

# **Municipality of Brockton**

## **Planning Strategy for Water Cluster Investment Opportunities**

January 31, 2013

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# Executive Summary

This report has been prepared by Millier Dickinson Blais to provide the Municipality of Brockton with an understanding of the emerging economic opportunities in the water research, technology, training and supply sector (herein referred to as the “water technologies sector”) and the competitive positioning of the municipality within the sector.

## Water Technologies Sector Trend Analysis

The water technologies sector includes a full gamut of companies and organizations providing research and services involved in water conveyance, collection, distribution, treatment, disposal and reuse. The sector is valued at \$400 billion (US\$) and is projected to grow to \$1 trillion. There are significant opportunities for Ontario-based companies throughout the supply chain in segments that include water purification manufacturing, sales, wholesale and distribution of water technology, water technology research consulting, water systems engineering, design, analysis and services, and water systems installations. Each of these segments in the value chain represents a potential investment attraction target for communities across Ontario that want to further develop this economic sector.

There are many global trends that are shaping the demand for innovation in the sector. Population growth is fueling the need for more water resources. With added population growth comes the need for more agriculture and natural resources, which puts further strain on water resources. Countries are also becoming more urbanized which places a strain on municipal water infrastructure. Industrial growth increases the demand for water. Global industries are faced with challenges of decreasing water resource consumption while energy costs increase. There are also opportunities for rebuilding, improving and expanding municipal water systems to address capacity and distribution constraints. Finally, climatic changes such as droughts, floods and extreme events compound the vulnerability of hydrological systems.

Canada is in a favourable position with the largest freshwater reserves in the world. However, our consumption of water is much higher per capita than other countries around the world. This high consumption suggests that many of the domestic water technology solutions lie in conservation and improved management of water resources. Water resource issues vary by provincial/territorial regions. In Central Canada there is an increase in consumption driven by industry, power plants, farms and growing urban centres. In the Prairies strong population growth is putting pressure on water supply. First Nations communities across Canada also require improved access to safe drinking water and wastewater treatment.

Despite the inefficiencies in the water infrastructure system, Canadian water technology sector firms maintain a technical lead in such areas as purification, membranes, hydrogeology and water systems consulting, engineering and



construction. Some of these firms are large companies such as SNC Lavalin but many of them are small and medium sized enterprises. To take advantage of sector innovation, Canadian firms must overcome challenges regarding commercial scale, regional intelligence and market access. These firms can either scale up to provide complete solutions or insert themselves into the broader global supply chain of larger companies or government buyers.

Innovation and creativity are among the most significant factors for driving growth and remaining competitive in this sector. Commercialization is the transforming of ideas into actions that lead to commercial success. There are three broad channels for the commercialization of technologies. These are the selling or assigning ownership of the technology to an existing company, licensing the technology to an existing company, or starting a new company. Each pathway to commercialization has associated risks, challenges and potential rewards.

The single largest advantage that the Walkerton area has that will attract future investment in the water technologies sector is the Walkerton Clean Water Centre (WCWC). The training facilities have led to a steady stream of operators coming through the Centre throughout the year.

Local stakeholders who participated in the project identified advantages that could be used to attract further investment in the sector, which are provided in further detail in the main report. Despite these advantages, local stakeholders are aware of challenges to business expansion in the Walkerton area that may impact attracting new investment in this sector.

## Location Factor Assessment

The location factors with the most influence on investment attraction in the water technologies sector include the labour force, local industry, utilities, incentives and business support, and education and training resources. In terms of education and training resources, one of the key elements to cluster development is having a readily available supply of local talent that can engage with businesses in the sector. Local education and training programs will enable the development of that local workforce, both through new entrants to the labour force and existing workers looking to access new employment opportunities. There are many education, training and research programs available across Ontario, but many of these programs are located in the GTA, Waterloo, Guelph or Hamilton. The Walkerton Clean Water Centre is part of this larger, sophisticated network for water technologies education, training and research. The WCWC and Municipality of Brockton have a role to play and can strengthen their involvement in the province's water technologies sector. With that being said, the strong Walkerton profile and name recognition has provided the municipality with a solid base for water technology demonstrations and technical training programs. Additional research programs could be developed for the Walkerton area where leading public sector researchers and innovators can test their technology concepts and/or monitor the adoption of new technologies.



