

BC WATER & WASTEWATER SECTOR Workforce Strategy

EXECUTIVE SUMMARY OCTOBER 2017





Over 6,200 people in British Columbia work daily to keep safe water flowing from its source to our taps and back to the environment. Although we may rarely see their faces, they are protecting the health of our families, communities and environment.

But will there be enough well-trained people to meet BC’s growing demand for water, wastewater and stormwater services? Keen, qualified applicants are needed for job openings. Current workers—and those joining the workforce—need to have what it takes to do their jobs effectively and grow in their careers.

The BC Water & Wastewater Sector Workforce Strategy is the culmination of a two-year project to address the challenges our workforce is facing. The strategy includes the following:

- A vision statement and set of values
- A Project Committee to guide implementation
- Goals, objectives and tactics
- An implementation plan
- A plan to maintain and update several of the tactics
- An evaluation plan

Time is of the essence. About 3,300 new employees—more than 50% of the sector’s current workforce—will be needed over the next decade as employees retire or leave the sector, and demand grows.

To meet this challenge, we need collaboration, partnerships and relationship building among employers, employees, associations and professional bodies, government, training providers, suppliers, and other stakeholders. Creating this workforce strategy has sparked enthusiasm and participation from all of these stakeholders, which heralds a positive working relationship as we move forward.

As guardians of the province’s drinking water and wastewater systems, industry professionals are committed to working together and doing what it takes to ensure these systems remain safe, sustainable and secure.



A Workforce Strategy for the Water & Wastewater Sector

The BC Water & Waste Association (BCWWA) and the Environmental Operators Certification Program (EOCP) have worked together in leading the development of this strategy for the water and wastewater sector workforce.

The strategy is the culmination of two years of research, consultations and hard work by the water and wastewater industry in BC, aimed at addressing critical challenges the industry faces in managing its workforce.

The BCWWA and the EOCP would like to acknowledge the support provided by Sitka Solutions Inc. in facilitating the consultation sessions and drafting the strategy document. They also gratefully recognize the funding provided through the Canada–British Columbia Labour Market Development Agreement.

The views and opinions expressed in this report are those of its author(s) and not the official policy or position of the Government of British Columbia.

What is the BCWWA?

The BCWWA is a not-for-profit organization that represents over 4,000 water professionals. Our members are responsible for ensuring safe, sustainable and secure water, sewer and stormwater systems in BC and the Yukon. They include water and wastewater facility operators, utility managers, engineers, technicians and technologists, consultants, government policy and regulatory staff, researchers, suppliers, backflow assembly testers, and cross connection control specialists. The BCWWA delivers professional development, certification and advocacy programs and services, to ensure that our water systems continue to protect public health and the environment.

What is the EOCP?

The EOCP is incorporated as a not-for-profit society that acts as an Agent of Government, and is responsible for overseeing the certification of water and wastewater system operators, and the classification of water and wastewater facilities and systems in British Columbia and Yukon. The organization was started by a handful of wastewater treatment plant operators more than 50 years ago, and now includes more than 3,500 operators in BC and Yukon.



Basis of the Workforce Strategy

In December 2015, the BCWWA and EOCP published a workforce profile. It contained research and data on the sector's current and projected workforce demographics, and it identified a number of key challenges facing the competence and sustainability of the workforce. To address these challenges, the BCWWA and EOCP conducted consultations with industry stakeholders and developed a comprehensive workforce strategy, summarized in this document.

To read the workforce profile, in full or in summary, visit www.bcwwa.org

This work could not have been completed without the support and input from many individuals and organizations that participated in industry consultation sessions. The work also benefited from the leadership and guidance of the members of the Project Advisory Committee:

- Carlie Hucul, BC Water & Waste Association
- Kalpna Solanki, Environmental Operators Certification Program
- Allison MacMillan, Okanagan College
- Ashifa Dhanani, BC Water & Waste Association
- David Kidd, City of Port Coquitlam
- Dom Ieraci, Public Works Association of BC
- Duncan Ferguson, BC Ministry of Environment
- Gary Martens, EPCOR
- Guhan Chendurnathan, Association of Professional Engineers and Geoscientists of BC
- Harshan Radhakrishnan, Association of Professional Engineers and Geoscientists of BC
- Jason Hildebrandt, Clearbrook Waterworks District
- Jason Jung, Applied Science Technologists and Technicians of BC
- Jim Anderson, Applied Science Technologists and Technicians of BC
- Maggie Boak, Metro Vancouver
- Marian Hands, BC Water & Waste Association
- Rick Gallilee, Metro Vancouver
- Satwinder Paul, Thompson Rivers University
- Tarynne Summers, Metro Vancouver
- Ted Robbins, Capital Regional District
- Yonatan Yohannes, City of Surrey

