

ONLINE HELP CENTRE FOR BC SMALL WATER SYSTEMS

REGIONAL DISTRICT OF NANAIMO – WPWG- OCTOBER 2018

Presented by:

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and member of
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Most slides; Satwinder Paul at TRU



THOMPSON RIVERS UNIVERSITY



**SUSTAINABLE
INFRASTRUCTURE
SOCIETY**



DEDICATION

Denny Ross-Smith

Small Water Users Association of BC



CONTENTS

1. Context > Water-Related Resources in BC
2. OnLine Help Centre – Background
3. Small Water System Needs
4. Survey and Results
5. Online Help Centre – Sections
6. Online Help Centre - Examples
7. Other Resources at TRU



PROJECT CONTEXT

Resources to assist community water systems in BC (a to z) :

- BC Water & Waste Association (BCWWA)
- Canadian Water Directory – BC Section
- Coastal Water Supply Association (CWSA)
- On-Line Help Centre
- WaterBC.ca
- Water Supply Association of BC (WSABC)



PROJECT CONTEXT



Provides professional development, networking, and advocacy on behalf of its members, to ensure that our water systems continue to protect public health and the environment.



To provide easy on-line access to resources, products and services for the Canadian water industry > BC Section



To provide ongoing support and awareness to Coastal Water Suppliers and their associates by working in partnership with related ministry agencies and water-related organizations



PROJECT CONTEXT

Online Help Centre for BC Small Water Systems

To provide online technical expertise and self help tools to all Small Water Systems in BC - leading to risk reduction, safe drinking water & system sustainability.



To provide access to affordable insurance and website builder services for community water suppliers in BC



To represent the interests of British Columbia's public, domestic and irrigation water suppliers and their customers



PROJECT BACKGROUND

- 4,800 small water systems > 600 are on public notification.
- 334 First Nations water systems > 36 are on public advisory.
- Few have barriers in place to prevent events > contracting enteric disease and/or chronic illnesses.
- Many SWS at risk of process failure & infrastructure breakdown > operational and maintenance constraints,
- Many SWS lack financial resources to renew & maintain infrastructure
- Consequence > affects ability to provide safe, potable drinking water



SMALL WATER SYSTEMS - NEEDS

- BC Ministry of Health and Regional Health Authorities know small water systems have challenges.
- Some SWS do not fully understand how to reduce risks
- Many SWS lack technical expertise, financial resources, knowledge of government regulations, and other skills like asset and financial management
- SWS struggle to achieve the outcomes specified by the Drinking Water Protection Act, Regulation and Drinking Water Treatment Objectives.
- Some small systems remain isolated & do not share information with, or cooperate with others



HOW SHOULD WE ADDRESS THE NEEDS?

On-line Help Centre

To provide online technical expertise and self help tools for SWS in BC
> evolved in part from SWUABC

Goal is to support:

- ❑ Risk reduction,
- ❑ Safe drinking water &
- ❑ System sustainability.



CONSULTATIONS

Various groups were consulted:

- Ministry of Health
- IHA
- WSABC
- EOCP
- BCWWA
- Small Water Users Association
- CWSA
- First Nations (AFN), FNOWN
- INAC
- Drinking Water Leadership Council
- Sustainable Infrastructure Society (SIS)



