercise) and their ability to deal with stress have a direct impact on their health.



The health status of those who live in poverty and among aboriginal communities is lower than average. This disparity is an indicator of a division within our society and can in itself lead to conflict and barriers to resolving sustainability issues.



Environmental factors, such as the presence of pollutants in the air we breathe and the water and food we consume has a direct impact on the overall health and life expectancy of Basin residents.



With life expectancy increasing, there will be changes in the demand for community infrastructure including health care, housing, education, etc.



Inter-related factors such as income, jobs, education, housing and social supports are powerful determinants of health.



Making decisions about how to ensure long and healthy lives for Basin residents requires dialogue among a broad and diverse cross section of communities.

The Data

Statistics Canada, National Population Health

- Data collected annually
- Unclear whether provincial data can be divided by sub-region and remain representative

Vital Statistics Agency

- Tracks mortalities within each health region in a number of illness categories, but not by age.





Changes in the rate of volunteerism reflect our sense of community and responsibility toward sustainability.

What does this indicator tell us?

... The number and percentage of Basin residents that are members in voluntary of community organizations.

Membership in voluntary or community organisations indicates the sense of belonging people have within their community and the responsibility they take on to care for it.

The indicator gives us an idea of the commitment of individuals to give their time to help address social, economic and environmental concerns in their communities. This indicator compliments data collected on charitable contributions - another way in which people help build strong communities.

Why is this important in relation to sustainability?



Volunteer experiences are an important opportunity for people learn more about sustainability issues, who is working on them and how they might be addressed.



In addition to the efforts of government, a great deal of the effort to restore and protect the Basin's ecosystem is undertaken by volunteers who assist with public awareness, fund-raising campaigns, research, hands-on rehabilitation and habitat enhancement projects and other important activities.



High rates of volunteerism are often a sign of strong and cohesive communities that have the capacity to tackle economic, social and environmental issues on their own.



Volunteer work has been estimated to have a monetary value of approximately \$12/hour; and support important work being done when economic resources may not be available. The Canadian government is looking at ways of incorporating volunteer time into future calculations of GDP (gross domestic product).



Volunteerism rates illustrates commitment to addressing important community issues and the willingness of communities to be a part of governance and decision-making systems.

The Data

Statistics Canada

- Data are collected every three years, beginning in 1997
- A special tabulation would be required to collect representative and valid statistics for the Fraser Basin.





Changes in the rate and amount of charitable donations reflect our willingness to assist those who are in need and support important community programs.

What does this indicator tell us?

...The number of Basin residents contributing to charitable organisations (by type of charity) and the amount they donate.

The rate and amount of donation is an indication of the commitment Basin residents have to investing in the well being of our communities.

Why is this important in relation to sustainability?



Contributions to charity illustrate awareness of societal issues and the capacity (e.g., money and education) to address such issues.



Many environmental stewardship programs rely on donations and support grass roots efforts to protect our natural systems.



Some organisations, such as United Way, place an emphasis on keeping donations within the community and therefore provide an indication of the level of internal community support and social responsibility.



Commitment to the community through donations is also linked to an individual's tendency to participate in other community activities and decision-making processes.

The Data

Statistics Canada

- Information about charitable donations collected through the National Survey of Giving, Volunteering and Participating.
- Unclear whether data will remain representative if provincial data is broken down to exclude regions outside the Fraser Basin.





Changes in the rate of aboriginal employment provide a measure of the economic capacity of aboriginal communities and aboriginal people.

What does this indicator tell us?

... The rate of employment among aboriginal men and women of different ages - for those both living on and off reserve.

This provides insight into the ability of aboriginal people to be part of the economy of the Basin, and meet their own needs (e.g., individual well being and maintenance of their culture)

Traditionally, aboriginal men and women of all ages generally have significantly lower employment rates than their non-aboriginal counterparts.

Why is this important in relation to sustainability?



