

## REPORT

# Similkameen Valley Planning Society & Regional District of Okanagan Similkameen

## SIMILKAMEEN WATERSHED PLAN Version 1.1



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## Foreword to Version 1.1

The Similkameen Valley Planning Society, with the Regional District of Okanagan Similkameen (RDOS), is in the process of developing a non-regulatory Similkameen Watershed Plan (SWP) to guide land and water use decisions. The intention is to develop a watershed plan through collaboration with local First Nations. This initial draft (Version 1.1) of the SWP was prepared in advance of the finalized agreement between the RDOS and the Lower Similkameen Indian Band (LSIB). At the time of writing, the Letter of Agreement to support cooperative watershed planning between these parties was not finalized, based on the understanding that LSIB is developing a framework for water law and governance in collaboration with the Indigenous Law Research Unit at the University of Victoria<sup>1</sup>. However, Version 1.1 of the SWP goals, strategies, and actions reflect the current understanding of the *draft* agreement between the LSIB and RDOS, and the Syilx Water Declaration (Okanagan Nation Alliance 2014), which was appended to the draft Letter of Agreement. In the draft Letter of Agreement under Guiding Principles, a stated common purpose is:

*“the Parties agree that Watershed Planning should foremost be protective of the water, all people, other animals and plants in the Similkameen Valley and by supporting a sustainable economy.”*

Once the Letter of Agreement is finalized, Version 1.1 of the SWP will be revised to incorporate the values, rights, and interests of the LSIB.

## Mission and Purpose

The terms of reference (TOR) for the SWP was developed in consultation with stakeholders (SVPS 2012). The mission statement for the SWP as stated in the TOR is: *The Similkameen Watershed Plan will provide the long-term direction and actions necessary to achieve its overall mission, to preserve and protect the quality and health of the Similkameen Watershed.*

The purpose of the SWP is to provide guidance regarding water resources in the watershed to all watershed stakeholders, decision-making authorities, natural resource managers, commercial water users, as well as agricultural, industrial, forestry, and recreational/tourism sectors and watershed residents (SVPS 2012). Once finalized, the plan will provide a solid understanding of the aspects that contribute to the health of the watershed, and link these with the watershed’s economic and social priorities. The SWP will help to plan towards the following:

- Balance water supply and demand today and in the future
- Protect the ecological function of the watershed
- Increase the understanding of the watershed and issues associated with it, and
- Promote an ethic of water conservation throughout the watershed.

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<sup>1</sup> <http://www.uvic.ca/law/about/indigenous/indigenoulawresearchunit/>

## Executive Summary

The Similkameen Valley Planning Society (SVPS), with the Regional District of Okanagan Similkameen (RDOS), is developing the **Similkameen Watershed Plan** (SWP) to guide water and land use management decisions in the Canadian portion of the watershed. The mission statement for the SWP as stated in the 2012 terms of reference is:

*The Similkameen Watershed Plan will provide the long-term direction and actions necessary to achieve its overall mission, **to preserve and protect the quality and health of the Similkameen Watershed.***

The purpose of this draft plan is to provide guidance regarding water resources in the watershed to all decision-making authorities, natural resource managers, commercial water users, as well as agricultural, industrial, forestry, and recreational/tourism sectors and watershed residents. It is a non-regulatory plan, intended to be integrated into other local planning documents, bylaws, policies, and best management practices.

Between 2013 and 2016, several technical studies were completed to support plan development. Phase 1 (2014) included a searchable information database (the *Similkameen Watershed Information Database*, or SWID), a summary of what is known about the watershed, and a list of technical studies recommended to support the planning process. Three of the high-priority studies were addressed in Phase 2: surface water availability and projected future water use, water quality status and trends, and a groundwater-surface water interaction study. Phase 3, completed in 2017, included assessing groundwater use by agriculture and estimating future groundwater demand. It also included a preliminary assessment of groundwater quality, and recommendations for agricultural groundwater management.

The people of the Similkameen Valley are acutely aware of the importance of water, and of its role in the ecological, economic, and cultural life in the valley, and have expressed concern about how climate change and social-economic trends could affect water and the values and services it provides. Over the course of the SWP development, several key issues and challenges have been identified through community discussions and the technical investigations (Section 2.4 of main document). While some of the issues and management challenges have existed for many years, the future prospect of a changing climate is driving many of the challenges that are to be addressed by the SWP.

The six components considered in this draft plan are: water supply and demand, water quality, ecosystem protection and restoration, climate change adaptation and mitigation, water contingency planning and response, and community outreach and consultation. The planning measures are presented in a three-level hierarchy; goals (one for each of the six components), strategies, and actions. The **draft** goals and strategies of the Similkameen Watershed Plan are:

**GOAL STATEMENT 1 – Water Supply (WS):** Long-term sustainability of water supply for human uses and economic development will be achieved by management of both water supply and water demand, considering Indigenous perspectives and the needs of aquatic ecosystems.

- **Strategy WS1** – Promote an ethic of water stewardship and conservation to all sectors and support drought management planning
- **Strategy WS2** – Use scientific and traditional Indigenous information to make informed decisions for sustainable water management, and be at the forefront of new water supply information/policies
- **Strategy WS3** – Monitor trends in streamflow and groundwater levels to support water management decision-making
- **Strategy WS4** – Expand knowledge on water supply and demand in the Similkameen Watershed and address data gaps to improve decision-making

**GOAL STATEMENT 2 – Water Quality (WQ):** Protect water quality (surface water and groundwater) to minimize risks to human health and protect the ecological function of the Similkameen Watershed.

- **Strategy WQ1** – Industry and government will commit to water quality protection practices that meet or exceed regulations and currently accepted best practices, and reflect the unique characteristics of the Similkameen Watershed
- **Strategy WQ2** – Control non-point source pollution through a combination of regulatory and non-regulatory tools
- **Strategy WQ3** – Monitor water quality to assess trends and potential threats
- **Strategy WQ4** – Expand knowledge on water quality in the Similkameen Watershed and address data gaps to improve decision-making

**GOAL STATEMENT 3 – Ecosystem Protection and Restoration (EPR):** Protect and rehabilitate the aquatic, wetland, and riparian ecosystems in the Similkameen Watershed.

- **Strategy EPR1** – Protect riparian and wetland areas
- **Strategy EPR2** – Restore high priority riparian areas and wetlands
- **Strategy EPR3** – Protect and enhance aquatic habitat

**GOAL STATEMENT 4 – Climate Change Adaptation & Mitigation (CC):** Human and natural systems in the Similkameen Watershed will become more resilient to climate change, and climate change mitigation and adaptation policies and procedures will be used in land and water use decision-making.

- **Strategy CC1** – Mitigation: Implement policies and plans that reduce greenhouse gas emissions and promote carbon sequestration
- **Strategy CC2** – Adaptation: Understand the risks (and the components of risk) to natural and built environments from climate change, and develop appropriate responses

**GOAL STATEMENT 5 – Water Contingency Planning (E):** The Similkameen Valley will become more resilient to drought, floods, and environmental emergencies by developing appropriate risk management and response plans.

- **Strategy E1** – Prepare for drought conditions on a watershed scale by helping local water systems develop plans and assessing economic impacts of drought
- **Strategy E2** – Identify areas at high risk for flooding and undertake steps to reduce risk and mitigate impacts through planning
- **Strategy E3** – Ensure that emergency response planning throughout the watershed has a unified approach with efficient and clear lines of communication
- **Strategy E4** – Flood and drought risk reduction strategies will include wetland and riparian area conservation and restoration

**GOAL STATEMENT 6 – *Community Outreach and Consultation*: Increase understanding and support for watershed management measures and encourage public engagement by providing important information to stakeholders, decision makers, and the public in an effective and timely manner.**

- **Strategy C1** – Build community awareness for the importance of watershed sustainability and improve understanding of the ecological functioning of the watershed
- **Strategy C2** – Promote open and effective communication between agencies that are responsible for watershed and land use management
- **Strategy C3** – Provide the Similkameen community with regular updates on the status of SWP strategies and actions

SWP implementation will rely on a governance structure that will reflect the unique biophysical, historical, cultural, and economic nature of the Similkameen Watershed. In recent years, water governance in western Canada is shifting from a top-down approach to becoming more inclusive and collaborative, and more respectful of the rights and interests of Indigenous peoples. Local agencies and First Nations are requesting and demanding a stronger role in watershed governance. Section 4.4 outlines a set of draft governance principles for the SWP. Further engagement with the Similkameen community will take place to refine these principles and select the governance structure. Based on experience elsewhere in BC, dedicated staffing (e.g. a watershed coordinator) will be needed to enable successful implementation of the SWP.

The Similkameen Watershed Plan is intended to be a “living document”, one that is regularly updated to adapt to new or changing watershed management issues and needs. A watershed and the communities within it are dynamic, changing over time. Given the on-going *Water Sustainability Act* roll-out in the next few years, the first review and update of the SWP should be completed in the fall of 2019 to capture the regulatory changes. Subsequent updates, with new “State of the Watershed” reporting, would be completed every five years. The periodic reviews should include an evaluation of the effectiveness of the SWP in achieving water sustainability in the Similkameen watershed.

## Acknowledgements

This **draft** (Version 1.1) of the Similkameen Watershed Plan was prepared by Associated Environmental Consultants Inc. on behalf of the Similkameen Valley Planning Society, under the direction of the Regional District of Okanagan Similkameen.

Funding for this project includes grants from the Federal Gas Tax Fund in British Columbia, the Investment Agriculture Foundation of BC, and the Regional District of Okanagan Similkameen. The Agricultural Water Demand Model that was used to estimate future water demand was developed by Agriculture and Agri-Food Canada and the BC Ministry of Agriculture. Data outputs from modelling completed by Agriculture and Agri-Food Canada was generously made available for use on this project by Dr. Denise Nielsen.

Associated Environmental thanks the landowners who provided access to their wells for the groundwater sampling program, and to the individuals and agencies who provided reports and other information.