The BCWWA and the EOCP would like to extend their sincere thanks to all those who contributed, including the ex-officio committee members:

- Philip Evans, BC Ministry of Jobs, Tourism and Skills Training
- Tim Lambert, BC Ministry of Health

Who Is the Workforce?

The water and wastewater workforce is made up of the people behind the pumps and pipes—the employees of the industry who ensure that water is safe and flowing to kitchen taps and businesses alike, then collected, treated and returned to the environment.

For the purposes of this project, the workforce is defined as the individuals who spend more than 50% of their time on the day-to-day operations and maintenance of water and wastewater collection, treatment and distribution systems.

The workforce is comprised of four occupational categories: operator, technical support, supervisor and management.

Why Do We Need a Workforce Strategy?

A profile of the workforce, completed in December 2015 as part of the first phase of this project, highlighted the critical need to recruit, train and promote employees over the next decade.

- 3,319 new workers (equal to 53% of the current workforce) will be needed by 2025 because current employees are retiring or leaving the sector, and the sector is slowly growing.
- In fact, 1,150 current workers are expected to retire by 2025—that's 35% of the forecasted number of new workers needed.
- The sector is not attracting its share of younger workers. Only 23% of the current workforce is in the younger age group of 19 to 35 years, compared with 33% of BC's population.
- Only 27% of employers surveyed have programs for employees' career development.
- Only 18% of employers surveyed have a succession plan for senior management positions.



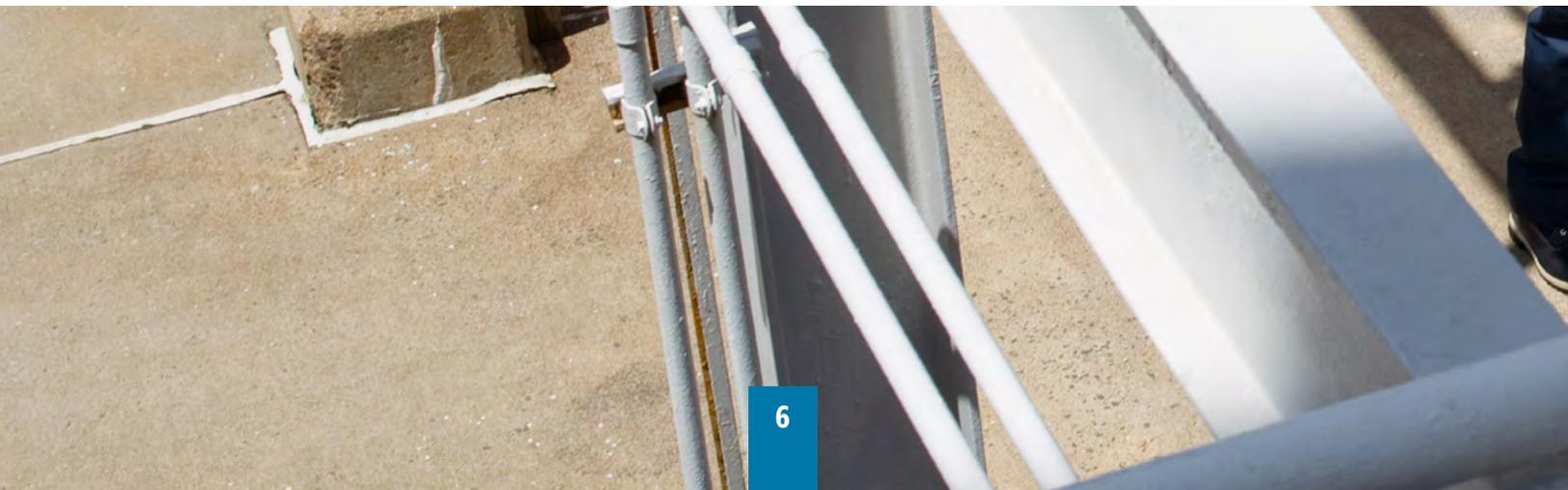
PHOTO: METRO VANCOUVER

Barriers Impacting the Workforce

The 2015 profile identified five key issues affecting the industry's ability to recruit and retain a competent workforce:

- 1 Gaps in knowledge, skills and abilities** – Education and training must continuously evolve to provide the water and wastewater workforce with the knowledge, skills and abilities to do its job competently and effectively. The profile found that education and training are needed to address new water technologies, changing regulations, leadership, communication, conflict resolution, information technology, environmental and legal issues, and so on. To address these gaps, the sector should conduct needs assessments, establish standardized competency profiles by occupational type, and update educational, certification and accreditation requirements.
- 2 Knowledge loss due to an aging workforce nearing retirement** – About 1,150 current workers will retire within the next 10 years. The largest group of retirees (44%) are operators. The rest comprise technical support staff, utility supervisors and managers. Succession planning is needed at the sector level and should include transferring knowledge to younger employees. But only 18% of employers have taken action to implement programs for succession planning for senior management positions.
- 3 Limited pathways for entry and advancement in operations** – Operators typically require valid certification to obtain a job but cannot become certified without work experience—a Catch-22. Post-secondary programs that prepare students for operational jobs in the water and wastewater sector are limited. Furthermore, there are no clear career pathways to advance from an operational role into a supervisory, management or more technical role such as technician or engineer.
- 4 Challenges in recruiting workers, especially younger workers and women** – The water and wastewater sector workforce is aging, yet the industry is not attracting its share of younger workers compared with the overall workforce in BC. It also employs a low percentage of female workers compared with other utility industries.
- 5 Lack of awareness of career opportunities in the sector** – To meet the demand for new workers, the industry needs to promote employment opportunities in the sector to:
 - secondary school students and their parents,
 - university students with a related degree (science, environmental health or engineering),
 - workers from other industries who may be looking for new opportunities, and
 - immigrants with relevant education and experience.

In the second phase of the project, consultation sessions with industry confirmed these barriers are impacting the water and wastewater sector workforce.



Vision & Values

The workforce strategy is intended to do the following:

- Fulfill the vision and values identified by the industry, for the industry
- Be governed by a culture of openness, transparency and sharing
- Require individual and collaborative action

The vision and values will guide the implementation of the strategy.

Vision

For the industry as a whole:
Safe water for healthy, thriving BC communities and a sustainable environment

For the workforce strategy:
A competent, sustainable workforce providing safe water for healthy, thriving BC communities and the environment

Values

As industry professionals, we value:

- Our role as trusted guardians of public health and the environment, and important contributors to the prosperity of communities
- Unwavering integrity, ethics and accountability to our stakeholders
- Competence, knowledge, skills and lifelong learning
- Leadership through collaboration and teamwork
- Excellence through innovation





Leading the Strategy

To ensure that the vision and values inform implementation activities, the strategy recommends that a new Project Committee be formed to guide the implementation. The committee should be structured to ensure that decisions are made in partnership with all stakeholders.