FUNDING

- Interior Health Authority
- Indigenous Services Canada
- BCWWA with MOH funds



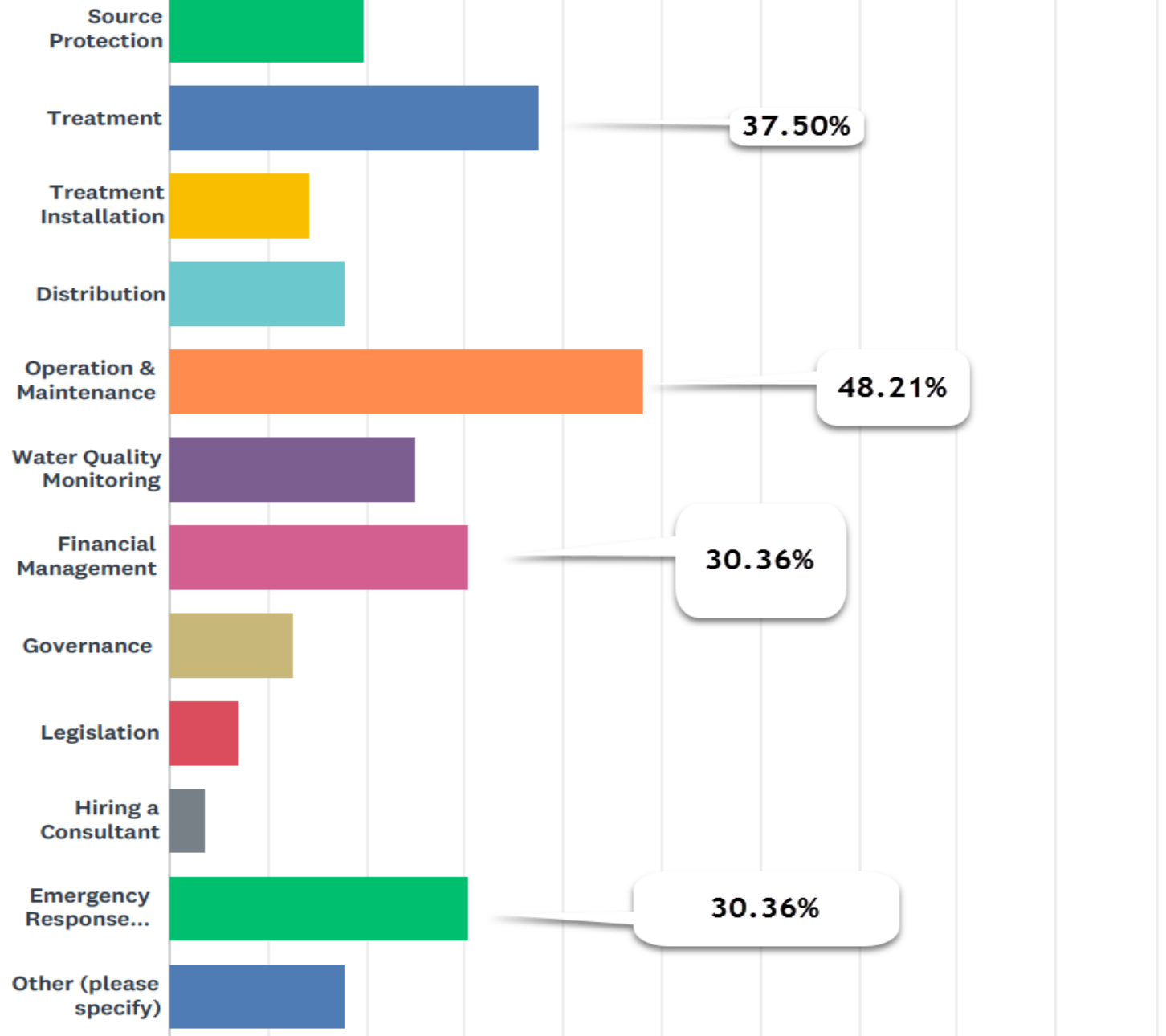
SMALL WATER SYSTEMS NEEDS

- Survey of SWS membership of Environmental Operators Certification Program (EOCP).
- Using a short survey > expected to get more responses.
- The survey was just 6 questions.



SMALL WATER SYSTEMS - NEEDS

What topics are of interest?



SMALL WATER SYSTEMS NEEDS

SWS respondents asked:

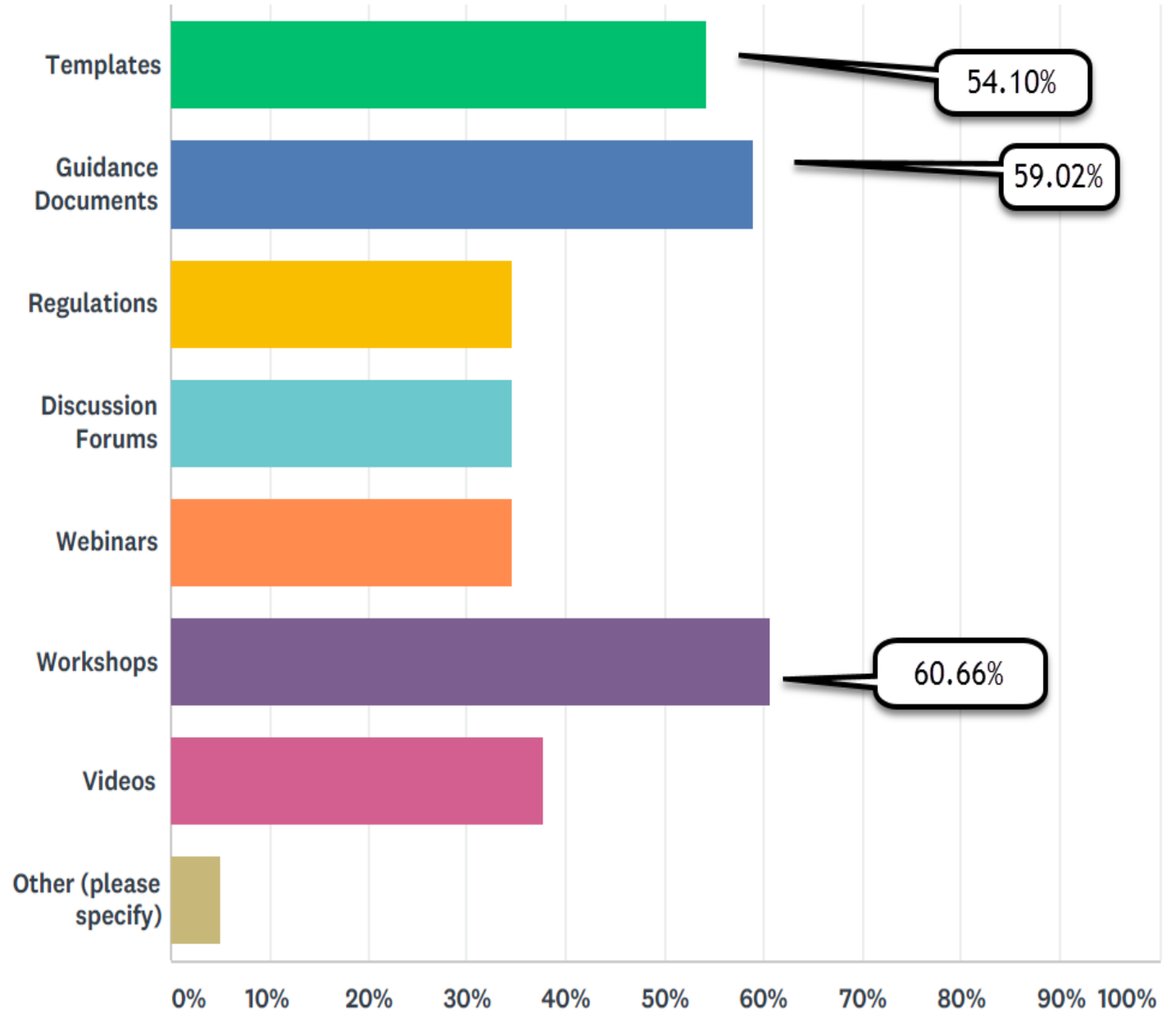
What types of resources
would be most useful?



Workshops
Documents
Other
Templates
Videos Guidance
Webinars
Regulations
Discussion-Forums

SMALL WATER SYSTEMS NEEDS

What types of resources?