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## List of Abbreviations

Abbreviation	Meaning
AAFC	Agriculture and Agri-Food Canada
ALR	Agricultural Land Reserve
ALUI	Agricultural Land Use Inventory
AWDM	Agricultural Water Demand Model
AWSC	Available water storage capacity
CECA	Cumulative equivalent clear-cut area
COABC	Certified Organic Associations of British Columbia
CV	Coefficient of variation
ECA	Equivalent clear-cut area
EMS	Environmental Monitoring System
ESM	Earth System Model
GCM	General Circulation Model
GHG	Greenhouse gas
IWD	Irrigation water demand
GWPR	Groundwater Protection Regulation
LSIB	Lower Similkameen Indian Band
MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOE	Ministry of Environment
MPB	Mountain pine beetle
PARC	Pacific Agricultural Research Centre (Summerland)

**Similkameen Valley Planning Society &  
Regional District of Okanagan Similkameen**

<b>Abbreviation</b>	<b>Meaning</b>
RCPs	Representative Concentration Pathways
RDOS	Regional District of Okanagan Similkameen
SAR	Sodium Adsorption Ratio
SVPS	Similkameen Valley Planning Society
SWE	Snow water equivalent
SWID	Similkameen Watershed Information Database
SWP	Similkameen Watershed Plan
TDS	Total dissolved solids
UBCO	University of British Columbia Okanagan
U.S. or USA	United States of America
USIB	Upper Similkameen Indian Band
WSA	<i>Water Sustainability Act</i>

## 1 Introduction

### 1.1 BACKGROUND, MISSION, AND PURPOSE OF THE SIMILKAMEEN WATERSHED PLAN

The Similkameen River watershed is located in the Southern Interior of British Columbia, between the Coast Range Mountains and the Okanagan Valley, within the Columbia River watershed. The Similkameen is an international river; most of the watershed area of 9,270 square kilometres is in Canada (82%), but a portion of the headwaters and the lowest reach are in the United States (18%) (Figure 1-1). The Similkameen River and its tributaries are highly valued by the residents of the Similkameen Valley, and water is critical to the cultural, ecological, and economic ways of life in the watershed.

Recognizing these values, the Similkameen Valley Planning Society (SVPS)<sup>2</sup>, with the Regional District of Okanagan Similkameen (RDOS), began work on the development of the **Similkameen Watershed Plan** (SWP or “the Plan”) to guide water and land use management decisions in the Canadian portion of the watershed. The need for the SWP was identified in the SVPS’s Strategy for a Sustainable Similkameen Valley, 2011-2020 that called for improvements to water management including the ability to adapt to climate change. The terms of reference (TOR) for the SWP was developed in consultation with stakeholders (SVPS 2012). The mission statement for the SWP as stated in the TOR is:

*The Similkameen Watershed Plan will provide the long-term direction and actions necessary to achieve its overall mission, **to preserve and protect the quality and health of the Similkameen Watershed.***

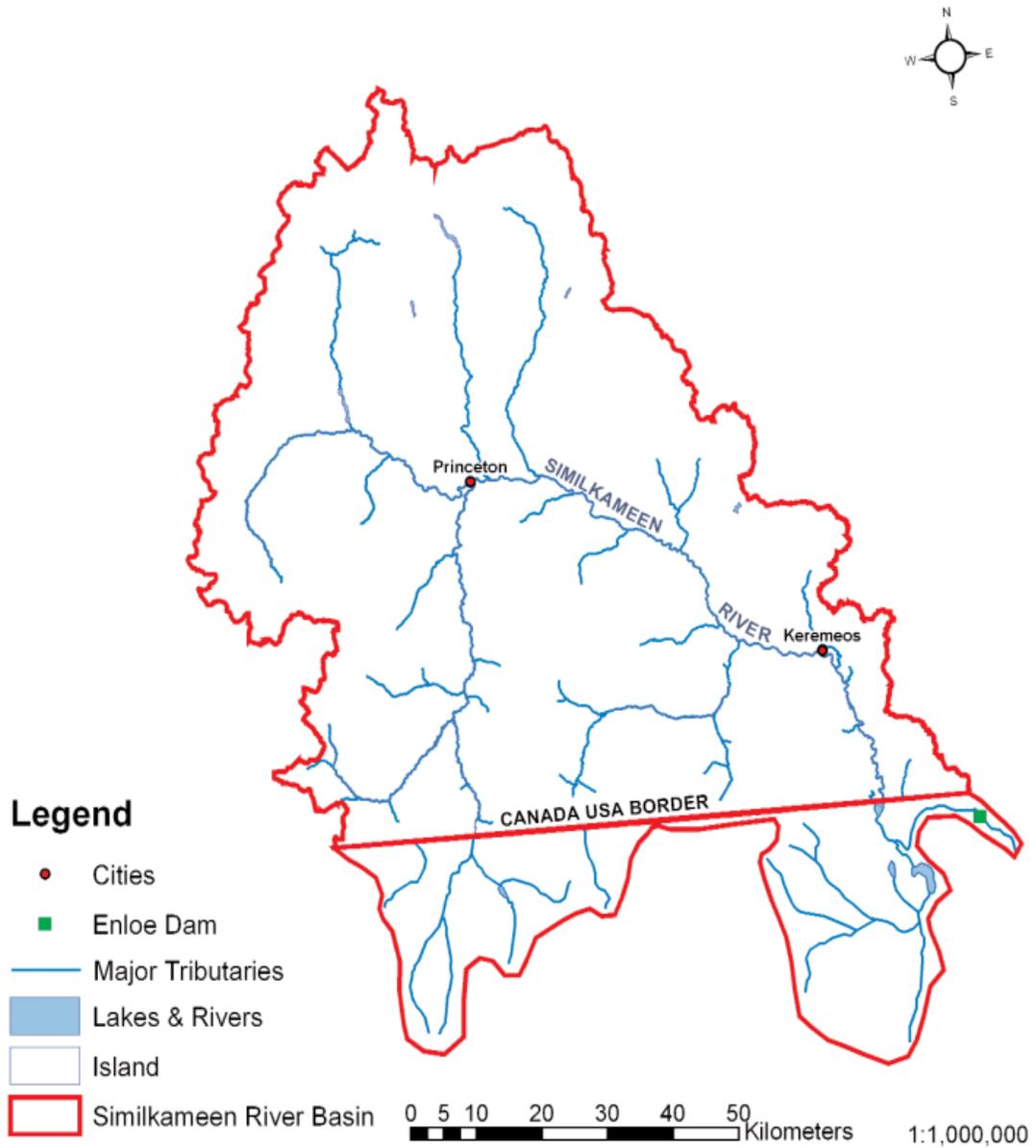
The purpose of this Plan is to provide guidance regarding water resources in the watershed to all watershed stakeholders, decision-making authorities, natural resource managers, commercial water users, First Nations, as well as agricultural, industrial, forestry, and recreational/tourism sectors and watershed residents (SVPS 2012). The Plan is intended to provide a solid understanding of the biophysical factors that contribute to the health of the watershed, and link these with the watershed’s economic and social priorities. The SWP is intended to help:

- Balance water supply and demand today and in the future;
- Protect the ecological function of the watershed;
- Increase the understanding of the watershed and issues associated with it; and
- Promote and ethic of water conservation throughout the watershed.



The SWP is a **non-regulatory** plan that will serve as a **guidance document** for decision-making authorities, resource managers, water users, and residents to help make more informed and integrated decisions regarding the watershed (SVPS 2012). The SWP is intended to be integrated into other local planning documents, bylaws, policies, and best management practices, but does not commit agencies to

<sup>2</sup> The seven original members of the SVPS are the Village of Keremeos, the Town of Princeton, the Lower Similkameen Indian Band, the Upper Similkameen Indian Band, and Rural Areas B, G and H of the RDOS.



**Figure 1-1**  
**Map of the Similkameen River Watershed – The Plan Area**

actions that conflict with existing statutory requirements. Decision-making authority will remain distributed among local, First Nation, regional, provincial, and federal governments.

## **1.2 PLAN DEVELOPMENT PROCESS AND GOALS**

As noted above, in 2010, the SVPS completed the Strategy for a Sustainable Similkameen Valley, 2011-2020. One of the aims of the Strategy is to “improve water management significantly and integrate management into Valley-specific climate change.” As a first step towards that goal, the SVPS commissioned an initial assessment of the information base needed to develop a Watershed Management Plan, including recommendations for any new technical studies to address data gaps that could constrain the planning process. The Scoping Study, which was completed in 2011, included a review of available information, a summary of technical work completed in other jurisdictions for watershed planning, and recommendations for the next phases of plan development (Summit 2011).

The planning process began in 2011 and represented the start of the consultation process through creation of a Stakeholder Advisory Committee. With the committee’s input, and support from technical advisors, the SVPS and RDOS developed the TOR for the SWP. The TOR included 84 objectives divided among key areas including:

- water supply and demand,
- water quality,
- ecosystem protection and restoration,
- impacts of climate change and long-term sustainability,
- international waters,
- First Nations,
- communication and public consultation,
- contingency planning, and
- governance and authority for implementation and monitoring.

A series of collaborative, iterative steps were taken to get to the final plan development stage, including characterizing existing conditions, identifying issues, understanding options for change and for plan implementation. This was distilled into six key components of watershed planning, as presented in Section 3 of this document.

The Goals, Strategies, and Actions presented in this draft Plan are consistent with the principles laid out in the TOR, which are as follows:

- Emphasize the importance of the entire watershed and the interdependence of its components (linking aspects of water quality, water quantity, wetlands, riparian habitat, and biodiversity with the watershed’s economic and social priorities);
- Be collaborative – Stakeholders, Decision Makers, Technical Advisors, and Resource Managers will work together to complete the Plan, each partner sharing their organization’s expertise in various aspects of the watershed and committing to working together in decision making once the plan is in place (Decision Makers include local, regional, provincial and federal governments and First Nations);

- Be vetted through a public consultation process with the watershed community, Stakeholder Advisory Committee, Technical Advisors, and Decision Makers;
- Be an ongoing and adaptive plan that follows the cycle of: watershed characterization, planning, implementation, monitoring, and evaluation;
- Support the assessment of the feasibility of new economic development in the watershed, while at the same time protecting and rehabilitating the valley's environmental and natural resource health;
- Working collaboratively with local First Nations over shared interests/concerns;
- Provide a framework for:
  - completing information and technical data gaps learning more about the watershed system and water issues;
  - protecting the ecological function of the system;
  - balancing water supply and use;
  - increasing the understanding of the watershed system and water issues;
  - building broad public understanding and support for the Plan;
  - promoting an ethic of water conservation throughout the watershed;
  - addressing climate change; and
  - addressing international watershed issues and concerns.