## Value Proposition

Walkerton's value proposition for attracting investment in the water sector is: **a small, rural community with a sophisticated water treatment demonstration and training facility and with water research capacity that can support a larger national and international network of water-related expertise.** This is the competitive advantage that the Municipality of Brockton must emphasize in order to differentiate itself from major competitors such as the cities of Guelph, Waterloo, Hamilton, Toronto and others that are home to universities with water-related research.

## Strategic Directions

**Program Vision** - Beyond the value proposition the community has access to a range of natural heritage and environmental resources that can act as a testing ground within the water sector. The community's agricultural and rural roots position it well to support activities related to drinking water monitoring and rural and private servicing on residential and employment lands. With proximity to Lake Huron/Georgian Bay, as well as major rivers and tributaries in the Grand River and Saugeen River watersheds, the community offers opportunities to support research in areas like climate change and source water protection, as well as studies of fresh water ecosystem biodiversity. The more streamlined regulatory environment in the Grey-Bruce area, paired with municipalities open to water systems innovation, is an asset in terms of accessing these natural resources and testing innovative technologies in real-world systems.

Further, the community is in proximity to a number of assets that drive research, commercialization, and business development in the sector. The community has access to post-secondary institutions, researchers, and commercialization organizations in southern Ontario with a focus in areas like clean technology and water technology. The community also has connections to existing and potential markets for water technology (e.g. municipalities, aboriginal communities, private sector businesses/operators) as well as a broader national discourse in the water technology sector through the Walkerton Clean Water Centre.

As a result, Brockton's opportunity to support the development of a water cluster in the community lies at the convergence of these natural heritage assets, its connections to the broader research and development infrastructure of the water sector, and connections to potential markets and policy makers. At this convergence is the idea of Brockton as an open-innovation ecosystem to support research and commercialization, demonstration of new technologies, and business development in the water sector. It builds on the idea that Brockton provides access to a highly dynamic natural environment with constantly changing variables and varied natural environmental systems that can support testing and demonstration of virtually any new technology, while offering the opportunity to build additional physical spaces and programs that can support the expansion of the sector beyond training and monitoring capabilities.



In much the same way as new technologies emerge from a laboratory, Brockton can be the source of new technologies. It can be an environment that encourages companies and researchers from across the region and globe to test their theories and develop new technologies with the potential to generate positive impacts locally and well outside of the Brockton area. However, it retains an advantage in its “living” status – researchers and businesses have access to a constantly changing natural environment, while a steady stream of collaborators, customers, and entrepreneurs move through the community and access training and business development support. This creates a frequently changing natural and institutional environment, providing new opportunities to test, market, and collaborate on new technologies.

**Program Direction** – There is an emerging strength in the province related to research and development, testing, and demonstration in water technologies. The intent for the water cluster anchored in Brockton is to expand on these capabilities and opportunities in the Grey-Bruce area, as well as fill a critical gap area at the later stages – primarily technology commercialization and business incubation. In general, the focus of the Brockton water cluster initiative should be the movement of new technological innovations to marketable products (i.e. from laboratory to pilot/early stage businesses) and the support of small businesses and entrepreneurs in the water sector.

**Program Focus** - The Brockton water cluster will have three areas of focus: Ontario Centres of Excellence target areas, training and education, and digital systems and data management.

**Institutional Development** - There are potential institutional components that may be developed in the Brockton water cluster. They include a business incubator, a demonstration site and commercial centre, and expanded facilities at the WCWC.