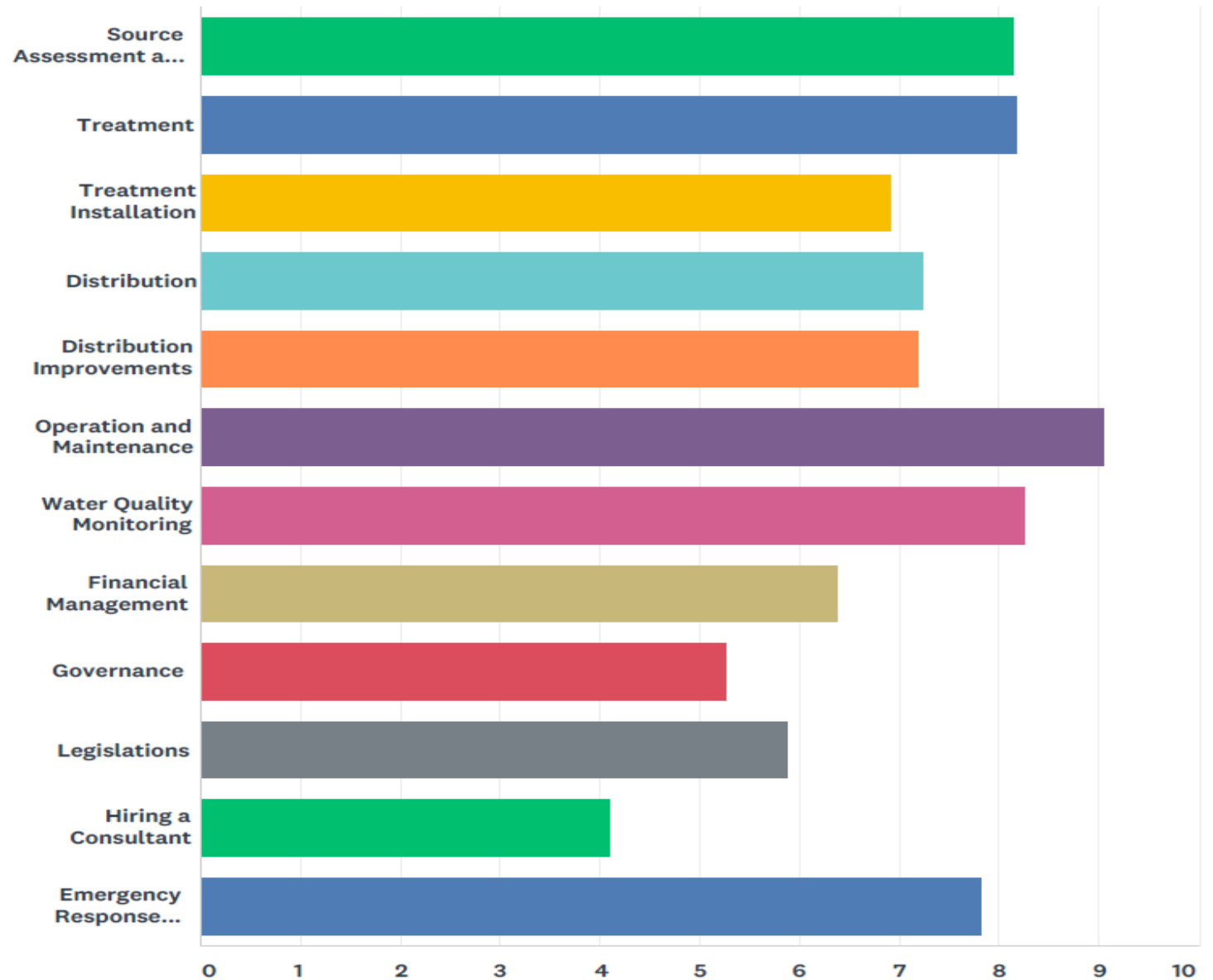
SMALL WATER SYSTEMS NEEDS

The respondents were asked to rank the type of information they need.



SMALL WATER SYSTEMS NEEDS

What type of information?



OBJECTIVE OF ONLINE HELP CENTRE

In response > objective set for the On-Line Help Centre:

- Technician expertise provided through a website
- Knowledge directory based on the Multi-Barrier Approach
- Topic based moderated forums (Phase 2)



ONLINE HELP CENTRE - MAIN TOPICS

Main topics set for On-Line Help Centre:

- Source Protection
- Treatment
- Distribution
- Operations & Monitoring
- Regulations & Guidelines
- Governance
- Finance



SOURCE PROTECTION

SOURCE TYPE

■ Ground

- ❑ Well
- ❑ GARP
- ❑ How to Protect Your well
- ❑ Common issues & hazards
- ❑ Operations and Maintenance
- ❑ How and When to Hire Consultant
- ❑ Templates

■ Surface: Filter & Disinfect

- ❑ Spring, River, Stream, Lake
- ❑ How to protect your intake
- ❑ Common issues & hazards
- ❑ Operations and Maintenance
- ❑ Drought and Flood
- ❑ How and When to Hire Consultant
- ❑ Templates