The overarching **core principle** for plan development is that the SWP will incorporate Syilx water stewardship principles and practices (Section 2.1).

### **1.3 SCIENTIFIC AND TECHNICAL WORK – PHASES 1, 2, AND 3**

Between 2013 and 2016, several technical studies were completed to address data gaps identified by the Scoping Study and in the TOR. **Phase 1**, completed in 2014, included a searchable information database (the *Similkameen Watershed Information Database*, or SWID), a summary of what is known about the watershed, and a priority-ranked list of recommended technical studies needed to support the planning process (Summit 2014). Three of the high-priority studies were addressed in **Phase 2**, as follows:

1. an assessment of surface water availability and projected future water use;
2. a surface water study to determine whether the quality of the Similkameen River is changing over time; and
3. a groundwater-surface water interaction study to determine whether groundwater pumping is affecting streamflows in the watershed.

**Phase 3**, which was completed in early 2017, included assessing groundwater use by agriculture and estimating future groundwater demand through interviews with growers and farmers in the watershed. It also included a preliminary assessment of groundwater quality, and recommendations for agricultural groundwater management (Associated 2017).

Other recent relevant studies include an assessment of the effects of forest disturbance and climate variability on streamflows in the Similkameen watershed (Wei and Li 2016) and development of a monthly water budget for the Similkameen Valley to support the Ministry of Environment's groundwater licensing

allocation decisions (Associated 2016). **Appendix A** provides brief summaries of the key technical studies completed since 2010 to support the Plan.

The Version 1.1 SWP has been developed using the scientific and technical information provided in these reports. The reports contain detailed descriptions of the watershed, summaries of the available information and key data gaps, and results of technical studies. The reports can be accessed on the RDOS website at the following link: <http://www.rdos.bc.ca/departments/public-works/similkameen-valley-watershed-study/>.

#### **1.4 COMMUNICATION WITH THE COMMUNITY**

Community engagement for the SWP began during the Strategy for a Sustainable Similkameen process where community members provided input on the strategy during several open houses and other public processes. Community interest in water supply, aquatic ecosystems, and climate change during development of that strategy was a key factor in the decision by the SVPS and RDOS to proceed with this Plan. The Plan TOR was then developed with the input of the local Stakeholder Advisory Committee.

Presentations on the findings of the Phase 1 and Phase 2 technical studies took place on several occasions between 2013 and 2016. These presentations included public events in Keremeos and Princeton in April 2016, at the South Okanagan Community to Community (C2C) Forum in 2015, the Keremeos Village Council in December 2015 (open to the public), and the RDOS Board in spring 2016. The RDOS and the consulting team had a booth at the Lower Similkameen Indian Band (LSIB) open house in fall 2016, and spoke with Chief Keith Crow, LSIB staff members, and community members about the SWP during the event.

The draft will also be posted on the RDOS website with an invitation for comment before the SWP is finalized.

#### **1.5 STRUCTURE AND ORGANIZATION OF THE WATERSHED PLAN**

This draft SWP is organized as follows:

- Section 2 provides a brief description of the biophysical, historical, and socio-community background to the Plan.
- Section 3 establishes the **goals, strategies, and actions** for the six components addressed by the Plan:
  - water supply and demand;
  - water quality;
  - ecosystem protection and restoration;
  - climate change adaptation and mitigation;
  - water contingency planning and response; and
  - community outreach and consultation.
- Section 4 describes a possible **governance framework** (draft) for implementing the SWP.

- Section 5 outlines the schedule for Plan implementation, including periodic review and update. The Plan is intended to be a living document that will be adapted as needed to address evolving water-related challenges.
- **Appendix A** provides a summary of the technical studies completed to support plan development.
- **Appendix B** is an overview of planning tools available to local governments in BC to enable water management and protection at a community scale.
- **Appendix C** provides a summary of governance models and regulatory requirements.

## 2 Importance of the Similkameen Watershed

### 2.1 INDIGENOUS PEOPLES' HISTORY AND PERSPECTIVES

**Important Note:** Discussions with the LSIB have been initiated regarding First Nations' rights and title and relationship with water. Once additional information is known, this section will be updated accordingly.

The Similkameen Watershed lies within the traditional territories of the Syilx peoples of the Lower Similkameen Indian Band (LSIB) and the Upper Similkameen Indian Band (USIB). The Syilx Water Declaration states: "Siwlk<sup>w</sup> (water) is part of us and part of all life. Siwlk<sup>w</sup> must be treated with reverence and respect. Our sacred siwlk<sup>w</sup> connects and sustains all life." (Okanagan Nation Alliance 2014).

### 2.2 WATERSHED BIOPHYSICAL AND SOCIO-ECONOMIC SETTING

A watershed is an area of land within which all the surface water drains to a common point at its downstream limit, such as the mouth of a stream or river. In the case of the Similkameen River, the downstream limit is the point where it meets the Okanogan River, south of Osoyoos, B.C. in Washington State. The downstream limit of the Similkameen River watershed in B.C. is located about 19 km south of Cawston, BC, about 35 km upstream from the mouth (Figure 1-1). Within the Canadian portion of the Similkameen River watershed, riparian areas and wetlands provide water storage and filtration functions that support water quantity and quality, and conversely these ecosystems require a reliable supply of water. From a socio-economic perspective, agriculture, industry, residents, and general economic growth are dependent on a reliable supply of clean water. A healthy and functioning watershed can help support that supply.

The Similkameen Watershed is located within both British Columbia and Washington State, and is a tributary of the Okanogan River, which in turn is a tributary of the Columbia River. The Similkameen River is about 196 km long and its watershed area is about 9,270 square kilometres, with 7,600 km<sup>2</sup> in BC (82%), and 1,670 km<sup>2</sup> in the United States (18%). The Similkameen Watershed Plan area is limited to the Canadian portion of the watershed.

The watershed is in the rain shadow of the Coast and Cascade Mountains; the western section is cooler and moister while the southeastern section is warmer and drier. The climate across the entire watershed varies, but it is generally characterized by warm summers and cooler winters with a relatively even distribution of precipitation throughout the year. The watershed is in the Southern Interior Eco-province of

BC and has considerable ecosystem diversity. Biogeoclimatic zones in the watershed include Bunchgrass (BG), Ponderosa Pine (PP), and Interior Douglas-fir (IDF) in the valley bottoms, Montane Spruce (MS) and Engelmann Spruce-Subalpine Fir (ESSF) at higher elevations, and Alpine Tundra (AT) at the mountain peaks (MacKillop and Ehman 2016).

Flows in the tributary and mainstem streams in the Similkameen Watershed are supplied mainly by snowmelt. Annual peak flows commonly occur during the period from May to July during snowmelt, with discharge at Similkameen River at Hedley ranging from typically less than 15 m<sup>3</sup>/s during winter to more than 275 m<sup>3</sup>/s during the spring snowmelt period. The portion of the Similkameen River flow from groundwater discharge (baseflow) ranges from 2 m<sup>3</sup>/s near the east boundary of Manning Park, to 6 m<sup>3</sup>/s above the Tulameen River confluence, to 10.5 m<sup>3</sup>/s near Hedley, and to 11 m<sup>3</sup>/s at Cawston, just north of the Canada-U.S. border (Summit 2014).

The watershed area is home to an estimated 10,000 full-time residents and 3,000 part-time residents, based on the 2016 census. Based on recent trends, the population is expected to remain similar, or increase slightly from people moving to the area because of the high quality natural environment, acceptable cost of living, and rural lifestyle. In 2011, Copper Mountain Mine near Princeton reopened, creating jobs, and in 2015 the projected mine life was 17 years<sup>3</sup>. Other key economic drivers in the valley include agriculture, tourism and recreation, and forestry.

There is a well-established agricultural sector in the Similkameen Valley, of which cattle ranching is the largest component, followed by tree fruit and grape production. In the semi-arid climate of the Similkameen Valley, agricultural producers rely on irrigation, which makes agriculture the largest water user in the region. The demand for water for agriculture is highest from July through October, when flows are naturally low. The spatial extent of agricultural production will likely increase slightly in the next 10 to 50 years, but is limited by the arable land available and the proximity of this land to water supply.

Currently, water supply and use challenges exist in the valley, and local agricultural producers anticipate these issues will continue to exist as they do now or with more frequency because of water demand and supply, which will be exacerbated due to climate change. For example, the average annual temperature is projected to increase by about 1.9°C by the 2050s, while summer precipitation (when irrigation demand is highest) will fall by 13% (PCIC 2017). This reduced summer precipitation may be partly offset by higher precipitation in other seasons, but the range of possible effects is still unknown because less of the winter precipitation will fall as snow compared to the current situation.

### **2.3 REGULATORY AND TRANSBOUNDARY CONTEXT**

The entire Similkameen Watershed lies in the traditional territories of the USIB and the LSIB. In the Similkameen Valley, several government jurisdictions play a role in developing, implementing, and enforcing water laws, bylaws, and policies. The watershed is under international (Canada/U.S.), federal, provincial, and local (RDOS, Rural Areas B, G, and H, Town of Princeton, Village of Keremeos, and

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<sup>3</sup> <https://www.cumtn.com/projects/copper-mountain-mine/summary/>

irrigation and improvement districts) jurisdiction. In the watershed, there are six irrigation and improvement districts that operate under the authority of the BC *Local Government Act*<sup>4</sup>, as well as several community water systems. The major Acts, Regulations, and Bylaws governing water use are outlined below in Section 4.

Like all rivers that cross the Canada-U.S. border, the Similkameen River is subject to the the 1909 Boundary Waters Treaty, which provides mechanisms for settling disputes. Although the Similkameen Valley is part of the Columbia River Watershed, there are no existing or proposed water management requirements for the Similkameen River in the Columbia River Treaty. In 2014, the Government of British Columbia announced that it would like to work with the Government of Canada to continue the Columbia River Treaty and seek improvements in negotiations with the United States (Province of British Columbia 2017). In 2016, the U.S. Department of State decided to proceed with negotiations to modernize the Treaty. The Columbia River Treaty Review Area does not include the Similkameen Watershed.

The only transboundary water instrument that specifically refers to the Similkameen River is the Order of the Osoyoos Lake Board of Control (established by the International Joint Commission [IJC] that manages the operation of Zosel Dam, which controls the level of Osoyoos Lake). Backwatering of the Okanagan River when the Similkameen River is in flood is one of the events that trigger a requirement for the dam operator to maintain specified lake levels. The Order does not compel any action by water licence holders within the Similkameen Watershed.