Higher levels of education translate into higher rates of employment. A key component of increasing employment among aboriginal communities is support for education and appropriate job training.



When employment rates are low in a community, the focus of interest is more often on meeting basic needs rather than on caring for the environment. At the same time the protection and maintenance of the Basin's ecosystems can provide employment opportunities for aboriginal communities.



Employment rates are important determinants of community health. High rates of unemployment are associated with higher rates of a range of physical and mental health problems.



Employment rates are also linked to community size and location. Job availability in small communities and remote regions of the Basin can be limited.



Addressing the root causes of unemployment in aboriginal communities and lack of participation in the Basin's economy, may be the most significant governance and decision-making challenge facing the Basin.

The Data

Statistics Canada

- National Census – data collected every five years.
- Collects information about First Nation peoples. A special tabulation could be requested to report on aboriginal employment by gender, age, and other census variables.
- Not all First Nations participate in the Census, which may challenge the accuracy of the data.





Changes in population inside and outside growth concentration area (GCA) reflect progress towards achieving a compact metropolitan region.

What does this indicator tell us?

...The number of people living within and outside Growth Concentration Areas (GCA) where GCAs are designated in the Basin.

GCAs are areas designated for a majority of residential growth to achieve a more compact metropolitan region. Changes in population in CGAs provide both an early warning sign of potential stresses on social, economic and environmental systems as well as a measure of our success in concentrating regional growth.

The extent to which we are able to direct growth within the GCA and foster development of compact, complete communities relates directly to quality of life and our ability to protect greenspace, including parks and farmland, and speaks directly to the sustainability of human settlements.

Why is this important in relation to sustainability?



This indicator provides a measure to help people understand the causes and impacts of urban sprawl and the effectiveness of efforts to address population growth and maintain quality of life in CGAs.



As population densities increase, there is an increase in the demand for services (i.e., level and diversity). At the same time, it becomes more cost effective to offer certain services that cannot be provided in smaller communities (e.g., diversity of high quality transit options).



Concentrating population growth represents an opportunity to minimise some regional environmental challenges (e.g., loss of greenspace, degradation of regional ecosystems, more efficient transportation systems) in areas where such systems are being challenged



Successfully managing growth to improve and maintain environmental integrity, economic prosperity and quality of life requires a widely shared vision for the future and coordination and cooperation between various levels of government and neighbouring municipalities.

The Data

Census Canada data trimmed to GCA

► Data collected once every 5 years (only applicable to areas with a designated GCA)





Changes in employment inside and outside growth concentration areas (GCAs) reflect progress towards achieving a compact metropolitan region.

What does this indicator tell us?

... The number of jobs located within and outside Growth Concentration Areas (GCAs) where GCAs are designated in the Basin.

GCAs are areas designated for a majority of residential growth to achieve a more compact metropolitan region. As we monitor the relative growth of jobs inside and outside the GCA, we are able to gauge our ability to manage and direct growth, which will affect how urban areas grow and change in the future, while maintaining employment levels that support sustainability.

This data can also provide a measure of the amount of travel required for people to move from home to work. Travel time also relates to quality of life, time not spent travelling could be spent in other ways. This indicator does not tell us about the types of jobs available near to where people live and therefore provides no information on the quality (e.g. wages) of employment.

Why is this important in relation to sustainability?



This indicator provides a measure to help people understand the effectiveness of efforts to address population growth and maintain quality of life and economic sustainability.



Concentrating jobs close to urban centres provides an opportunity to minimise some of the environmental impacts associated with sprawling communities, such as long commutes and increased infrastructure needs.



A concentration of employment opportunities near GCAs provides employment options for residents and

allows for cost effective provision of business services.



A vibrant economy in GCAs provides for economic activity required to support infrastructure investments to support sustainable communities.



Successfully managing growth to improve and maintain environmental integrity, economic prosperity and quality of life requires a widely shared vision for the future and coordination and cooperation between various levels of government and neighbouring municipalities.