**Cluster Development and Investment Attraction** - What Millier Dickinson Blais proposes is a multi-step, sequential strategy for creating the necessary conditions for further development in the water sector and articulating a clear message to potential investors, businesses, researchers, and entrepreneurs in the sector about the opportunities in Brockton.

## Investment Attraction Strategy

The water sector represents an identified niche target area, which should be addressed through marketing and investment attraction activities that build upon three key pillars:

- **Linking assets in the target area to support marketing efforts** – existing assets in the water sector in southern Ontario must be inventoried and key players gathered in advisory structures that direct and support efforts on an ongoing basis.



- **Building and communicating specialized knowledge of the segment** – the Municipality of Brockton must have available specialized marketing materials addressing the needs and opportunities within the water sector and make these available through dedicated (possibly standalone) aspects of its web presence and presentation slides with summary materials for supporting direct contact in the sector.
- **Relationship building within the segment** – to underline the direct interest and connection to the water sector, Brockton water sector stakeholders and influencers must develop direct links and contacts to the sector in its own space and at its own events and maintain that contact over time.

## Implementation Plan

The Municipality of Brockton already has a goal for greater involvement in the water technologies sector – the development of a cluster of water technology activity based on its existing institutional strengths. Out of that goal has emerged a more detailed vision for the community in the sector. The resulting vision leverages the convergence of natural heritage assets in the community, its connections to the broader research and development infrastructure of the water sector, and connections to potential markets and policy makers, and establishes the potential of the community to fill a critical gap in the later stages of the sector – primarily related to technology commercialization and business incubation.

To achieve the vision, the Brockton area must undertake strategic initiatives that have the potential to leverage that positioning into the expansion of opportunities in the water technologies sector in the local area. The actions in the implementation plan will be divided into the strategic direction areas focused on building the resources and profile needed to further anchor water technology sector investment in the Brockton Area.

- 1. Develop Organizational Structures: Build the local governance and organizational structures necessary to effectively manage the development and promotion of water sector opportunities in Brockton.**

**Action 1: Develop a regional water technologies sector working group to pursue sector-based initiatives, and generate commitments to ongoing staffing support to ensure its sustainability.**

### Key Elements

- Initiate discussions with regional partners regarding the establishment of the working group, ideally leading to the creation of an arm's-length structure, and identify leading potential academic or industry partners in southern Ontario to engage in the group
- Provide dedicated staff support from the BEDC and Municipality to pursue the implementation of this strategy under the guidance of the new organization and establish commitments of staff or resources from external organizations to engage in sector-based initiatives
- Develop a prioritized list of sector-based initiatives to pursue through the working group structure, including potential industry or academic



pilot projects

- Develop mechanisms to identify and pursue opportunities for additional external funding to support the continued growth of the sector on an ongoing basis (e.g. Ontario Centres of Excellence)

## 2. **Develop Physical and Programming Capacity: Build the local institutions and assets that encourage the development of a local water cluster in Brockton.**

### **Action 2: Undertake the foundational activities needed to pursue the development of a water technology incubation program in Brockton.**

#### **Key Elements**

- Establish a not-for-profit corporation and board of directors (leveraging the working group structure) to guide development of the incubation program, including early-stage activities related to governance, external and internal funding, marketing, and staffing (e.g. Incubator Manager)
- Develop an interim incubation program (housed in a temporary facility) focused on the water technologies sector and attract internal and external partners to establish high quality programming
- Undertake more detailed business and financial planning activities to guide the transition of the program to a permanent physical space and ensure sustainability over the longer term, including an assessment of potential location and facility options (e.g. East Ridge Business Park, within WCWC)
- Develop a full suite of business and sector-specific programming options and detailed marketing plan to promote the facility/program

### **Action 3: Establish facilities and spaces in the municipality focused on supporting commercialization, marketing, and distribution of new and existing technologies in the water sector**