To summarize, there are no U.S. laws or international agreements that specify minimum flows at the Canada-U.S. border. However, if a major diversion was planned in Canada, it could result in an assessment by the IJC under the 1909 Boundary Waters Treaty. One of the potential benefits of the SWP is that it provides an overall framework for watershed management, and will aid discussions with the federal and state governments of the United States.

## **2.4 WATER SUSTAINABILITY CHALLENGES**

The people of the Similkameen Valley are acutely aware of the importance of water, and of its role in the ecological, economic, and cultural life in the valley, and have expressed concern about how climate change and social-economic trends could affect water and the values and services it provides. Over the course of Plan development, several key themes have emerged. Table 2-1 lists the key issues and challenges that have been identified through community discussions and the Phase 1, 2, and 3 technical investigations. While some of the issues and management challenges have existed for many years (e.g., irrigation demand in late summer, water quality related to mining), the future prospect of a changing climate is driving many of the challenges that are to be addressed by the SWP.

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<sup>4</sup> Cawston Irrigation District (CID), Fairview Heights Irrigation District (FHID), Keremeos Irrigation District (KID), Similkameen Improvement District (SID), Hedley Improvement District (HID), and Allison Lake Improvement District (ALID).

**Table 2-1  
Water management issues and challenges in the Similkameen Valley**

<b>Watershed Management Issue</b>	<b>Challenges</b>
Water supply for agriculture	Climate change effects could constrain the agricultural sector in the watershed and hurt the agricultural economy, and create the potential for conflict with other water users.
Environmental flow needs	The streamflows needed to support fisheries and other forms of aquatic life have yet to be set in the Similkameen Valley, creating uncertainty for planning for other uses.
Water quality for aquatic life	Water quality in the main Similkameen River is currently good, but there are several stresses on water quality that warrant attention. Little is known about current water quality and ecological health of lakes.
Fisheries	The Similkameen Watershed provides habitat for fish, which have ecological, recreational, and economic value. Fish populations are key indicators of watershed health, and may be sensitive to development and climate change.
Riparian function	Riparian and wetland ecosystems are dependent on a consistent water quality and supply, and they have the function of mitigating the impacts of drought, flooding, and poor water quality. They also support the biodiversity of the region. Forestry, industrial, agricultural, and urban development all have impacted these resources in the past, and have potential to do so in the future unless these activities are properly managed.
Flood hazard and risk	The frequency, timing, and severity of floods are all expected to change with climate change, but floodplain mapping is out of date.
Drought risk	The frequency and severity of droughts has and is likely to continue to increase with climate change.

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Watershed Management Issue	Challenges
Groundwater resources	The SWP technical studies and recent work by the BC Government have expanded knowledge of groundwater resources, but additional investigations of aquifer capacity and groundwater-surface water interaction are needed to determine how to sustainably manage groundwater.
Economic development	Uncertainty over water supply could constrain economic development. Conversely, insufficiently planned development may have unforeseen effects on water quantity and quality.
Governance and responsibility for water	Water and watershed planning is currently shared among multiple jurisdictions, with insufficient coordination.
Loss of local control over water resource management	Policies set by the federal or provincial governments may not consider the unique attributes of the Similkameen Watershed. In addition, water supply and aquatic habitat could be affected by decisions made in the United States or through international agreements.
Regulatory uncertainty	The regulations under the <i>Water Sustainability Act</i> are relatively new, and additional regulatory tools are still in development.
Uncertainty over the magnitude and timing of climate change	The climate is changing, and the hydrology of the Similkameen watershed is changing with it. However, there is uncertainty over the magnitude and rate of hydrological change.

### 3 Water Planning Direction and Actions

This section describes how watershed and water sustainability challenges will be addressed by the SWP. The six components considered in this draft plan are: water supply and demand, water quality, ecosystem protection and restoration, climate change adaptation and mitigation, water contingency planning and response, and community outreach and consultation. The planning measures are presented in a three-level hierarchy:

- **Goal statements** are based on the purpose of the plan, which is to provide long-term direction and actions necessary to achieve its overall mission, *to preserve and protect the quality and health of the Similkameen Watershed*. Goal statements are presented for the six components of watershed management in Sections 3.1 to 3.6, based on the terms of reference for the SWP set by the SVPS.
- **Strategies** are high-level directives to work towards achieving goals, and provide context for actions.
- **Actions** are measurable tasks that can be assigned to specific government agencies or working groups. Specific responsibilities are to be determined after the governance structure for plan implementation has been set (Section 4).

Figure 3-1 illustrates the linkages between the Goal Statements, Strategies and Actions.



Figure 3-1  
Relationship of Planning Goals, Strategies and Actions

### **3.1 WATER SUPPLY AND DEMAND**

#### **3.1.1 Key Issues and Goal Statement**

Residents, farms, and businesses in the Similkameen Watershed use groundwater and surface water for irrigation, domestic, livestock watering, industry, storage, and recreation purposes. Water use is highest in the valley bottom, where most agricultural land is found and most people reside. A key concern identified from stakeholder input early in the planning process is that current water use may not be sustainable with future economic and population growth and climate change. Subsequent studies (Phase 2) based on existing conditions suggested that the Keremeos Creek and Allison Creek sub-basins are at highest risk for inadequate water supply, followed by the reach of the Similkameen River between Keremeos and the International Border. The other tributaries and reaches of the main river were determined to have a lower risk of insufficient water based on current land use.

Future water availability, considering climate change and anticipated trends in the agricultural sector, was also assessed in Phases 2 and 3. Key findings from those studies include the following:

- Currently, water use challenges exist in the valley, and local producers anticipate these issues will continue in the future due to increased pressures on water supplies.
- Based on research and input from local agricultural producers, reduced pressure on water supply is possible through conservation practices and more efficient water use by agricultural operations. However, future projections indicate that the combination of reduced streamflows from mid-July through September and increased agricultural demand (because of warmer temperatures, less summer precipitation, and a longer growing season) could significantly constrain surface water supplies.
- There are good estimates of the volume of water used by water suppliers in the watershed, but less is known about water use in areas that are not serviced by a water utility.

Prior to 2016, only surface water use was regulated in BC, and little was known about groundwater use. With the new *Water Sustainability Act*, groundwater users<sup>5</sup> now require a water licence. Groundwater and surface water in the valley are connected, and groundwater pumping of aquifers that are hydraulically connected to streams can reduce the amount of available surface water and groundwater. Therefore, groundwater and surface water should be valued and managed as a single resource in the Similkameen Watershed.

Balancing water supply and use while considering the effects of future climate change, the role of water in land use and economic development, and the protection of the ecological functions provided by water relies on good scientific, socio-economic, and governance information.

**GOAL STATEMENT 1: Long-term sustainability of water supply for human uses and economic development will be achieved by management of both water supply and water demand, considering Indigenous perspectives and the needs of aquatic ecosystems.**

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<sup>5</sup> Licenses are now required for all groundwater users except domestic water users extracting 2,000 L/day or less.

### 3.1.2 Strategies and Actions

<b>Strategy WS1 – Promote an ethic of water stewardship and conservation to all sectors and support drought management planning</b>	
Action WS1a	Promote irrigation efficiency in agriculture through a mixture of technology and best management practices. A cost-benefit analysis of water conservation improvements will be completed as an initial step in determining how such a program would be implemented.
Action WS1b	Promote efficient water use and conservation throughout the watershed to non-agricultural sectors through communication and outreach. The Official Community Plans and bylaws of the local governments in the watershed will include measures to conserve water.
Action WS1c	Collaborate with the BC Agriculture & Food Climate Action Initiative to develop a Similkameen-specific <i>Farm Water Planning Toolkit</i> (i.e., farm specific planning for water management strategies). Make the toolkit available to all farms and ranches.
Action WS1d	Work with the OBWB to adapt the BC Water Use Reporting Centre tool to include the Similkameen watershed. The tool would be used to collect and report on water use by water suppliers and other large surface water and groundwater users. Expand the system, as needed, to incorporate other water users.
Action WS1e	Promote and support the development of drought management plans (including drought response plans) by the major water suppliers in the Similkameen watershed.
<b>Strategy WS2 – Use scientific and traditional Indigenous use information to make informed decisions for sustainable water management, and be at the forefront of new water supply information/policies</b>	
Action WS2a	Complete an Environmental Flow Needs (EFN) assessment on the mainstem and major tributaries within the Similkameen Watershed. Such an assessment will clarify the water available for withdrawal from surface water sources without risking or harming aquatic life and aquatic ecosystem function. Specific priority locations for setting EFN flow regimes shall be established as soon as possible. These should include the Keremeos Creek and Allison Creek sub-basins, and the lowest part of the Similkameen River downstream of the Keremeos Creek confluence. Other priority locations should be identified through engagement with Indigenous knowledge keepers and other fisheries specialists.
Action WS2b	To support the EFN study, investigate water use and surface water/groundwater interaction in the high priority sub-basins listed in WS2a. These areas have the highest concentration of wells, and effects of groundwater pumping on streamflows are not well understood.