The Data

Census Canada data trimmed to GCA

- Data collected once every 5 years
- Only applicable to areas with a designated GCA



Indicator: Public Transit Ridership

Changes in transit ridership reflect transportation choices made by urban populations and are directly linked to urban environmental integrity and economic efficiency.

What does this indicator tell us?

...The number of transit trips per person per year:

Increased use of public transit would suggest a decrease in dependence on personal automobiles.

Transit ridership provides a measure of mobility of the population, which allows residents to pursue their interests and meets their needs. It also illustrates our ability to plan our built environment more efficiently to reduce the amount of travel necessary which means there will be less traffic congestion and pollution.

Why is this important in relation to sustainability?



Public choices to use transit more regularly reflect growing awareness of the benefits of transit use versus personal automobile use as primary mode of transportation



Increased transit use would decrease negative impacts of cities on the environment by reducing air and water pollution associated with cars and lowering per capita energy consumption.



Improved air quality, a likely outcome of increasing transit use, would likely lead to positive benefits for human health.



Convenient, effective and cost-efficient transit options are building blocks to a vibrant economy.



In urban areas in particular, there is a great deal of dialogue on transportation infrastructure development, how it will be paid for and how governance and decision making will be undertaken.

The Data

BC Transit

► Ridership data are available by Regional District on an annual basis.





Changes in the number of vehicles per household reflects our dependence on cars, energy consumption and progress towards more sustainable mobility patterns.

What does this indicator tell us?

...The number of vehicles owned per household.

The number of vehicles per household is directly related to the number of vehicles on the road and provides indirect information regarding, energy use, air pollution and non-point source pollution.

As the number of vehicles on the road increases, improvements gained from increased energy efficiency and emission standards will be outweighed by volume.

Why is this important in relation to sustainability?



A great deal of education work has been done to increase awareness of the full costs of vehicle use, and the alternatives.



The development and maintenance of infrastructure to support an increasing number of automobiles represents a significant economic investment that will compete with other societal priorities.



Personal automobile use represents a significant contribution to urban air pollution and non-point source water pollution, which affects human health as well as the environment.



The private automobile is the primary transportation choices for most Basin residents. Movement towards alternative transportation systems represents a significant governance and decision-making challenge.

The Data

ICBC

- Data are summarised on an annual basis by ICBC for the province.
- Statistics can be broken down to Branch Office level.



Changes in investment in public assets in relation to GDP reflect investments in infrastructure, including those required for sustainable communities.

What does this indicator tell us?

...The total amount of investment in public assets compared to GDP.

Public assets, such as railways, roads, buses, hospitals, schools, water supply, sewerage and waste disposal services benefit the entire population and are essential to quality of life.

Comparison of the total investment (both public and private) in public assets in relation to GDP provides a means to monitor whether our society is living within its means.

As increased spending could be a result of population increases rather than illustrate investments towards sustainability, it will be important to consider changes in this indicator alongside other indicators such as public health, public transit and water quality.

Why is this important in relation to sustainability?



Awareness of the diversity of public infrastructure required, the priorities among them and the costs to build and maintain such infrastructure is key to ensuring informed discussion on what type of investments should be made to achieve sustainability.



Infrastructure decisions and investments have the capacity to address or aggravate stresses on the environment (e.g., transportation, waste disposal, water and sewerage services).



Spending on public infrastructure can help improve or challenge

our capacity to address quality of life in urban and rural areas.



Infrastructure development and maintenance is an important part of the economy of most communities.



Sustainable development involves living within our means and not eroding our economic, social and environmental assets. Government decisions on how and where to spend on public assets has implications for quality of life now and in the future.

The Data

Ministry of Finance and Corporate Relations, quarterly fiscal reports

- ▶ data updated annually
- ▶ provided at a provincial level (cannot be divided by sub-region)
- ▶ significant spending by other organisations are not captured by the provincial report and could contribute up to 30% of total expenditures.