#### **Key Elements**

- Investigate the potential locations for a demonstration site in proximity to the WCWC (perhaps within the East Ridge Business Park) with the capacity to support demonstration of a wide range of emerging and pilot-stage products and services in the water sector
- Identify commercial space available to support the permanent, temporary, or satellite presence of existing water technology businesses and service providers in the province near the WCWC, including office space and small convention-type spaces
- Develop a commercial services “package” targeted at existing water technology businesses that outlines available temporary and



permanent spaces and facilitates opportunities to connect with operators through the WCWC (in-person or virtually). Explore a fee-for-service structure to cover expenses incurred by the Municipality to rent or lease space (as needed)

- Connect with researchers and technology-transfer offices (where applicable) at post-secondary institutions across southern Ontario (e.g. University of Waterloo, University of Guelph, Western University) to understand emerging water technologies and opportunities near the pilot project stage where municipalities can offer support
- Review the Municipal, County, and Conservation Authority's planning and building regulations to identify any barriers to demonstration projects in agricultural, rural, and environmentally protected areas. If applicable, develop policy proposals for consideration by the Municipality, County and Conservation Authority

#### **Action 4: Identify a prioritized list of capital improvements to the Walkerton Clean Water Centre that will support the development of the sector**

##### **Key Elements**

- Include the WCWC as a potential location for both interim and permanent incubation space in the municipality and establish a concept plan to either accommodate the incubator or connect with it
- Create a prioritized list of capital improvements (e.g. storage tanks, meeting rooms, labs, IT hardware) that can be undertaken jointly or independently at the WCWC by the Province and Municipality to support other activities in the sector (e.g. incubation, commercial service centre, demonstration, training and education)
- Liaise with the Provincial government and the WCWC to explore internal and external funding opportunities to finance improvements or expansions

- 3. Build the External Profile: Establish and maintain connections to the external water technologies sector and promote Brockton as an integral part of the sector in Ontario and as an open-innovation ecosystem of new technology development and demonstration.**

#### **Action 5: Develop and implement marketing programs and initiatives based on the directions and opportunities identified in this strategy to promote the water technology sector**

##### **Key Elements**

- The sector working group and other regional economic development partners should leverage the reputation of the WCWC to build the identity of Brockton as a site for demonstration and expansion of water technologies
- Engage with the broader water technology sector through online channels, including the development of a water technology "microsite"



and social media connections to sector experts, influencers, organizations, and businesses

- Print marketing materials such as brochures or sector profiles utilizing content from the economic development website with the goal of creating “hard” materials that are aligned with an online presence that can be produced on demand and left with potential clients, investors, and collaborators moving through the WCWC
- BEDC and other partners should co-ordinate efforts through the working group to enhance participation in industry conferences and tradeshows and potentially host small conferences or tradeshows
- Working through the working group and external partners, the BEDC and its partners should undertake a sector-based corporate calling program to key businesses and academic institutions outside of the region to proactively identify potential investors and incubation/demonstration clients

#### **Action 6: Establish Brockton as an internationally-recognized and well-connected open-innovation ecosystem for water technology sector incubation, commercialization and demonstration**

##### **Key Elements**

- Identify potential industrial and academic stakeholders from outside Ontario and establish connections with researchers and academics working on technologies relevant to Brockton (e.g. wastewater treatment, drinking water treatment, stormwater management, source water protection, digital systems, and data management)
- Build an understanding of local capacity in the water technologies sector among external industrial and academic stakeholders
- Leverage the list of domestic and international connections in academia and industry to attract new external pilot projects in the sector
- Promote Brockton as an open-innovation ecosystem for practical research and pilot projects in the water technologies sector through external partners on an ongoing basis.



# 1 Introduction

In 2012, the Municipality of Brockton's Economic Development Committee (BEDC) determined that it should undertake a study to identify and attract new opportunities in the water research, technology, training and supply sector, referred to in their original discussions and in this report as the 'water technologies sector'. Economic development consulting firm Millier Dickinson Blais was retained to provide the senior municipal staff and BEDC members with assistance in this project and to provide guidance for competitive positioning of the municipality within the sector.