Action WS2c	Work closely with the provincial, First Nation, and federal governments to harmonize information collection, storage, management, and dissemination to support decision-making for groundwater licensing under the <i>Water Sustainability Act</i> .
Action WS2d	Continue to use the Agricultural Land Use Inventory and the Agricultural Water Demand Model as a tool to assess current and future water use. Working with Agriculture and Agri-Food Canada (AAFC) and Ministry of Agriculture, update the inventory and model about every 5-7 years beginning in 2018 to ensure that land use information is up to date and that new climate change projections are included.
Action WS2e	Working with FLNRO, surface water and groundwater licences should be compiled in a readily accessible database (within the overall SWID <sup>6</sup> ) for use by utilities, water purveyors, water and fisheries managers, stakeholders, and the public; while managing confidentiality issues.
Action WS2f	Once the process of licensing existing groundwater wells is complete, confirm the status of existing surface water and groundwater licences through data analyses and interviews. The primary objective of this action is to improve the information base on water infrastructure, licensing, and use; which will lead to improved water allocation decisions and management.
Action WS2g	All proposals for groundwater extraction that would require a licence under the WSA shall be supported by a Technical Assessment where applicable under the provincial guidelines. The technical assessments must consider potential effects on surface water and effects on other water uses and values. All the resulting technical assessment reports will be collected into SWID.
<b>Strategy WS3 – Monitor trends in streamflow and groundwater levels to support water management decision making</b>	
Action WS3a	Proactively engage with federal agencies (Water Survey of Canada, International Joint Commission) to confirm the importance of ongoing monitoring and to determine long-term streamflow monitoring plans, and identify target sites for additional monitoring. The priority additional sites identified in the technical studies are: 1) Similkameen River at the Canada-U.S. border to document cross-border flows, 2) Keremeos Creek to enable monitoring of this sensitive area, 3) Similkameen River at Keremeos Creek (reactivation), and 4) Allison and/or Hayes Creeks.
Action WS3b	Work with the province to augment the provincial Observation Well Network (specifically, re-activate the discontinued Observation Well in Princeton) and continue to monitor groundwater levels in the wells. In future, if large groundwater withdrawals are planned

<sup>6</sup> Similkameen Watershed Information Database (SWID).

	for aquifers where an observation well is not located, meet with the Province to discuss installing an observation well.
Action WS3c	Develop a watershed-specific Similkameen Integrated Hydrometric Data System (SIHDS) as a data repository for storing, managing, and disseminating streamflow information obtained by various agencies and private firms in the watershed. It can be based on the IHDS developed by the OBWB for the Okanagan and linked to SWID.
Action WS3d	To augment the provincial Observation Well Network, look for opportunities to monitor water levels in new higher capacity wells (e.g., 6 inches in diameter or larger) by installing automated water level recorders or sounding tubes (for manual readings). In addition to adding to the database of water levels and well capacity, this will enable an improved understanding of groundwater-surface water interaction.
<b>Strategy WS4 – Expand knowledge on water supply and demand in the Similkameen Watershed and address data gaps to improve decision-making</b>	
Action WS4a	Evaluate options for water storage and water supply redundancy to prepare for drought years when groundwater and surface water extraction could be constrained. This should be considered at all spatial scales, from the farm to the watershed, and begin with a desktop assessment of existing and previous dam locations, and sites with storage licences.
Action WS4b	Complete a detailed surface water-groundwater interaction assessment within the Keremeos Creek sub-basin and enable ongoing monitoring. Keremeos Creek has documented occurrences of zero flows and fish kills near its mouth, and experiences notable water demand pressures. The study will likely require installation of a new observation well and hydrometric station in the lower portion of the Keremeos Creek sub-basin.
Action WS4c	Work with the provincial government to complete more detailed mapping of Aquifer #259 to improve understanding of spatial variations in aquifer characteristics. This will enable water to be managed at a more practical scale and help stakeholders and the public better understand groundwater resources.
Action WS4d	Update the water availability and risk review (Phase 2 – Water Availability Study) with new water use information as it becomes available (specifically BC groundwater licensing information, water use in the U.S. portion of the watershed, and water rights data).
Action WS4e	Periodically assess trends in groundwater levels in the Provincial Observation Well Network to determine whether groundwater levels are increasing, declining, or remaining steady.

## **3.2 WATER QUALITY**

### **3.2.1 Key Issues and Goal Statement**

Previous studies have indicated that the water quality of both groundwater and surface water is relatively good, with few parameters exceeding relevant guidelines. While the quality of the Similkameen River at Princeton and near the international border is well understood, less information is available for tributaries and lakes. Groundwater quality was assessed at select locations along the Similkameen Valley in 2016, but there are little historical data for comparison.

Groundwater and surface water throughout the Similkameen Watershed is used for drinking, irrigation, livestock watering, industry, and recreational activities, and surface water supports aquatic and terrestrial plants and animals in the region. Having a reliable source of clean water is vital to protect human health, the ecological function of the watershed, and the local economy (tourism and agriculture).

Managing water quality presents several challenges. Contamination can arise from point sources (i.e., single, identifiable locations) or cumulatively from non-point sources (i.e., multiple diffuse sources over an area). Detecting contamination requires continuous monitoring, and remediating contamination is difficult. The best approach is to take actions to reduce the likelihood of contamination and increase awareness of preventative measures. Some key concerns for water quality in the Similkameen Watershed are:

- Agriculture is prevalent throughout the watershed and can be a significant non-point source of contaminants such as nutrients (e.g., nitrogen and phosphorus) from fertilizers and animal manure.
- Other non-point sources include improperly installed or maintained septic systems, old mine sites that are not actively managed, and stormwater from developed areas and transportation corridors.
- Point sources such as municipal wastewater systems and operating mines are regulated by the provincial and federal governments, and are individually operated to protect downstream water quality. However, the cumulative effect of point sources could become an issue if streamflows change in response to climate.

**GOAL STATEMENT 2: Protect water quality (surface water and groundwater) to minimize risks to human health and protect the ecological function of the Similkameen Watershed.**

**3.2.2 Strategies and Actions**

<b>Strategy WQ1 – Industry and government will commit to water quality protection practices that meet or exceed regulations and currently accepted best practices, and reflect the unique characteristics of the Similkameen Watershed</b>	
Action WQ1a	Maintain an up-to-date list of permits and authorizations for point-source discharges to the aquatic environment and to ground by industry, government, and commercial operations. House the list in SWID.
Action WQ1b	Develop Source Water Protection Plans for all community water systems (both surface water and groundwater sources) that do not yet have one completed. The plans shall be developed following the BC Source-to-Tap guidelines.
Action WQ1c	Compile information on identified risks to water supplies from the individual Source Water Protection Plans. Harmonize the protection and mitigation strategies to maintain consistency throughout the watershed.
Action WQ1d	Review existing emergency response plans and upgrade as necessary to reflect this commitment to high quality protection practices.
Action WQ1e	Compile available groundwater quality data from various sources (e.g., private, municipal, industry) into SWID.
<b>Strategy WQ2 – Control non-point source pollution through a combination of regulatory and non-regulatory tools</b>	
Action WQ2a	Promote best management practices for nutrient management in the agricultural sector. Work with agricultural associations on education and awareness of the potential impacts of agriculture on water quality. Promote implementation of Environmental Farm Plans and Nutrient Management Plans for farm and ranch operations.
Action WQ2b	Promote responsible pesticide use throughout the Similkameen Watershed. Include a pesticide scan in the analysis of water collected during late summer by the Canada-BC water quality monitoring program.
Action WQ2c	Promote and adopt best practices for on-site wastewater (septic) system design, operation, and maintenance. This will augment the requirements of the BC <i>Sewerage System Regulation</i> .
Action WQ2d	Work with the forest tenure holders in the watershed to promote and use best practices in forest harvesting, road planning, and operations. Encourage regular updates to Watershed Assessments to inform the Forest Stewardship Plans for

	sub-basins with streams that are fish-bearing and/or provide water for domestic use.
<b>Strategy WQ3 – Monitor water quality to assess trends and potential threats</b>	
Action WQ3a	Continue the Canada-British Columbia Water Quality Monitoring Program at the two existing stations on the Similkameen River. Work with Ministry of Environment and Environment Canada to complete detailed water quality status and trend assessment reports every five years beginning in 2020.
Action WQ3b	Once per year, review and summarize the monitoring data from the two Canada-BC surface water stations on the Similkameen River. Compare with provincial water quality guidelines and Similkameen River Water Quality Objectives. Prepare and publish a brief “Water Quality Update” report each year, written for a general audience.
Action WQ3c	Encourage the Government of British Columbia to increase the water quality sampling frequency at observation wells within the watershed to once per year, including at the discontinued observation well in Princeton. Include the results in the “Water Quality Updates” (WQ3b).
<b>Strategy WQ4 – Expand knowledge on water quality in the Similkameen Watershed and address data gaps to improve decision-making</b>	
Action WQ4a	Complete a one-time study on the health of tributaries and lakes throughout the watershed. Some lake inventory work was completed in the 1980s, but an update is needed.
Action WQ4b	To improve knowledge of groundwater quality throughout the watershed, develop a groundwater monitoring program in cooperation with the Province, which should retain responsibility for the Observation Well Network (Action WQ3c). Use the updated aquifer mapping from WS4c to inform program design.

### 3.3 ECOSYSTEM PROTECTION AND RESTORATION

#### 3.3.1 Key Issues and Goal Statement

The Similkameen Valley is part of a unique region of Canada, recognized provincially and nationally as a biodiversity “hotspot” for the richness and rarity of species and habitats, many of which are sensitive to human disturbance. A high proportion of the species and habitat in the valley are iconic to the Southern Interior, and are designated as at risk (i.e., endangered, threatened, or special concern) by the governments of BC and Canada.

Sensitive ecosystems include riparian, wetland, and aquatic habitat. They have been mapped for portions of the Similkameen watershed, but other areas remain unmapped. Riparian areas and wetlands function to store water, providing flood and drought resilience. They filter water and provide locally unique habitat, increasing the overall biodiversity of the region. The valley bottom riparian ecosystems stretch along extensive areas of low elevation valley and form corridors. There are four main wetland ecosystems in the Similkameen area: marshes, swamps, wet meadows, and shallow open water. Wetland and riparian habitat in the South Okanagan-Similkameen currently occupies approximately 4% of the land base (Summit 2014).

The sensitive ecosystems most affected by human development include grasslands, low elevation forests, wetlands, and riparian areas. Since the beginning of European settlement, there has been a long history of ranching, commercial orchard and field crop production, vineyard/winery operations, and rural home developments with the attendant stream and landscape changes, affecting wetlands and riparian areas. While about one-third of the cottonwood-dogwood floodplain vegetation area along various streams has been lost, there are many existing riparian deciduous forests, riparian meadows, and wetlands.

Aquatic habitat in the Similkameen Watershed is dependent on a high quality and reliable water supply, and riparian vegetation is an interconnected component of that habitat. The Similkameen River has always experienced relatively low fish productivity due to low nutrient levels, limited spawning habitat, low late-summer water flows, and anchor ice, which causes scouring of some creek and river beds in winter. Due to riparian vegetation removal along streams and rivers, fish habitat has been impacted by human land use, including urban and agricultural activities and forestry, railway, and highway development.