Ministry of Municipal Affairs, annual fiscal reports

- ▶ data updated annually
- ▶ provided by regional district





Changes in the Economic Diversity Index reflect the diversity and stability of regional economies.

What does this indicator tell us?

... The number of industries driving local economies.

Dependence on a single industry, generally a primary resource industry, makes that economy extremely vulnerable to economic downturn and instability. Increased economic diversity is associated with economic stability, resilience, human well being and sustainability.

Why is this important in relation to sustainability?



Understanding of the diversity of regional economies is a key to taking steps required to ensure stable and sustainable economies.



Communities with diverse and stable economies typically have a greater capacity to provide for the stewardship of environmental systems and may be less dependent on natural resource consumption as a driver of the economy.



Economies that are more diverse tend to be more stable and are able to provide a solid base to support overall community well being.



Population growth in urban centres, changes in land and resource use and increased visitors to areas can drive economic diversification, providing a wider variety of work opportunities.



Economic development and diversification activities require communication and collaboration between a broad cross section of community interests and government organisations. Communities that are able to diversify their economies are likely to have effective governance and decision-making systems.

The Data

Ministry of Finance and Corporate Relations

Information available for a number of communities in the Basin



Changes in the number of jobs by sector reflect economic activity in each sector and diversification of employment.

What does this indicator tell us?

...The number of jobs within different sectors.

Diversification of the economy is an important element of sustainability. It reduces dependence on resource industries and increases economic resilience. Tracking changes in the number of jobs by sector provides a means to monitor economic diversification and growth of industry sectors.

Why is this important in relation to sustainability?



Awareness of the type and amount of employment within communities informs actions that communities can take to strengthen existing sectors and culture new enterprises to diversity economies.



Communities with diverse economies tend to be more stable and have greater capacity to grow and continue to diversify and provide for community well being.



Communities with diverse economies may not rely as heavily on natural resources, which can help to ensure resource consumption takes place at a sustainable rate.



Economic development and diversification activities require communication and collaboration between a broad cross-section of community interests and government organisations. Communities that are able to diversify their economies are likely to have effective governance and decision making systems.

The Data

Statistics Canada

- ▶ Available every five years, a special tabulation could be requested to report on jobs by sector as well as other linked variables.
- ▶ Other, more frequent surveys may be available – further research is required.



Changes in the number of Interim Agreements with First Nations reflect the level of interaction and collaboration between First Nations and the provincial government.

What does this indicator tell us?

... The number and type of interim agreements made between First Nations and the provincial government.

Interim Agreements range from formal agreements, such as a Memorandum of Understanding between a government ministry and a first nation to less formal day-to-day-arrangements. Some interim agreements are treaty related and are used to move treaty negotiations forward, but only First Nations in the BCTC process can make this sort of agreement. In contrast, interim agreements related to economic development, training and consultation can be made with any First Nation and are not related to the treaty process.

Tracking interim agreements provides some insight into progress being made in addressing outstanding issues and conflicts that exist between First Nations and other orders of government. Many of these issues relate to interests in lands and resources.

Why is this important in relation to sustainability?



An increased understanding of progress being made in addressing conflicts between aboriginal and non-aboriginal governments supports the development of stronger working relationship between aboriginal and non-aboriginal communities.



Interim agreements encourage aboriginal and non-aboriginal interests to take cooperative approaches to identifying conserving and enhancing natural resource interests in traditional territories.



Interim agreements provide an opportunity to ensure the involvement of First Nations in decisions and activities that affect them.



Interim agreements represent an opportunity to provide certainty for First Nations, the provincial government, communities and business while treaties are being negotiated.



Interim agreements represent an opportunity to provide certainty for First Nations, other orders of government, communities and businesses while treaties are being negotiated.