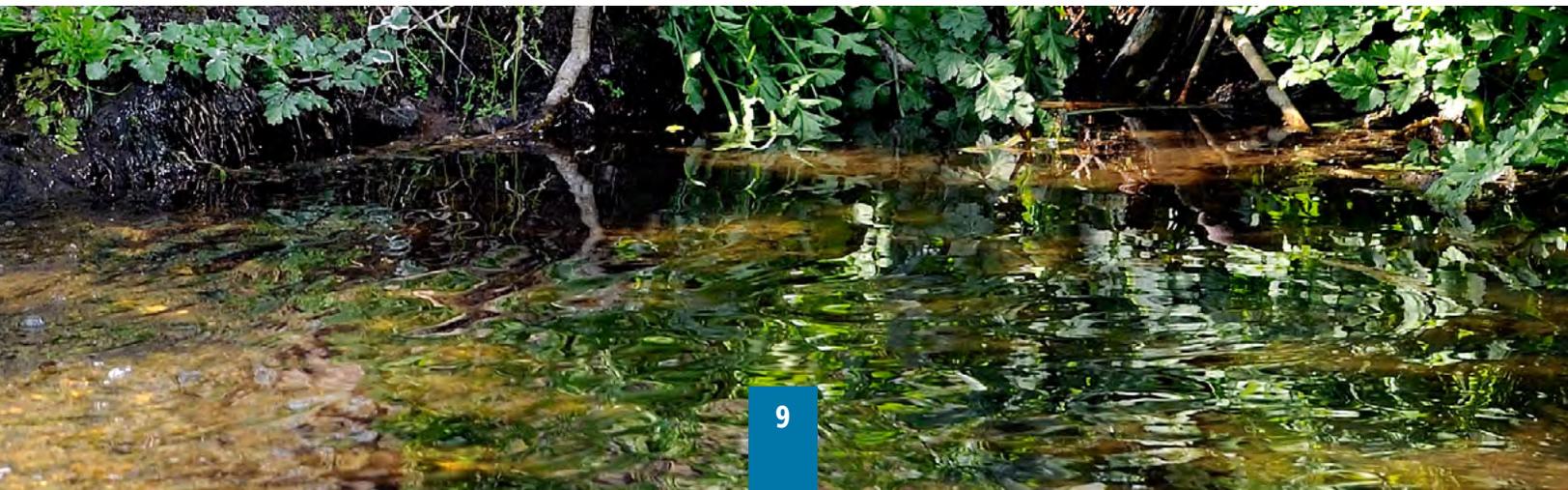
To avoid a gap in governance, the existing Project Advisory Committee is prepared to take on this role until a new committee is formed. Alternatively, the formation of a Water Workforce Commission is being discussed, and this commission could take on the role envisaged for the Project Committee. Until a governance decision is made, the Project Advisory Committee will implement the workforce strategy by doing the following:

- Operating openly and transparently
- Facilitating sharing and collaboration among members and with the organizations they represent
- Acting in the best interests of the industry as a whole
- Using consensus decision making

The strategy also recommends hiring a project manager to provide administrative support to the committee and to coordinate implementation activities. As well, the strategy suggests setting up working groups consisting of industry representatives to implement the tactics in the strategy. Involving representatives with a special interest or role in the workforce related to specific tactics will respect the way the water sector operates in BC. The Project Committee and project manager can facilitate communication and coordination between the working groups.

The industry consultations also highlighted considerations in strategy implementation:

- **Collaboration, relationship building and partnerships in the sector need to be developed and nurtured** – Industry members lack experience working successfully together, although their collaboration in developing this workforce strategy heralds a new approach. Industry participants in the consultations were very supportive, but some—smaller employers in particular—lack experience with workforce development or with being part of an industry-wide initiative.
- **Continuity is needed in project management and coordination** – Other projects under way in the sector will impact the strategy. Therefore, the strategy must be a living document that is adjusted as other projects unfold.
- **Implementation of the strategy is urgent and critically important** – Because the workforce safeguards public health and the environment, future public safety may be at risk. Although the barriers impacting the workforce can be overcome, this effort will take time, resources and focused action.





WARNING
DANGER OF ELECTRIC SHOCK
DO NOT OPEN
DO NOT TOUCH
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Goals, Objectives & Tactics

The consultations with industry stakeholders led to five goals, with each goal addressing at least four of the five workforce barriers. For each of these goals, objectives and tactics were developed to make the goal a reality. *Blue Bold Italics* indicate tactics that were prioritized for quicker action.

Goal 1: A robust competency framework is the foundation for HR management, training and certification in the workforce.

Objectives	Tactics
<p>a. Occupations and jobs within the workforce and industry are identified.</p> <p>b. Competencies required for occupations and jobs within the workforce are clearly defined.</p> <p>c. Employers and training providers have increased awareness and capacity to use competency frameworks and their products.</p>	<p><i>1.1. Create an inventory of occupations and jobs, including a process for regular maintenance and updating.</i></p> <p><i>1.2. Create competency profiles for occupations and jobs.</i></p> <p><i>1.3. Design and create templates for competency-based job descriptions and job advertisements.</i></p> <p><i>1.4. Work with partners to leverage content for training and “how-to” guides on competency frameworks and their key products; identify gaps, create and execute plan to address these gaps.</i></p> <p><i>1.5. Pilot competency training and “how-to” guides; evaluate, refine and fully implement training delivery.</i></p>
<p>e. Training, and assessment of training outcomes, for water and wastewater occupations and jobs is competency-based.</p> <p>f. EOCP operator certification is relevant, and certification is realistically attainable.</p>	<p>1.6. Create, document and implement standards to develop and deliver training courses and programs; include a mechanism to confirm ongoing compliance.</p> <p>1.7. Resolve difficulties associated with obtaining certification requirements (experience hours), certification shelf life and currency requirements (continuing education units).</p> <p>1.8. Review the certification program to confirm it meets the intended needs.</p>

Goal 2: Succession-planning and knowledge-transfer mechanisms facilitate smooth retirement and replacement transitions.