The project considered a wide range of issues and approaches over the course of about six months, including:

- An analysis of the emerging trends in clean water research and technologies, both in Canada and around the world
- A review of the “supply chain” of the water technology sector
- An examination of the level of water technology innovation and commercialization that is occurring locally and regionally
- A review of “location factors” that influence potential investments and their relative importance to marketing messages in the Brockton context
- An assessment of the ways in which the presence, activities, research strengths and personnel at the Walkerton Clean Water Centre might influence investment opportunities
- An overview of the range and type of collaborative partnership efforts that are being – or could be – supported by local activity in the water sector
- An exploration of a strategic approach to investment attraction of the water technology sector in the Municipality of Brockton
- A description of a vision and strategic direction for the community to pursue in implementing the ideas and approaches described in this report

In broad terms, the strategy that is described for Brockton builds on the idea that there is currently a gap in Canada's water technology innovation system. While a significant quantity of high-impact, high-value research is being carried out across the country – and particularly in southern Ontario – to identify and develop new water-related technologies, there is no system to support or facilitate the movement of these innovative tools and ideas from the laboratory to the real world. This problem is often described as the “innovation gap” or “commercialization gap,” terms which refer to the idea that technologies that work in the academic space must also be shown – “demonstrated” – to be workable in the real world. Historically, there were places where researchers could arrange field demonstrations of new water technologies



as a means of bridging the commercialization gap, but none presently exist in the Canadian context and there are few worldwide.

The strategy described in this document suggests that Brockton – the entire municipality – begins to position itself as an “open-innovation ecosystem.” This is a concept first developed in the 1960s by researchers at the University of California at Berkeley and it describes a community in which scientific research, local knowledge, ecological systems and community interests are united in a program that supports the movement of new ideas from the laboratory to the community.

This concept – and the recommendations of this report – rest on three central pillars or approaches:

- **A Focus on Community Collaboration** – that local resources and organizations (including the Municipality, local community organizations and the Walkerton Clean Water Centre) create and participate in collaborative community-based strategies to develop, nurture and promote the strategies outlined in this report.
- **An Ecosystem of Open Innovation** – that the community opens itself up to opportunities to bridge the innovation gap, using local built and natural assets and systems to support water technology innovations by focusing on the “5 M’s” of water technology: mapping, measuring, monitoring, modelling and managing.
- **An Entrepreneurial Infrastructure** – that the community actively seeks to build facilities and systems that support entrepreneurship and business creation emerging from the innovation system, with specific emphasis on expanded research systems at the Walkerton Clean Water centre, a technology demonstration space, and a business incubation program.

This approach is a logical outgrowth of the content of this report. In the following pages, a wide-ranging but clear picture of water technology research and innovation activity is linked to a focused discussion of Brockton’s unique opportunities, asset mix and value proposition. This leads to a specific and detailed discussion of how Brockton can and should position itself to attract, support and grow investment in the water technology sector. Building on this vision, the report concludes with a detailed and tangible implementation plan outlining the process through which the Municipality of Brockton and its partners can begin to enact the strategies and approaches in the document.



## 2 Water Technologies Sector Trend Analysis

The water technologies sector includes a full gamut of companies and organizations providing research and services involved in water conveyance, collection, distribution, treatment, disposal and reuse. The sector is valued at \$400 billion (US \$) and is projected to grow to \$1 trillion. There are significant opportunities throughout the supply chain that can be realized by companies and communities. These segments include:

- Water purification manufacturing
- Sales and wholesale and distribution
- Water technologies research consulting
- Water systems engineering design, analysis and services
- Water systems installations

Each of these segments in the value chain represents a potential investment attraction target for the Municipality of Brockton and BEDC. However, the competitive positioning and prospects for the areas in the water technologies value chain will be shaped by the sector composition and trends at the global, national and local levels. The following section outlines the high-level trends that provide the necessary background to assessing the prospects and opportunities in water technologies for the municipality and BEDC.