TREATMENT

- Centralized or Decentralized
 - ❑ Define centralized
 - ❑ Define POE: Why use POE
 - ❑ NSF standards
- Minimum treatment standards
- Common Issues & Hazards
- Sampling & Monitoring
- Finances
- Operations and Maintenance
- How and When to Hire Consultant
- Templates



DISTRIBUTION

- Delivery of Water
- Common Issues & Hazards
- Sampling & Monitoring
- Finance
- Operations and Maintenance
- Easements
- Leak detection
- Water Loss
- Metering
- Cross Connections
- Templates



OPERATIONS & MONITORING



- Descriptor: What, Why, How?
- Common Issues & Hazards
- Sampling & Monitoring
- Maintaining a Residual
- Emergency Response Planning
- Annual Report
- Operations and Maintenance Plans
- Information on Accredited Labs – Water Analysis Labs
- How and When to Hire Consultant
- Templates

REGULATION AND GUIDELINES

- Regulations, applied descriptions and Interpretations of the following Acts and Regulations:
 - ❑ Drinking Water Protection Act
 - ❑ Drinking Water Protection Regulation
 - ❑ Water Sustainability Act
 - ❑ Strata Act
 - ❑ Utility Act
 - ❑ Local Government Act
- Guidelines Canadian Drinking Water Quality
- Standard Products & Materials
- Government Contacts
 - ❑ Health Authorities
 - ❑ Front Counter
 - ❑ Ministry of Environment
 - ❑ Others



GOVERNANCE

- Description and Definition: What, Why, How?
- Why is Governance an issue
- Why Governance is important
- Governance Styles
- How to organize
- Acquisitions



FINANCE

- Description: What, Why How?
 - Long Term Financing Plans
 - Insurance
 - Annual Budget Plans
 - Asset Management
 - Templates
- Funding & Grants Information



Online Help Centre
for BC Small Water Systems

Resources | About | (Forums) | Postings | Contact | Search

SOURCE PROTECTION
TREATMENT
DISTRIBUTION
OPERATION & MONITORING
REGULATIONS & GUIDELINES
GOVERNANCE
FINANCE
NETWORKING: CONNECTING
SWS

The Online Help Centre for BC Small Water Systems provides technical resources and self help tools to all small water systems in British Columbia.

Help Centre Multi Barrier Approach

About the Help Centre
This site was created to assist small water systems to develop a multi-barrier approach, leading to risk reduction, safe drinking water and system sustainability.
Through the resources provided, small water systems should be able to carry out technical assessment; recognize and assess hazards and work with water systems owners to review options for system improvements.
Please read our [legal disclaimer](#) before using any of the resources provided.

Explore our Resources

<p>SOURCE PROTECTION</p> <p>Sample short description of what this section covers and which topics are included.</p>	<p>TREATMENT</p> <p>Sample short description of what this section covers and which topics are included.</p>	<p>DISTRIBUTION</p> <p>Sample short description of what this section covers and which topics are included.</p>	<p>OPERATION & MONITORING</p> <p>Sample short description of what this section covers and which topics are included.</p>
<p>REGULATIONS & GUIDELINES</p> <p>Sample short description of what this section covers and which topics are included.</p>	<p>GOVERNANCE</p> <p>Sample short description of what this section covers and which topics are included.</p>	<p>FINANCE</p> <p>Sample short description of what this section covers and which topics are included.</p>	<p>NETWORKING</p> <p>Sample short description of what this section covers and which topics are included.</p>

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Website Design: Early Home Page Mock Up

☰ Quicklinks



SOURCE PROTECTION

TREATMENT

Designing Treatment For Small Water Systems

Minimum Treatment Requirements For Small Water Systems

Centralized Vs Decentralized Water Treatment Systems

Centralized Water Treatment Systems

💧 Is Point-Of-Entry Water Treatment The Right Choice For Your Small Water System?

NSF Standards

DISTRIBUTION

EMERGENCY RESPONSE
PLANNING

Is Point-of-Entry Water Treatment the Right Choice for Your Small Water System?

CONTRIBUTOR: GRANT ROBERTSON, B.B.A., CWT

Introduction

Since the implementation of the B.C. [Drinking Water Protection Act](#) in 2001 and the accompanying [regulations](#) in 2003, small communities across the province have faced a wide range of challenges in meeting the requirements of the legislation. In particular, many have struggled to get community support for conventional water treatment methods that would enable them to meet the water treatment requirements of the Act and Regulations.