**GOAL STATEMENT 3: Protect and rehabilitate the aquatic, wetland, and riparian ecosystems in the Similkameen Watershed.**

### 3.3.2 Strategies and Actions

<b>Strategy EPR1 – Protect riparian and wetland areas</b>	
Action EPR1a	Identify and prioritize protection of riparian areas and wetlands based on the ecosystem and other services provided from these natural resources.
Action EPR1b	Establish a Wetlands and Riparian Working Group that includes LSIB, USIB, provincial agencies, the ranching community, forestry firms, and “at large” community members (Section 4 – Governance). The working group will develop and implement a riparian and wetland management and restoration strategy (also applies to Action EPR2a).
Action EPR1c	Work with local government to take an ecosystem-based approach to planning. Continue to use <i>Keeping Nature in Our Future: A Biodiversity Conservation Strategy for the South Okanagan-Similkameen</i> as a guiding document for planning.
Action EPR1d	As part of community outreach (Section 3.6), continue to provide information (e.g., website, community meetings) to increase the awareness of the importance of riparian areas and wetlands and their functions, and how to protect them.
Action EPR1e	Use Development Permits for Environmentally Significant Areas, or other land use planning tools that include wetlands, to avoid direct effects on wetlands and ensure that development that occurs near wetlands is appropriate.
Action EPR1f	Expand sensitive ecosystem mapping to include all the Similkameen Watershed, which will include wetlands and riparian areas.
<b>Strategy EPR2 – Restore high priority riparian areas and wetlands</b>	
Action EPR2a	As part of a riparian and wetland management strategy, identify riparian areas and wetlands that have been degraded or destroyed, and set priorities for restoration. This action will build on previous work done LSIB and others to restore riparian areas and wetlands.
Action EPR2b	Look for opportunities to collaborate with other initiatives to restore and create riparian areas and wetlands; for example, the National Conservation Plan and BC Wildlife Federation funding for wetland restoration, and Canadian Wildlife Service initiatives related to species at risk.
Action EPR2c	Incorporate wetland restoration and creation into the flood and drought resiliency program (Section 3.5).

<b>Strategy EPR3 – Protect and enhance aquatic habitat</b>	
Action EPR3a	Work with the Government of British Columbia to set policies, guidelines, and rules regarding motorized vehicle recreation in and near wetlands, streams, lakes, and riparian areas to avoid ecological damage.
Action EPR3b	Work with forestry firms and other land managers to establish riparian reserve areas and management zones that meet or exceed the minimums specified in the <i>Forest Planning and Practices Regulation</i> . Look for opportunities to enhance riparian areas in temperature-sensitive streams to build resiliency to climate change.

### **3.4 CLIMATE CHANGE ADAPTATION AND MITIGATION**

#### **3.4.1 Key Issues and Goals**

Climate change in the Similkameen Watershed is predicted to lead to warmer annual temperatures, earlier springs, longer growing seasons, and less rainfall in summer. Droughts are expected to occur more often in the future. Droughts increase risk of wildfire, and insect and disease infestation on already stressed terrestrial ecosystems. Low water flows during summer may also impact fish and water quality in the Similkameen Watershed. Fish require a certain amount of flowing water, and cold water fish (such as trout) cannot tolerate warm water temperatures. Increased water temperatures and decreased water levels can also reduce a stream’s ability to dilute nutrients, ions, and metals.

Conversely, there will be increased risk of flooding because of increased weather variability in future. In addition, warmer temperatures in winter may also cause mid-winter thawing, which could increase the risk of ice jams and subsequent flooding.

Overall, potential threats of climate change include the following:

- Increased risk of flooding,
- Increased stress on available water supply,
- Impacts on fish and water quality from reduced summer/fall flow and warmer water temperatures,
- Increased wildfire risk, and
- Increased risk of tree disease, and invasive species and insect infestation.

Recognizing that climate change is a notable threat to aquatic and terrestrial ecosystems in the watershed (and built environments), adaptation and mitigation considerations are progressively increasing in urgency and importance as drivers for decision making.

**GOAL STATEMENT 4: Human and natural systems in the Similkameen Watershed will become more resilient to climate change, and climate change mitigation and adaptation policies and procedures will be used in land and water use decision-making.**

**3.4.2 Strategies and Actions**

<b>Strategy CC1 – Mitigation: Implement policies and plans that reduce greenhouse gas emissions and promote carbon sequestration</b>	
Action CC1a	Work with the agricultural sector to promote sustainable agricultural practices such as soil conservation (e.g., low or no-till), restoration of degraded soils, and appropriate nutrient and manure management.
Action CC1b	Land use planning by local governments and First Nations should include measures to conserve energy and minimize greenhouse gas emissions.
Action CC1c	Promote reforestation of public lands affected by mountain pine beetle and wildfire.
<b>Strategy CC2 – Adaptation: Understand the risks (and the components of risk) to natural and built environments from climate change and develop appropriate responses</b>	
Action CC2a	Move promptly to implement the Actions under Strategy WS1a (Section 3.1).
Action CC2b	Local governments should develop climate change adaptation plans as recommended under the Contingency Planning component (Section 3.5).
Action CC2c	Collaborate with the Climate Action Initiative (BC Agriculture and Food) to provide support to individual producers to implement runoff and erosion management, and to strengthen cooperative runoff / erosion management on individual watercourses.
Action CC2d	Local governments should develop a FireSmart program to reduce the risk of interface fires. Wildfires are a major greenhouse gas source and have potentially adverse effects on water quality, so this program will do more than protect lives and property.
Action CC2e	Water licensing decisions (both surface water and groundwater) shall consider the most up-to-date climate change projections.
Action CC2f	Continue to monitor key climate variables that drive climate change and affect aquatic and terrestrial resources in the watershed.

## 3.5 WATER CONTINGENCY PLANNING AND RESPONSE

### 3.5.1 Key Issues and Goals

Within the Similkameen Watershed, water supply is determined by rain and snowfall and the storage capacity of reservoirs and aquifers; as such, drought conditions and water shortages are a major concern that could escalate in the future. During dry years, water suppliers impose conservation measures to ensure that both human and environmental needs are met. However, with increased populations and water demands projected for the future, water providers will likely need to continue to augment their water supplies through additional surface and groundwater withdrawals, upland reservoir and mainstem lake storage, and management. Increasing water withdrawals and storage could impact environmental flow needs, downstream water licences, and water availability to all users. During wet years, flooding can threaten water system infrastructure, damage properties, and lead to water quality issues.

With climate change, extreme weather events such as droughts and floods will likely occur more frequently. These events can have wide-scale impacts on local communities, ecosystems, and economies. Good planning measures are crucial for mitigating impacts and ensuring sufficient, safe water supply to meet basic human and aquatic ecosystem needs, and clear lines of communication are needed to ensure the public is informed of risks in a timely and effective manner.

As part of water quality protection, it is important that accidental releases of contaminants be avoided, and that there be a timely response to any accidental release that does occur. Examples include motor vehicle accidents involving dangerous goods (e.g., Highway 3 runs close to the Similkameen River mainstem through much of its length), breaches of containment dams or dikes at industrial and agricultural operations, and power outages at treatment facilities. Although the annual likelihood of such events is low, the consequences are potentially serious.

Recognizing the importance of good planning, the RDOS is in the process of developing a Drought and Flood Risk Management and Mitigation Plan. The first phase of that plan includes completing a gap analysis to identify high-priority information deficiencies, providing guidance for community coordination and management decisions, and supporting the integration of the plan into local plans, policies, bylaws, and best management practices. Many of the recommended actions presented below are a result of that first phase, which is currently underway.

**GOAL STATEMENT 5: The Similkameen Valley will become more resilient to drought, floods, and environmental emergencies by developing appropriate risk management and response plans.**

**3.5.2 Strategies and Actions**

<b>Strategy E1 – Prepare for drought conditions on a watershed scale by helping local water systems develop plans and assessing economic impacts of drought</b>	
Action E1a	Build a watershed Drought Management Team, made up of individuals familiar with the water systems and water use sectors and First Nations, to help effectively manage and communicate drought risk throughout the large geographical area of the watershed. Use information provided within <i>Dealing with Drought – A Handbook for Water Suppliers in British Columbia</i> as guidance.
Action E1b	Work with the larger water users/systems to develop a specific Drought Management Plan for their system, if not already in place. This action can be supported by the Drought Management Team.
Action E1c	Develop a small water system information database that includes the system location and contact information. Identify which water systems have historically been, or are currently, at risk from water shortages and whether the systems are adequately prepared for drought. This information can also be used to begin to build a database to capture the frequency of drought events, associated impacts, and mitigation measures.
Action E1d	Evaluate the economic impacts of drought to the user groups (e.g., wine makers, farmers, golf courses) that have a heavy reliance on access to water. This will help long-term planning and help identify what type of management strategies are needed.
<b>Strategy E2 – Identify areas at high risk for flooding and undertake steps to reduce risk and mitigate impacts through planning</b>	
Action E2a	Update provincial floodplain mapping for the Similkameen Watershed, which was last completed in the 1980s by the Province. The update should make use of the most recent federal and provincial government guidelines and incorporate local and current climate change projections.
Action E2b	Develop a Floodplain Management Plan on a watershed scale. This can be done in a phased approach to first identify areas of higher risk before completing further assessments at a local scale. Include a communication strategy to identify a clear chain of communication under flood conditions, consistent with emergency response procedures.
Action E2c	Create a database on flood events, flood damage, and flood mitigation to capture information on historical and future flood events in the Similkameen Watershed. The database will identify or confirm watercourses and areas consistently subject to flooding, and help focus future flood hazard assessments and floodplain mapping exercises, and inform future land development decisions.

Action E2d	Within the same database (E2c), develop a list of dam owners and their emergency contact information, as well as a list of unregistered dams. Compile all dam failure emergency preparedness plans into the database, and provide it to all emergency responders.
Action E2e	Confirm the number and ownership of dikes within the Similkameen Watershed (using Provincial information). For any dikes listed as having no Local Authority, confirm ownership with the Province to clarify maintenance responsibility and liability for a dike breach.
<b>Strategy E3 – Ensure that Emergency Response Planning throughout the watershed has a unified approach with efficient and clear lines of communication</b>	
Action E3a	Ensure that all water systems that are required to have an Emergency Response Plan (as per the <i>Drinking Water Protection Act</i> ) have developed such a plan.
Action E3b	Develop a regional communication strategy for emergency response, including flooding, drought, and environmental emergencies, to identify communication protocols between the RDOS (who acts as the Emergency Operations Centre for the watershed) and local emergency response teams.
<b>Strategy E4 – Flood and Drought Risk Reduction Strategies will include Wetland and Riparian Area Conservation and Restoration</b>	
Action E4a	Flood and drought risk reduction strategies will be coordinated with the ecosystem protection and restoration strategies (Section 3.3). Wetlands serve to retain water and promote groundwater recharge. Functional riparian areas contribute to the strength of stream banks and reduce the velocity of overbank flows.