Objectives	Tactics
<p>a. Employers have easy access to adaptable, best-practice tools for succession planning.</p>	<p><i>2.1 Work with partners to identify and leverage existing succession-planning tools; identify gaps, and develop and execute plan to address gaps.</i></p>
<p>b. Employers can easily identify and assess benefits and costs of adopting new and existing technologies.</p>	<p>2.2 Work with partners to identify, research and assess technologies for adoption (AutoCAD, GIS, etc.).</p> <p>2.3 Work with partners to identify and document best practices for technology adoption.</p> <p>2.4 Hold site tours to showcase best practices of technology adoption.</p>
<p>c. Employers and job seekers can easily connect with each other.</p> <p>d. Employers can attract and hire job candidates with the right skills.</p>	<p>2.5 Work with partners (WorkBC, etc.) to identify and leverage existing connection tools.</p> <p>2.6 Work with partners to research and identify best practices; adapt or develop and pilot industry-wide targeted recruitment strategy; evaluate, refine and fully implement.</p>

Goal 3: The water and wastewater industry has an enhanced image and brand that attracts new entrants.

Objectives	Tactics
<ul style="list-style-type: none"> a. The industry is recognized for its employment opportunities in green/environment, health and safety sectors. b. The workforce is associated with “first responders,” similar to police, firefighters, etc. c. The industry is viewed as a desirable career choice. d. Career information and exploration opportunities are easily available and accessible. 	<ul style="list-style-type: none"> 3.1 <i>Work with partners to identify and leverage existing best practices and resources for marketing careers; design and implement a sustained multimedia marketing campaign; rebrand industry.</i> 3.2 <i>Develop career path infographic showing career mobility options throughout the sector, from entry level to executive (i.e., horizontal and vertical pathways).</i> 3.3 <i>Create career awareness materials, including two curriculum resources; work with partners (BC Ministry of Education, WorkBC, etc.) to leverage templates, packaging and distribution/publication channels.</i> 3.4 Offer and/or participate in outreach activities to engage students, job seekers and the public (e.g., public works days, career fairs, open houses). 3.5 Conduct an inventory and assess the effectiveness of current activities; develop options for enhancements.

Goal 4: Professional development is accessible, applicable and continuous from employment entry to retirement.

Objectives	Tactics
<p>a. Available training is affordable and easy to find and access.</p>	<p>4.1 Map existing training and highlight accessibility barriers; develop options to address barriers.</p>
<p>b. Employee development and training are aligned with job/occupation competencies and other employer requirements.</p> <p>c. Employees can access on- and off-the-job training to obtain competencies, and have their competencies recognized in a manner acceptable to their employers.</p> <p>d. Training capacity is built within the workforce—employees become trainers and mentors.</p>	<p>4.2 Conduct training needs assessments and develop individual learning plans for employees based on results.</p> <p>4.3 Work with partners to identify or develop and pilot training options to address needs in individual learning plans.</p> <p>4.4 Work with partners to identify, leverage, research, and adapt best-practice mentoring programs to the industry and pilot an industry-wide mentoring program; evaluate, refine and move to full implementation.</p> <p>4.5 Work with partners to source content and templates to create a co-learning / mentoring guide for employees.</p> <p>4.6 Work with partners to research best practices; design and implement an in-house training model (e.g., job shadowing, cross-training).</p> <p>4.7 Determine, find or develop and deliver training for specific topics of interest to employers.</p> <p>4.8 Work with partners to identify, adapt and deliver a “train-the-trainers” program; incorporate in relevant post-secondary occupational training programs.</p> <p>4.9 Recruit, engage and train retirees to be trainers and mentors.</p>

Goal 5: Employers use best-practice HR tools and processes for motivating, managing and retaining employees.