The difficulty in obtaining community support for conventional treatment, largely due to the perceived negative aspects of chlorination, has led to considerable interest in **point-of-entry treatment**. At the same time, the emergence of new technologies that reduce maintenance frequency and improve compliance monitoring are making point-of-entry

Example of
draft
webpage

Quicklinks

SOURCE PROTECTION

TREATMENT

DISTRIBUTION

Distribution Systems & Their Maintenance

EMERGENCY RESPONSE
PLANNING

OPERATIONS, MAINTENANCE &
MONITORING

REGULATIONS & GUIDELINES

BUSINESS STRUCTURE &
GOVERNANCE

FINANCIAL MANAGEMENT

CERTIFICATION

SUPPORTERS  ABOUT



Distribution

A distribution system needs to be well maintained to ensure the quality and safety of the water reaching the customer. This section on [Distribution Systems & Their Maintenance](#) discusses the operation and maintenance of the water system, sampling and monitoring, some common issues and hazards to be avoided, leak detection and water loss, water metering and the importance of a cross connection control program.

Example of
draft
webpage

☰ Quicklinks

SOURCE PROTECTION

TREATMENT

DISTRIBUTION

EMERGENCY RESPONSE
PLANNING

OPERATIONS, MAINTENANCE &
MONITORING

REGULATIONS & GUIDELINES

**BUSINESS STRUCTURE &
GOVERNANCE**

Ownership Types

Governance

FINANCIAL MANAGEMENT

CERTIFICATION

SUPPORTERS 🔥 ABOUT



Business Structure and Governance

For both short-term efficiencies and long-term stability, your small water system will need a strong business structures and clear and effective governance. From how the day-to-day administration is conducted to planning for sustainability, it will be important to have an ownership model and business structure that supports your system's needs. And will need in place governance that is accountable and capable of making short- and long-term decisions.

The first section, [Ownership Types for Small Water Systems](#), gives an overview of the various types of ownership that are options for small water systems, with the advantages and disadvantages of each type.

Example of
draft
webpage

Resources

- SOURCE PROTECTION
- TREATMENT
- DISTRIBUTION
- OPERATION & MONITORING
- REGULATIONS & GUIDELINES
- GOVERNANCE
- FINANCE**
 - Description: What, Why How?
 - Long Term Financing Plans
 - Insurance
 - Annual Budget Plans
 - Asset Management**
 - Templates
- NETWORKING: CONNECTING
- SWS

Legal Disclaimer: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis

Finance/Asset Inventory

Create a Basic Asset Inventory

Contributed by Sustainable Infrastructure Society (www.WaterBC.ca)

Introduction

An asset inventory is a list of items of value owned by the water system, with information about each item. Detailed information may include the manufacturer name and model number, installation date, and original cost. More detailed versions may include the condition of the asset and remaining useful life.

The asset inventory increases your knowledge of the system and gives you specific information to make better financial decisions. The inventory will help you schedule repairs and replacements and ensure that you are getting the greatest value possible from your assets. If you don't know what you have, you can't manage it effectively.

Asset Inventory; As-built Plans; Well Logs; Maintenance Logs; Land Surveys; Manuals and Receipts; Construction Permits; Risk Assessment Reports; Annual Reports

Steps in Preparing an asset inventory

Here are the main steps in preparing an asset inventory. These steps are explained further in following sections.

- Step 1: Create a plan of your system**
- Step 2: Identify and list your system's assets**
- Step 3: Find out the life expectancy of components**
- Step 4: Work out the remaining service life of each asset**
- Step 5: Create a list of service providers**

Step 1: Obtain a Plan of the System

Obtain a clear and current plan of your water system. This plan will help you prepare a schematic of the system in Step 2. Now is a good time to pull together information from all available sources and keep it in one place. This will save time when you need to refer to this data again in later steps of asset management, or in communicating with stakeholders such as issuing your annual report. Information on your system can come from: As-built Plans; Well Logs; Maintenance Logs; Land Surveys; Manuals and Receipts; Construction Permits; Risk Assessment Reports; Annual Reports

Sample Topic Page

- Tools are linked from here

LINKS FROM WEBSITE



CANADIAN WATER
.DIRECTORY™
www.CanadianWater.Directory

Water Solutions
Home of the only provincial directory
Water Supply, Wastewater

[Home](#) [Search Sector](#) [Search Province](#) [Make A Listing](#) [About Listing](#) [Resources](#)

Welcome to the
Canadian Water Directory
Website



Financial Best Management Practices

Best Management Practices (BMPs) are simply ways that certain things are done in the best-performing organizations. Financial BMPs will help your organization to achieve long-term financial sustainability.