Interim agreements are an important governance mechanism that provide for dialogue and the development of agreement and consensus between orders of government.

The Data

BC Ministry of Aboriginal Affairs, List of Interim Measure Agreements Signed

- ▶ Updated annually
- ▶ Information broken down by region and First Nation



Changes in the number of First Nations in the BCTC process and the progress being made reflect progress towards defining new, more constructive relationships between aboriginal and non-aboriginal communities.

What does this indicator tell us?

... The number of First Nations involved in the BCTreaty Consultation Process and their progress reaching various stages toward signed final agreements.

By following the number of First Nations involved in the treaty process and the progress they are making through the various stages, we will learn about progress toward agreements that will spell out the rights, responsibilities and relationships of First Nations and the federal and provincial governments.

This indicator does not address the challenges and progress that could be attained by First Nations and governments working outside of the BCTC process, to address similar issues.

Why is this important in relation to sustainability?



Awareness of efforts being made in treaty processes, is important in raising awareness of the efforts being undertaken to build stronger working relationships between aboriginal and non-aboriginal communities.



Through the treaty process, new governance and jurisdictional arrangements will emerge which will have implications for the way in which all interests work together to sustainably manage natural systems.



Achieving greater access to land and resources is a significant focus of many First Nation's treaty efforts.



The resolution of treaties is expected to bring some certainty to governance and

jurisdiction over land and resources and support private sector investment in Basin communities.



Many First Nations recognise the resolution of treaties as a significant opportunity to access the capacity to address issues of community well being that have plagued aboriginal communities for many years.



The completion of treaties within the Basin, will have implications for existing governance systems.



The development of treaties in the Basin represents an important governance and decision-making process that requires participation by all interests.

The Data

BC Treaty Commission

- Up to date data are available on the Commission web site.
- Information provided by sub-region and aboriginal group.



Changes in voter turnout reflect the commitment of the community to the political system and relate to the involvement of the population in decision making.

What does this indicator tell us?

... The percentage of registered voters casting ballots (in municipal, provincial and/or federal elections).

Participation in elections is a direct measure of participation in decision making and an expression of civil responsibility and democracy. Poor voter turnout can indicate unfamiliarity with the democratic process, apathy, a sense of disempowerment or the state of community well being.

Why is this important in relation to sustainability?



Awareness of civil responsibility can influence decisions people make on a daily basis at home, at work and in the community. It is essential citizens are aware of and take advantage of their opportunities to participate in governance if sustainability is to be achieved.



Voter turnout relates to the level of community capacity to acknowledge and address a wide range of community issues (e.g., health, education, economic development, etc.).



Voter turnout can provide some indication of the extent to which people are engaged in addressing key community concerns including those relating to environmental well-being.



The ability to vote is the ability to participate in governance and decision making and contribute to decisions that support sustainable communities.

The Data

- ▶ Municipal government: data updated after each election
- ▶ Elections BC: data updated after each election reported by electoral district
- ▶ Elections Canada: data updated after each election
- ▶ Measures % of registered voters, does not take into account people who are eligible but not registered.



Changes in government representation to better reflect the population relate to social equity and fairness.

What does this indicator tell us?

...The extent to which our elected officials reflect the ethnic, age and gender make-up of the population.

Inequalities in representation in governance institutions suggests inequalities present in society. The indicator provides a measure for determining which groups within communities may not have a strong voice in government.

Why is this important in relation to sustainability?



Residents perceptions of how effectively their interests are represented in governance systems influence the credibility we have in governance systems and may encourage those under-represented to pursue leadership positions.



Community well being demands that the needs of all interests be considered and addressed. A diversity of residents

in leadership positions provides a greater opportunity for such a definition of community well being to be achieved.



With the movement of people in and among the Basin, Basin communities are becoming more diverse. Respecting and supporting diversity in our governance institutions can help to build governance capacity to address sustainability challenges facing the Basin.