Objectives	Tactics
<ul style="list-style-type: none"> a. Employers have easy access to best-practice HR management tools and processes, as well as training in how to use them. b. Employees feel valued. c. Inclusive and diverse workplaces are encouraged throughout industry. d. Easy access is provided to information, resources and tools developed as part of the workforce strategy. e. Relationships and partnerships are established to support implementation of the strategy and ongoing collaboration on workforce issues and initiatives. 	<ul style="list-style-type: none"> <i>5.1 Establish governance model; source and deliver governance training to Project Committee members.</i> <i>5.2 Work with partners to identify and leverage storage, distribution and communication forums and channels for resources and tools as they are developed through the strategy.</i> <i>5.3 Collect or create and disseminate sample HR policies for inclusive and diverse workplaces.</i> 5.4 Research, identify and disseminate best HR practices of employers in the industry and among “employers of choice.” 5.5 Work with partners to identify, adapt and pilot an industry-wide employee/employer recognition program; evaluate, refine and move to full implementation.

Implementing the Strategy

The following tactics have been given high priority because they will begin within one year of one another and will be completed within three years of launching, save one tactic that will be completed within five years.

The tactics are divided into three stages based upon feedback from the industry, relationships and dependencies among tactics (illustrated through the arrows on the next page), and the time required to complete each tactic.

Note that tactics are intended to be implemented concurrently whenever possible, except when a tactic depends on another one or resources do not permit. As a result, tactics in one stage may overlap those in the next stage.

Stage 1: Establishing structures to coordinate all implementation activities

Tactic 5.1: Establish governance model; source and deliver governance training to Project Committee members.



Stage 2: Building critical foundation elements

Tactic 2.1: Work with partners to identify and leverage existing succession-planning tools; identify gaps, and develop and execute plan to address gaps.

Tactic 5.2: Work with partners to identify and leverage storage, distribution and communication forums and channels for resources and tools as they are developed through the strategy.

Tactic 1.1: Create an inventory of occupations and jobs, including a process for regular maintenance and updating.

Tactic 3.1: Work with partners to identify and leverage existing best practices and resources for marketing careers; design and implement a sustained multimedia marketing campaign; rebrand industry.

Tactic 3.3: Create career awareness materials, including two curriculum resources; work with partners (BC Ministry of Education, WorkBC, etc.) to leverage templates, packaging and distribution/publication channels.

Stage 3: Building employers' capacity to use foundation elements

Tactic 1.2: Create competency profiles for occupations and jobs.

Tactic 1.3: Design and create templates for competency-based job descriptions and job advertisements.

Tactic 3.2: Develop career path infographic showing career mobility options throughout the sector, from entry level to executive (i.e., horizontal and vertical pathways).

Tactic 1.4: Work with partners to leverage content for training and "how-to" guides on competency frameworks and their key products; identify gaps, create and execute plan to address these gaps.

Tactic 1.5: Pilot competency training and "how-to" guides; evaluate, refine and fully implement training delivery.

Tactic 5.3: Collect or create and disseminate sample HR policies for inclusive and diverse workplaces.



Sustaining & Evaluating the Strategy

A strategy must be sustainable, to ensure effort is not lost in the coming years. And it must be thoroughly evaluated to ensure it is meeting its intended goals.

The strategy includes a sustainability plan for the tactics involving the competency framework (1.1 and 1.2) and career awareness (3.1 and 3.2). This means identifying a suitable “owner” for each of these tactics, that is, an organization that will take responsibility for maintaining and updating them. As well, the frequency of updates and maintenance will need to be established, and cost and time for maintenance determined.

To permit evaluation of the strategy, a logic model was developed. Logic models are commonly used to determine the measures and data that will show that objectives are progressing or being achieved. The logic model includes immediate, intermediate and long-term outcomes of the strategy. It also includes key performance indicators that the strategy is working, and the data required to measure these indicators. For example, fewer job vacancies and reduced time to hire a new employee will be strong indications that the efforts to improve awareness of careers and recruitment are paying off.

Sustaining and evaluating the strategy are crucial to building a competent and sustainable water and wastewater workforce in the coming decade.





Get involved! To support this strategy or obtain more information contact:



contact@bcwwa.org
604-433-4389



eocp@eocp.ca
604-874-4784