Overview & Introduction

[Financial Best Management Practices for Small Community Water Systems in British Columbia \[PDF - 739 KB\]](#)

BMP A

BMP: [A Basic Asset Inventory \[PDF - 458 KB\]](#)

Worksheet: [A1 Asset Inventory \[XLSX - 20 KB\]](#)

BMP B

BMP: [B Asset Management Plan \[PDF - 351 KB\]](#)

Worksheet: [B1 Asset Management \[XLSX - 53 KB\]](#)

Reference: [Expected Useful Life of Assets](#)

EXAMPLE - FINANCIAL BEST MANAGEMENT PRACTICES

Best Management Practice

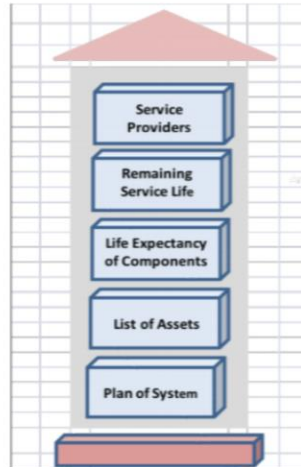
BMP A: Create a Basic Asset Inventory

1 What, Why and How?

What is an asset inventory? An asset inventory is a list of items of value owned by the water system, with information about each item. Detailed information may include the manufacturer name and model number, installation date, and original cost. More detailed versions may include the condition of the asset and remaining useful life.

Why do we need an asset inventory? The asset inventory increases your knowledge of the system, and gives you specific information to make better financial decisions. The inventory will help you schedule repairs and replacements and ensure that you are getting the greatest value possible from your assets. If you don't know what you have, you can't manage it effectively.

How do we prepare an asset inventory? Here are the main steps in preparing an asset inventory. These steps are explained further in following sections. For each step, you create a building block.



A1. Asset Inventory

System: **Duck Creek Water System** Completed By: **Fred Smith** Last Update: **1st February 2013**

Ref	Asset Description	Quantity	Unit	Year Installed	Current Condition	Service History	Current Age in Years	Expected Useful Life	Adjusted Useful Life	Useful Life Left
1.1	150 mm dia. PVC watermain	330	m.	1989	good	annual flushing	23	60	56	33

Reference to suit

Refer to drawings or specs; make site measurements; & describe asset

Use metric units if possible E.g metres, square metres, cubic metres etc. or "Item"