The Data

To be determined depending on order of government to be examined (i.e., federal, provincial, and/or local) and the measures of diversity selected (e.g., gender; age, ethnicity, etc.).



Changes in the number of reviews regarding denied access to information and the percentage of those reviews resolved through mediation reflect openness and cooperation in governance and decision-making systems.

What does this indicator tell us?

... The number of reviews carried out by the Office of the Information and Privacy Commissioner regarding denied access to information and the manner in which those reviews were resolved.

The Office of the Information and Privacy Commissioner for BC collects information about requests for review of decisions by a public body regarding how they provide access to information. Through their records we can learn about the number of applicants who were denied full or partial access to information and the number of public bodies that failed to respond to an information request. This tells us about our ability to access information and the responsiveness of public bodies.

Another component of the data tells us how many of these reviews were resolved through mediation rather than formal inquiries. This tells us about the use of cooperative forms of alternative dispute resolution techniques.

Why is this important in relation to sustainability?



Ease of access to information supports better understanding of a range of issues – including some sustainability issues – that individuals, organisations or communities in the Basin may be trying to resolve.



Information requests may focus on a range of issues including the management or use of natural resources.



The time and cost of responding to information requests within public bodies can be significant. Efforts to make information routinely available

through sources such as the Internet may reduce the number (and cost) of formal requests.



For the principles of openness and transparency to be carried out in decision making, Basin residents must have easy and low or no-cost access to information that must be considered in making decisions.



Our ability to resolve issues, such as those related to access to information, through mediation rather than formal inquiries reflects a shift toward more cooperative forms of decision making.

The Data

Office of the Information and Privacy Commissioner for BC.

- Data are tracked on an ongoing basis and are summarised annually
- It is not possible to obtain data only for the Fraser Basin



Changes in the number of complaints to the Ombudsman and the percentage of resolved issues reflect the ability of public bodies to serve Basin residents.

What does this indicator tell us?

...The number of complaints to the Ombudsman and the manner in which they were addressed.

The Office of the Ombudsman receives complaints and enquiries about the practices of and services provided by public bodies. This information allows for the calculation of the percentage of complaints that have been resolved.

The opportunity to bring complaints to a neutral body such as the Ombudsman, and the ability of public bodies to work with the Ombudsman and complainants to resolve issues reflect the openness of our democratic process and the responsiveness of government.

Why is this important in relation to sustainability?



Understanding how our governance systems work and what to do when there are concerns with the practices and services of public bodies, reflects the capacity of communities to participate in decision making and governance.



The appropriateness of practices and services provided by government agencies, involved in resource management and environmental protection, has a potential impact for the sustainability of natural resources and Basin ecosystems.



The opportunity for individuals to raise concerns about the practices and services or actions of public bodies, can help

to ensure the integrity of governance systems that are focused on addressing key economic and social issues



The number of complaints against public bodies reflects the level of satisfaction that residents have with the way those bodies make decisions and the services they provide. As decision makers become more responsive and accountable to the public, the number of complaints would decrease.



The percentage of resolved issues is linked to the ability of public bodies to provide Basin residents with services in a fair and efficient manner.

The Data

BC Office of the Ombudsman

- ▶ Tracks files closed and the manner in which they were closed for Ministries, Commissions and Boards, Crown Corporations, Professional Associations, Municipalities, and other public bodies.
- ▶ Data are tracked on an ongoing basis, summarised and presented annually for the province
- ▶ Some work would be required to identify data originating in the Fraser Basin.





Fraser Basin
Council

Sustainability Indicators Workbook

Indicator Selection Survey

Fax Back to (604) 605-3459

Suite 1257 - 409 Granville Street

Vancouver, BC V6C 1T2

**This Survey can be completed
on-line at www.fraserbasin.bc.ca**

Please respond by March 31, 2001

This survey corresponds to information provided in the Sustainability Indicators for the Fraser Basin Workbook. Your views about the 40 indicators described in the workbook will assist in selection of the final indicators. Thank you for your input!