### 2.1 Global Trends and Context

The following global trends are shaping the demand for innovation in the water technologies sector.

- **Population growth and water needs** – With global population forecasted to continue a growth trajectory through to 2030 (estimated at 8.3 billion), the added growth will create increased demand for water resources. According to the United Nation`s *Millennium Development Goals Report 2012*, 11 percent (783 million) of the global population remains without access to an improved source of drinking water. These sources include household connections, public standpipes, boreholes, protected dug wells, protected springs and rainwater collections. Access to improved drinking water is even worse in sub-Saharan Africa where over 40 percent of all people remain without access. The United Nations General Assembly recognized in July 2010 that every human being has the right to have access to sufficient water for personal and domestic uses (between 50 and 100 litres of water per person per day), which must



be safe, acceptable and affordable (not to exceed 3 percent of household income) and physically accessible (within 1,000 metres of the home and collection time should not exceed 30 minutes).<sup>1</sup>

- **Agriculture and natural resources** – The agriculture industry has always been a large water user, especially in areas that used intensive irrigation systems. Population growth will add more strain on the industry as more people demand more food products. Agriculture accounts for approximately 3,100 billion cubic metres, or 71 percent of global water withdrawals today and without efficiency gains will increase to 4,500 billion cubic metres by 2030.<sup>2</sup> The water challenge is directly linked to food provision. Agricultural water productivity measures will need to improve the efficiency of water applications. The technology solutions lies in improved water application, such as sprinkler irrigation and crop productivity measures such as no-till farming and improved drainage among others.
- **Urbanization** – By 2030, the United Nations estimates that 60% (5.0 billion) of the world`s population will live in an urban areas (50% as of 2010). Domestic water use in urban areas outpaces that of rural areas, which will put significant strain on overburdened water infrastructure.<sup>3</sup> Some of the techniques that will need to be used to manage water in urban areas include:
  - *Rain water collection* – rainwater can be treated and used for industrial and domestic uses or used to recharge groundwater reserves.
  - *Urban agriculture* – using gray water and hydroponics, cities can grow significant amounts of food without using excessive water or land.
  - *Desalination* – an energy-intensive approach to treat water in coastal areas.
  - *Smart-metres* – by monitoring water use, cities can gain a greater understanding of patterns and build awareness of conservation.
  - *Pipe sensors* – acoustic sensors equipped with GPS can locate leaks before they become large losses.
  - *Dew harvesting* – dew catchers have the potential to add to freshwater supplies in arid regions.<sup>4</sup>
- **Industrial growth** – As industrial growth increases the demand for water increases. Over time industrial uses will be facing simultaneous water and energy strains as more energy inputs will be needed to address water availability and pollution abatement. Global industries face a spiralling challenge of decreasing water resources and increasing pollution, which in turn requires increasing energy demands. Large industrial uses such as oil and gas extraction,

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<sup>1</sup> United Nations Global Issues Water, <http://www.un.org/en/globalissues/water/>, viewed on September 10<sup>th</sup>, 2012.

<sup>2</sup> 2030 Water Resources Group, *Charting Our Water Future – Economic frameworks to inform decision-making*, McKinsey & company, 2010.

<sup>3</sup> United Nations Department of Economic and Social Affairs/Population Division, *World Urbanization Prospects: The 2011 Revision*, [http://esa.un.org/unup/pdf/WUP2011\\_Highlights.pdf](http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf), March 2012, p.4.

<sup>4</sup> *Water: A Global Innovation Outlook Report*, IBM Corporation, 2009.



and metals manufacturing face both a water and energy challenge. The challenge places companies at risk of water scarcity. They can mitigate the risk by investing in water efficiency solutions.