### 3.6 COMMUNITY OUTREACH AND CONSULTATION

#### 3.6.1 Key Issues and Goals

For a watershed management plan to be successful, it must be developed and implemented by the key players, working in a collaborative way with stakeholders and the public. Many of the recommended actions in the SWP will require adoption by various groups and organizations who will ultimately play a fundamental role in watershed sustainability. To achieve this support, an effective communication plan is needed to provide relevant technical and non-technical information to members of the public, First Nations, stakeholders, and decision makers; and to receive information from these groups. This is a key part of one of the SWP's key objectives, to promote an ethic of water conservation throughout the watershed.

A communication plan outlines how the information going out will be disseminated and how information coming in from public and stakeholders will be used. Communication activities must occur on an ongoing basis. The communication plan should:

- Provide an understanding of the watershed and the importance of water conservation;
- Provide an understanding of the effect of best management practices on the ecosystem and biodiversity;
- Collect input on the recommendations in the watershed management plan and specific areas of concern; and
- Promote effective communication between stakeholders and residents.

**GOAL STATEMENT 6: Increase understanding and support for watershed management measures and encourage public engagement by providing important information to stakeholders, decision makers, and the public in an effective and timely manner.**

### 3.6.2 Strategies and Actions

<b>Strategy C1 – Build community awareness for the importance of watershed sustainability and improve understanding of the ecological functions of the watershed</b>	
Action C1a	Establish a Communications Working Group with a stable annual budget to confirm and refine the communications policy established by the SWP terms of reference. The Communications Working Group will set and carry out an annual plan each year. Membership will include representatives from the Stakeholder and Technical Advisory Committees, a communications specialist, and at least one at-large member.
Action C1b	Establish a stand-alone website for the SWP, independent of the RDOS or other government sites. Augment the website with a presence on social media, including but not necessarily limited to Facebook and Twitter. The website will provide access to the Similkameen Watershed Information Database (e.g., reports, backgrounders, research papers), promote events, publish a regular newsletter, and provide water conservation advice. In addition, practical matters, such as the requirement to registers wells before March 2019, should also be communicated out on a regular basis.
Action C1c	Maintain an up-to-date database of groups and individuals with an interest in water sustainability and related issues. Develop a list of those that would like to receive regular communications. Provide hard-copy newsletters and other key information to those that prefer this format.
Action C1d	Communication and education initiatives should emphasize the message that surface water and groundwater are “one resource.” The Working Group will determine other core messages.

Action C1e	Hold annual public events that include opportunities for community input and structured discussion on water issues. Have a booth or other presence at community events (e.g., fall fairs, sporting events).
Action C1f	Make effective use of traditional media (e.g., local newspapers and radio), as these sources are important for many community members. Make use of public libraries, community centres, and Band halls to provide information and obtain input.
Action C1g	Periodically review the effectiveness of the Communication strategies and actions listed in the SWP, and adjust as needed to optimize community engagement.
<b>Strategy C2 – Promote open and effective communication between agencies that are responsible for watershed and land use management</b>	
Action C2a	The SWP will be widely distributed to natural resource, environmental, and planning government agencies, and staff will be added to SWP mailing lists to provide regular updates.
Action C2c	Communicate with and seek opportunities to become part of regional, provincial, or national-scale water and climate change initiatives (e.g., Climate Action Initiative, BC Agriculture and Food). Maintain regular dialogue with stakeholders and governments in the U.S. portion of the Similkameen Watershed.
<b>Strategy C3 – The Similkameen community will be provided regular updates on the status of SWP Strategies and Actions</b>	
Action C3a	Progress reports on the Actions in the SWP will be provided to the community on a regular basis.

## 4 Draft Governance and General Implementation Framework

### 4.1 INTRODUCTION

The TOR for the SWP identify that there is currently no governance structure in place to implement the Plan. Governance is a process of decision-making and of holding decision-makers to account. The *Water Sustainability Act* envisions the potential that watershed governance could be delegated to local watershed organizations, either in the form of a Water Sustainability Plan or in another form. The SWP is intended as a non-regulatory plan (i.e., it is not subject to the requirements and constraints of a Water Sustainability Plan). Accordingly, there is flexibility to develop a governance approach that reflects local needs and interests.

At present, the authority for water-related decisions is distributed among local, regional, provincial, and federal governments. Decisions are not always made in consultation with affected parties. A new Similkameen-based governance model is needed to overcome these weaknesses in the current approach to water-related decision-making, and establish a vehicle for promoting the long-term health of the watershed in an inclusive, collaborative environment. To achieve this goal, the relevant stakeholders and rights holders in the watershed need to come to agreement on an appropriate form of governance, and choose a model that reflects the parties, interests, and issues relevant to the watershed. The chosen governance model would have to be formally accepted by the Province.

In developing this SWP, initial steps towards an appropriate governance model for the Similkameen Watershed were taken. First, research was conducted to identify legislation relevant to water management in the watershed, and to identify the attributes of other relevant watershed plans and governance approaches (Section 4.2 and **Appendix C**). Second, recognizing the importance of early and adequate engagement with local First Nations, the LSIB was contacted to provide perspectives on a future governance model. Stakeholders were then surveyed (Section 4.3) to gain their perspectives on governance. Based on the information compiled, suggestions on the desired attributes of a future governance model are provided (Section 4.4), and next steps towards development of the model are recommended (Section 4.5).

### 4.2 RESEARCH ON RELEVANT LEGISLATION AND OTHER WATERSHED PLANS

Legislation relevant to watershed management in the Similkameen Watershed, along with relevant watershed planning and governance approaches used in BC and elsewhere, are identified and summarized in Appendix C.

Key relevant legislation includes:

- *Water Sustainability Act*
- *Drinking Water Protection Act*
- *Riparian Areas Regulation*
- *Environmental Management Act*

- *Federal Fisheries Act.*

There are many examples of watershed planning and governance in BC that are relevant to the Similkameen Watershed. Key example watersheds are the:

- Okanagan Basin
- Kettle River
- Cowichan Valley
- Nicola River
- Shuswap River.

### **4.3 INFORMATION GATHERING**

#### **4.3.1 Overview**

This section presents a summary of a process of information gathering that was used to inform recommendations on an ongoing process of designing an appropriate governance approach for the Similkameen. The steps were as follows:

- A list of potential water governance stakeholders was assembled with the assistance of the SVPS;
- The LSIB was contacted with a request to appear before Chief and Council to discuss potential governance options and a governance role for the LSIB;
- A governance survey was developed;
- The survey was sent to the LSIB;
- The survey was sent to potential water governance stakeholders; and
- Results were compiled (Table 4.1) and used to identify key governance concepts.

#### **4.3.2 Governance Survey**

A survey was developed to gain perspectives and ideas to inform the next steps in developing an appropriate governance structure. The survey questions were as follows:

1. Can you describe a vision for what good water governance would look like?
2. Does it make sense to manage water at the scale of the entire Similkameen River watershed, or should the geographic scope be something different? If so what alternatives are there?
3. How much autonomy and authority should a governance committee or Board have?
4. Who should have representation on a governance committee or Board.
5. Who should be consulted on development of a governance model for the Similkameen?
6. Do you know of any governance models in use in BC or elsewhere that would have relevance in the Similkameen watershed? If so, which ones?
7. Can you list any broad governance principles that you think should be adopted for the Similkameen?
8. How should the work of a governance board be funded?

Surveys were sent to several organizations considered by SVPS to be potentially interested in influencing watershed governance or in having a leadership role in watershed governance. In addition to obtaining

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information relevant to developing an appropriate governance structure, the survey was intended to help identify parties with an interest in influencing the ongoing work of developing a watershed governance approach. Surveys were sent to the following organizations:

1. Lower Similkameen Indian Band
2. Regional District of Okanagan Similkameen
3. Town of Keremeos
4. Town of Princeton
5. Keremeos Irrigation District
6. Fairview Heights Irrigation District
7. Cawston Irrigation District
8. Copper Mountain Mining Corporation
9. Similkameen Winery Association
10. British Columbia Cattlemen's Association
11. Princeton Golf Club
12. Certified Organic Associations of BC
13. Hedley Improvement District
14. A representative of conventional growers
15. A&G Farms.

Surveys were returned by the Hedley Improvement District, the Keremeos Irrigation District, and the Mayor of Keremeos (in his personal capacity). Some other organizations elected to not respond to the survey, while indicating an interest in participating in future watershed governance discussions. Survey responses are listed in Table 4.1.