Prizes!

Those who complete the entire survey are eligible for a draw to win special "Fraser Basin" prizes. If you would like to enter the draw, please provide your:

Name: _____

Phone number: _____

e-mail address: _____






All survey responses will remain confidential.

Purpose of Indicators

As a partner in sustainability, how would you use the results of the sustainability indicator monitoring (please explain your role if relevant)?

The Indicators

For each of the 40 sustainability indicators shown in the workbook, please answer the following questions.

Questions:		
	Will this indicator result in useful information for tracking and enhancing sustainability over time?	Would you suggest an alternative indicator to the one presented?
<p>1 Waste Diverted from Landfills</p>  <p>Direction 1 : Understanding Sustainability</p>	<p>1a) 1 2 3 4 <small>(Not at all) please circle (Completely)</small> Comments: _____ _____ _____ _____</p>	<p>1b) Yes No <small>please circle</small> If so, please describe it: _____ _____ _____ _____</p>
<p>2 Water Consumption</p> 	<p>2a) 1 2 3 4 <small>(Not at all) please circle (Completely)</small> Comments: _____ _____ _____ _____</p>	<p>2b) Yes No <small>please circle</small> If so, please describe it: _____ _____ _____ _____</p>
<p>3 Adoption of Regional Growth Strategy</p> 	<p>3a) 1 2 3 4 <small>(Not at all) please circle (Completely)</small> Comments: _____ _____ _____ _____</p>	<p>3b) Yes No <small>please circle</small> If so, please describe it: _____ _____ _____ _____</p>
<p>4 Newspaper Circulation Rates</p> 	<p>4a) 1 2 3 4 <small>(Not at all) please circle (Completely)</small> Comments: _____ _____ _____ _____</p>	<p>4b) Yes No <small>please circle</small> If so, please describe it: _____ _____ _____ _____</p>
<p>5 Internet Access</p> 	<p>5a) 1 2 3 4 <small>(Not at all) please circle (Completely)</small> Comments: _____ _____ _____ _____</p>	<p>5b) Yes No <small>please circle</small> If so, please describe it: _____ _____ _____ _____</p>

Questions:

Will this indicator result in useful information for tracking and enhancing sustainability over time?

Would you suggest an alternative indicator to the one presented?

6 Level of Education Attained



6a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

6b) Yes No please circle

If so, please describe it:

7 Water Quality Index



7a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

7b) Yes No please circle

If so, please describe it:

8 Status of Fraser River Sockeye



8a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

8b) Yes No please circle

If so, please describe it:

9 Salmonid Stock at Risk



9a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

9b) Yes No please circle

If so, please describe it:

10 Number of Species at Risk



10a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

10b) Yes No please circle

If so, please describe it:

Questions:

Will this indicator result in useful information for tracking and enhancing sustainability over time?

Would you suggest an alternative indicator to the one presented?

11 Toxic Contaminants in Wildlife



11a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

11b) Yes No please circle

If so, please describe it:

12 Age & Species Composition of Forests



12a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

12b) Yes No please circle

If so, please describe it:

13 Sustainable Farm Practices



13a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

13b) Yes No please circle

If so, please describe it:

14 Access to Parks



14a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

14b) Yes No please circle

If so, please describe it:

15 Park Use



15a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

15b) Yes No please circle

If so, please describe it:

Questions:

Will this indicator result in useful information for tracking and enhancing sustainability over time?

Would you suggest an alternative indicator to the one presented?

16 Contaminated Mine Sites



16a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

16b) Yes No please circle

If so, please describe it:

17 Non-Compliance in Mining Sector



17a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

17b) Yes No please circle

If so, please describe it:

18 Alternative and Total Energy Consumption



18a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

18b) Yes No please circle

If so, please describe it:

19 Fine Particulate Levels (pm10)



19a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

19b) Yes No please circle

If so, please describe it:

20 Greenhouse Gas Emissions



20a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

20b) Yes No please circle

If so, please describe it:


Questions:

Will this indicator result in useful information for tracking and enhancing sustainability over time?