Use "good", "fair", "poor" or other ratings

Describe, where known

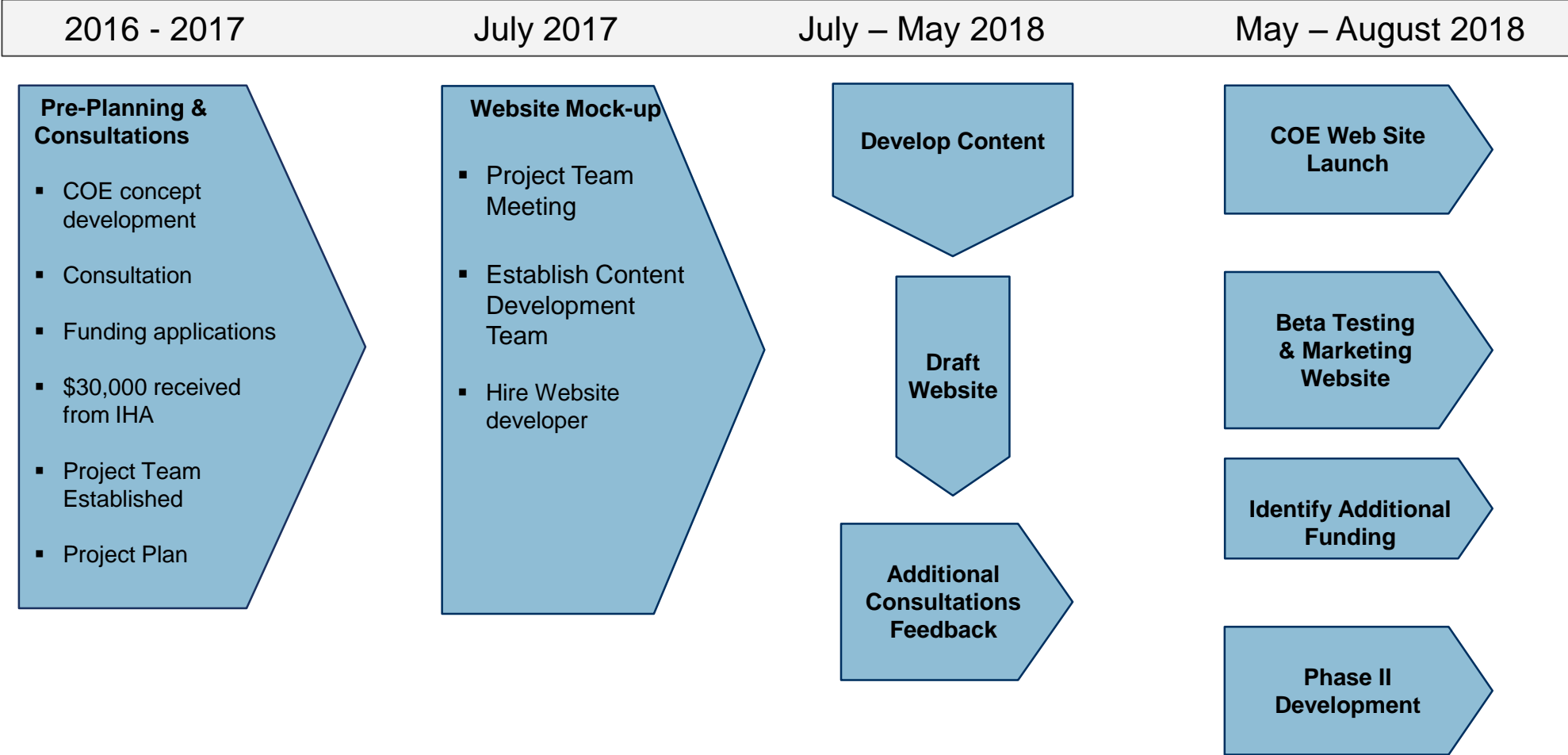
See

Adjust with reference to condition

Subtract Current Age from Adjusted Useful Life

Asset Inventory Worksheet Notes | Asset Inventory Worksheet | Sheet3 | Sheet1

ONLINE HELP CENTRE - PROJECT TIME LINE



NETWORKING CONNECTING SMALL WATER SYSTEMS

- Mutual Aid
- Peer to Peer
- Moderated Topic Forums
- Ask & Answer
- Membership?
- News Letters



ONLINE HELP CENTRE - HOW TO FIND

The image shows a screenshot of the Canadian Water Directory website with several elements highlighted and annotated with red circles and arrows to show the path to the Online Help Centre.

- www.CanadianWater.Directory**: A dark blue banner at the top center of the page.
- Home Page**: The main heading on the left side of the page.
- Navigation Menu**: A blue bar at the top left containing links for Home, Search Sector, Search Province, Make A Listing, and About.
- Province Selection**: A list of provinces on the left side, with **British Columbia** circled in red. An arrow points from this link to the BC section of the page.
- BC Section**: The right side of the page, titled **BC - Water Supply - Resources**. It lists various BC Associations, Education & Training, including **Online Help Centre**, which is circled in red. An arrow points from this link to the Resources section.
- Resources**: A section at the bottom of the page with a search bar and filters. The **Resources** filter is circled in red, and an arrow points from it to the Online Help Centre link in the BC section.

Thank you



CANADIAN WATER
.DIRECTORY™
www.CanadianWater.Directory

Presented by: **Vernon Rogers, Manager SIS and Canadian Water Directory**
with acknowledgements to

Satwinder Paul, Lecturer & Program Coordinator
Water & Wastewater Technology Programs

Tel: 250-371-5955 Email: spaul@tru.ca

Website: <https://www.tru.ca/trades/programs/water.html>