**Table 4-1**  
**Governance survey questions and responses**

Question	Responses
Can you describe a vision for what good water governance would look like?	<ul style="list-style-type: none"> <li>• Well-funded</li> <li>• Appropriate to ensure the objective of a sustainable watershed</li> <li>• Governance should be led by local agencies</li> <li>• Guided by strategic and operating plans that include meaningful performance measures and that are broadly accepted by rights holders and other stakeholders</li> <li>• Regular consultation with, and reporting to, all stakeholders</li> <li>• Priority needs to be the preservation of water quality and quantity in the watershed</li> </ul> <p>Education on water issues should also form an integral part of the mandate</p>
Does it make sense to manage water at the scale of the entire Similkameen River watershed, or should the	<ul style="list-style-type: none"> <li>• Yes</li> <li>• There could be special focus on management of areas of special interest, e.g., Nickel Plate Mine, Copper Mountain Mine, Tulameen River, Ashnola River</li> <li>• Recognize that activities have an influence downstream</li> </ul>

<p>geographic scope be something different? If so what alternatives are there?</p>	
<p>How much autonomy and authority should a governance committee or Board have?</p>	<ul style="list-style-type: none"> <li>• Total autonomy and authority, apart from budget allocation and appointment of Board members</li> <li>• Full accountability</li> <li>• Mostly local with provincial oversight</li> </ul> <p>Autonomy and authority depend on the type of water board and how it is financed</p>
<p>Who should have representation on a governance committee or Board?</p>	<ul style="list-style-type: none"> <li>• Whatever makes sense to most effectively achieve the objectives (mix of expertise and experience)</li> <li>• Local government elected representatives (including First Nations), relevant industry representatives (e.g., mining, farming), water suppliers</li> <li>• Water rights holders (through water suppliers)</li> <li>• The Board should set up mechanisms to ensure that it hears from all stakeholders as appropriate</li> <li>• A Board and committees comprised only of stakeholders or only of elected representatives would not be ideal</li> </ul>
<p>Who should be consulted on development of a governance model for the Similkameen?</p>	<ul style="list-style-type: none"> <li>• POLIS</li> <li>• Relevant BC government departments</li> <li>• Water purveyors</li> <li>• All other water user groups who have a direct interest in water</li> <li>• Local government elected representatives (including First Nations), relevant industry representatives (e.g., mining, farming), water suppliers</li> <li>• Public (through open houses)</li> </ul>
<p>Do you know of any governance models in use in BC or elsewhere that would have relevance in the Similkameen watershed? If so, which ones?</p>	<ul style="list-style-type: none"> <li>• OBWB</li> <li>• The combination of Greater Vernon Water and OBWB</li> <li>• Coquitlam</li> <li>• Respondents pointed to the governance literature, including recent reports produced by the POLIS Project on Ecological Governance, the Fraser Basin Council, the Canada Water Network, University of British Columbia, and University of Victoria</li> </ul>
<p>Can you list any broad governance principles that you think should be adopted for the Similkameen?</p>	<ul style="list-style-type: none"> <li>• Emphasize ecological sustainability</li> <li>• Collaborative approach</li> <li>• First Nation involvement</li> <li>• Consultation with all water users is pivotal to establish common goals</li> <li>• Good research to underpin decisions, sourced in the most efficient way</li> <li>• Transparent, accountable, inclusive</li> <li>• Apply programs consistently throughout the watershed</li> </ul>

How should the work of a governance board be funded	<ul style="list-style-type: none"><li>• Local taxation</li><li>• Federal, provincial, and regional district funding and grant programs</li><li>• Other funders such as the Real Estate Foundation of BC</li><li>• Funding should be sustainable</li></ul>
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While there is a diversity of opinions on several of the survey topics, there are some consistent threads, which are summarized in Section 4.4.

#### **4.4 GOVERNANCE PRINCIPLES FOR THE SIMILKAMEEN**

Typical watershed governance in BC has been applied in a top-down manner by federal and provincial governments, with little representation or consideration of the rights or interests of Indigenous peoples, and limited representation by organizations affected by decisions of the governing body. These approaches have often led to fragmented and overlapping jurisdictions (e.g., inconsistencies between water-related Acts and Regulations, local governments not being able to control activities in upland areas of a watershed), resource limitations, a lack of trust, a lack of accountability to those affected by decisions, and a lack of communication.

More recently, however, water governance is becoming more inclusive and more collaborative, and more respectful of the rights and interests of Indigenous peoples. Local agencies and First Nations are requesting and demanding a stronger role in watershed governance. These changes have been documented by academic and research institutions in BC, including the University of British Columbia, the University of Victoria, and the POLIS Project on Ecological Governance. Though water management continues to be a provincial responsibility, the *Water Sustainability Act*, passed in May 2014, envisions delegating aspects of watershed governance to bodies other than the Government of British Columbia.

Another recent driver of change has been the historic June 2014 Tsilqot'in decision by the Supreme Court of Canada, which clarified that Aboriginal rights and title can't be ignored, and that First Nations must be involved at a strategic level in decisions that affect their territories. It ascribed ownership rights to Aboriginal peoples—in particular, rights to determine how land will be used, rights to economic benefits from the land, and rights to proactively manage the land. The Similkameen Watershed is unceded First Nation territory.

Benefits of these more modern collaborative approaches include improved knowledge-sharing, increased respect for different perspectives and viewpoints, stronger community contribution to and acceptance of decisions, stronger trust and better relationships between water organizations, reduced conflict, and increased ability to create locally-appropriate solutions.

Based on an understanding of the evolving nature of watershed governance in BC, and of the benefits associated with modern watershed governance principles, and based on the governance survey responses listed in Section 1.3, the following concepts should form a foundation for future watershed governance in the Similkameen Watershed:

- A process of continued consultation with a wide variety of parties is needed to choose an appropriate governance structure, which must ultimately be acceptable to key parties with rights and interests in the Similkameen Watershed.
- There are relevant governance models in watersheds close to the Similkameen Watershed that could be drawn from for guidance, as well as recent publications such as “A Blueprint for Watershed Governance in British Columbia,” published by the POLIS Project on Ecological Governance in 2014.
- The most appropriate geographic scope of the governance entity is the entire watershed of the Similkameen River within Canada.
- Decisions of the governance entity should recognize that surface water and groundwater are connected, and that upstream areas are connected to downstream areas.
- Decisions of the governance entity should be made with consideration of the basin in its entirety, with the ability to apply focus on one or more smaller units within the basin as needed.
- Decisions should be based on learning and principles of adaptive management.
- First Nations and local agencies such as water suppliers and local government should have a strong role in providing leadership to a governance entity, along with other levels of government, and potentially the private sector.
- The governance model could either be: 1) a “co-governance” structure with leadership shared equally by Indigenous and non-Indigenous organizations; or 2) “collaborative”, in which all organizations including First Nations have an equal level of authority and responsibility.
- Financial and human resource capacity limitations to First Nation participation should be considered.
- Decision-making should accord equal respect for Indigenous knowledge and perspectives and for Western science and expertise.
- Governance processes should respect both the system of colonial laws and regulations and Indigenous water law and water stewardship principles, in particular the Syilx Water Strategy, the principles of which will have been incorporated into the SWP.
- A governance entity would:
  - be enabled by legislation;
  - be broadly accountable and report regularly to its members, the residents of the watershed, and possibly the enabling body;
  - have a defined mandate and level of authority;
  - have established and well understood relationships between the governing entity and other agencies with authority to manage water in the watershed;
  - function in an inclusive and collaborative manner;
  - be informed by good information and science; and
  - engage in communication and outreach.
- A governance entity would be well funded; likely a combination of stable base funding through taxation (e.g., local taxation or through provincial water use fees) and project-specific funding.
- The governance entity would hire staff as needed to provide for the long-term operational needs of the organization, and establish working groups as needed to deliver specific actions in support of the SWP.

- The governance entity would have a defined role in dealing with transboundary issues affecting the Similkameen Watershed, including future proposals to manage water in the U.S. portion of the basin that could affect Canada, and the renegotiation of the Columbia River Treaty.

#### **4.5 NEXT STEPS IN DEVELOPING AN APPROPRIATE GOVERNANCE STRUCTURE**

Additional steps must be completed before a successful governance model can be identified and adopted for the Similkameen Watershed. The following next steps should be completed in pursuit of a governance model:

- Successfully engage the LSIB and USIB to make specific contributions to this draft Plan, including to the governance recommendations.
- Modify the draft Plan as needed to include Syilx principles and practice.
- Convene First Nations and key agencies to agree on governance principles.
- Agree on the organizations to be represented in a leadership role in a governance entity, and describe the mandate, role, and objectives of a governance organization.
- Agree on the desired level of delegated authority and request such delegation from the Province of British Columbia.
- Determine how to incorporate both Indigenous and non-Indigenous organizations into the governance model (i.e., will it be a collaborative model in which First Nations have a role like other organizations, or will Indigenous and non-Indigenous organizations share the leadership equally?).
- Achieve agreement on the governance approach and structure from all the key parties.

Then complete the following steps, once the governance model has been identified:

- Identify and secure long-term stable funding to enable and support the ongoing work of the watershed governance entity, and allow it to leverage this stable financial support to attract external funding for activities and projects undertaken in support of the SWP.
- Enable the governance entity through appropriate legislation.
- Establish strategic and operational plans, including plans for communication and outreach, and the mechanisms to provide accountability.

While these steps towards a governance structure are being completed, working groups should be created to initiate and complete some of the actions identified in the SWP (see Section 5.2). This can be carried out under the leadership of the SVPS, RDOS, LSIB, or other entities.

## 5 Implementation Schedule, Periodic Review and Update

### 5.1 GENERAL FRAMEWORK, REGULATORY CONTEXT, AND SCHEDULE

The Similkameen Watershed Plan is intended to be a “living document”, one that is regularly updated to adapt to new or changing watershed management issues and needs. A watershed and the communities within it are dynamic, changing over time. In addition, the regulatory framework for water and climate change management in British Columbia is evolving. The initial set of regulations under the *Water Sustainability Act* only came into effect in February 2016, and some adjustments are likely. Furthermore, the Government of British Columbia has indicated that it will “initiate work on other policies and regulatory components required to fully implement the *Water Sustainability Act*, including those related to: water objectives, water sustainability plans, measuring and reporting, licence reviews, designated areas, dedicated agricultural water; and alternative governance approaches” (Government of British Columbia 2017).

The SWP implementation schedule will depend on the governance approach to watershed management that is selected following community engagement, including with LSIB (Section 4), and on available budgets. As of the date of this draft report, the general sequence of events are anticipated to be:

- Upon completion of the draft report, present the project and Draft Watershed Plan to the Board
- Community engagement and selection of a preferred governance model
- Finalize the initial SWP (Version 1.1)
- Organize committees and working groups
- Begin implementation of Strategies and Actions
- First annual progress report and open house

Given the on-going *Water Sustainability Act* roll-out in the next few years, the first review and update of the SWP should be completed in the fall of 2019 to capture the anticipated regulatory changes. The outputs of this first SWP review would be a “State of the Watershed Report” as well as the updated SWP document. Subsequent updates, with State of the Watershed reporting, would be completed every five years. The periodic reviews should include an evaluation of the effectiveness of the SWP in achieving water sustainability in the Similkameen watershed.

### 5.2 RECOMMENDED WORKING GROUPS

As specified in Section 3, several Working Groups will be established to be responsible for implementing the Actions. They will also provide a practical forum for information sharing and identification of issues and solutions. The recommended working groups are:

- Water Suppliers/Agriculture,
- Riparian and Wetland,
- Environmental Flow Needs and Fisheries,
- Drought Management Team, and

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- Communications.

The specific membership of each of these Working Groups will be determined later, but they could include representatives of government agencies, First Nations, industry, local community groups, and “at large” community members.

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