Would you suggest an alternative indicator to the one presented?

21 **Income Rates Families/ Households**

Direction 3 :
Strengthening Communities



21a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

21b) Yes No please circle

If so, please describe it:

22 **Crime Rates**



22a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

22b) Yes No please circle

If so, please describe it:

23 **Morbidity Rates**




23a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

23b) Yes No please circle

If so, please describe it:

24 **Mortality Rates**



24a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

24b) Yes No please circle

If so, please describe it:

25 **Volunteerism Rates**



25a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

25b) Yes No please circle

If so, please describe it:

Questions:

Will this indicator result in useful information for tracking and enhancing sustainability over time?

Would you suggest an alternative indicator to the one presented?

26 Charitable Donations



26a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

26b) Yes No please circle

If so, please describe it:

27 Aboriginal Employment Rates



27a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

27b) Yes No please circle

If so, please describe it:

28 Population in Growth Concentration Areas



28a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

28b) Yes No please circle

If so, please describe it:

29 Employment in Growth Concentration Areas



29a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

29b) Yes No please circle

If so, please describe it:

30 Public Transit Ridership



30a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

30b) Yes No please circle

If so, please describe it:

Questions:

Will this indicator result in useful information for tracking and enhancing sustainability over time?

Would you suggest an alternative indicator to the one presented?

31 Vehicle Ownership



31a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

31b) Yes No please circle

If so, please describe it:

32 Investment in Public Assets



32a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

32b) Yes No please circle

If so, please describe it:

33 Economic Diversity Index



33a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

33b) Yes No please circle

If so, please describe it:

34 Jobs by Sector



34a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

34b) Yes No please circle

If so, please describe it:

35 Interim Agreements with First Nations



35a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

35b) Yes No please circle

If so, please describe it:

Questions:

Will this indicator result in useful information for tracking and enhancing sustainability over time?

Would you suggest an alternative indicator to the one presented?

36 First Nations in the BCTC Process



36a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

36b) Yes No please circle

If so, please describe it:

37 Voter Turnout Rates



37a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

37b) Yes No please circle

If so, please describe it:

38 Elected Officials' Reflection of Population



38a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

38b) Yes No please circle

If so, please describe it:

39 Complaints to the Ombudsman



39a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

39b) Yes No please circle

If so, please describe it:

40 Access to Information Reviews



40a) 1 2 3 4
(Not at all) please circle (Completely)

Comments: _____

40b) Yes No please circle

If so, please describe it:

Final Questions

- 1 Do you think this set of indicators covers the bases by addressing the Charter for Sustainability's four strategic directions (understanding sustainability, caring for ecosystems, strengthening communities, and improving decision making)?

Yes No please circle

Comments:

- 2 What information is not being collected today that could be helpful in assessing progress toward sustainability?

- 3 In total, how many indicators should we track over time?

- 5 - 10
 11 - 20
 21 - 30
 more than 30
 other (please specify) _____

- 4 How often should the Fraser Basin Council monitor and report on the full set of indicators?

- every year
 every 3 years
 every 5 years
 other (please specify) _____

- 5 In which of the five Fraser Basin regions do you live?

- Upper Fraser
 Cariboo-Chilcotin
 Thompson
 Greater Vancouver, Squamish, Pemberton
 Fraser Valley
 Not sure (please indicate community) _____
 Outside Basin (please indicate community) _____

- 6 Please indicate your affiliation (check one)

- Government:
 Federal
 Provincial
 Regional
 Local
 First Nations
- Non- Government Organization:
 Environment
 Other _____
- Private Sector
 Academic/Student
 Basin Resident
 Other (please indicate) _____

Thank You for Your Input