- Infrastructure needs** – Cumulative global water infrastructure requirements are estimated to reach \$22 trillion from 2005 to 2030, including approximately \$9 trillion in Asia-Pacific, \$4.5 trillion in Latin America and \$4.5 trillion in Europe.<sup>5</sup> There is a significant opportunity to not only rebuild existing infrastructure, but to create a more efficient and effective system applying water research intelligence and instrumentation. This improved water system can help reduce losses from the built and natural systems.<sup>6</sup> Municipal water stakeholders are looking for ways to extend, improve capacity, and optimize distribution and are interest in technologies designed to satisfy these needs. Water demand is also being challenged and solutions are being sought to reduce the costs of energy or chemicals in the water system. There is also a trend towards backing energy efficient treatment technologies that aim at improving the productivity of water treatment and distribution and technologies that facilitate water reuse.<sup>7</sup> The water infrastructure demand is presented in the following table.

FIGURE 2.1: WATER INFRASTRUCTURE DEMAND

Advanced Markets (replacement of aging infrastructure)	Developing Markets (new demand from urbanization)
<ul style="list-style-type: none"> <li>Water systems that are near the end of their useful life</li> <li>Aging wastewater systems that discharge billions of gallons of untreated wastewater</li> </ul>	<ul style="list-style-type: none"> <li>Large-scale and rapid urbanization requires massive infrastructure services for water, wastewater, sewers, and solid waste management systems.</li> </ul>

- Climate change** – The areas of concern regarding climate change include droughts, flooding, and extreme events that all compound the vulnerability of hydrological systems. The volumes of water stored in glaciers and snow pack will decline over the coming decades. After a phase of increased discharge there will be less water available in regions supplied by meltwater running off from mountain chains. One-sixth of the world's population currently lives in these regions.<sup>8</sup>

<sup>5</sup> Cohen & Steers, Global Infrastructure Report 2009: The \$40 Trillion Challenge, OECD Infrastructure to 2030, 2006.

<sup>6</sup> *Water: A Global Innovation Outlook Report*, IBM Corporation, 2010, p.31.

<sup>7</sup> *The State of Water Innovation*, CleanTech Group LLC, 2010

<sup>8</sup> *Water: a market of the future*, Sustainable Asset Management USA, Inc., 2010, p.22.



The spectrum of water technologies opportunities is presented in Figure 2.2. There are ultimately four sources of water: precipitation in the atmosphere, groundwater, lakes and oceans. The water technology sector opportunities are as follows:

- Exploring, extracting and transporting water reserves
- Treating and disinfecting drinking water; distributing water to end consumers
- Measuring the volume of water sold (domestic water use and drainage into sewer system)
- Treating the wastewater in sewage plants
- Reusing the grey water for other purposes

The end water users are industry, municipalities/households and agriculture. Due to irrigation requirements, agriculture is the largest water consumer making up 71% of water withdrawals. It is projected that the agriculture industry will account for 65% of water withdrawals by 2030. Industry and municipalities/households account for an estimated 18% and 16% of water withdrawals respectively. Water withdrawals are projected to increase for both industry and municipalities/households, but the largest growth will occur in industry where by 2030 an estimated 21% of water withdrawals will be made.<sup>9</sup>

**Global Water Industry Leaders** – Four countries that are positioning themselves as leaders in developing and exporting water technologies and solutions are Singapore, Germany, Israel and the Netherlands.

**Singapore** is a small city-state that is a leader in the environment and water sector. This city-state is heavily reliant on imported water, which accounts for 40% of the water supply and comes from Malaysia. The city-state's need to be self sufficient in terms of water supply has triggered the need for the government to align economic, social and environmental requirements into a focused policy that prioritizes the water industry as a key economic growth sector. Policy reform has enabled the conditions for the city-state to supply water independently and created a thriving water industry. Administrative barriers have been removed by consolidating all water-related administrations under the Ministry of Environment and Water. The Public Utilities Board (PUB) is a national water utility, which manages all comprehensive water-related matters and facilitates research and technology development through funding and the use of its facilities as testing and demonstration sites.<sup>10</sup>

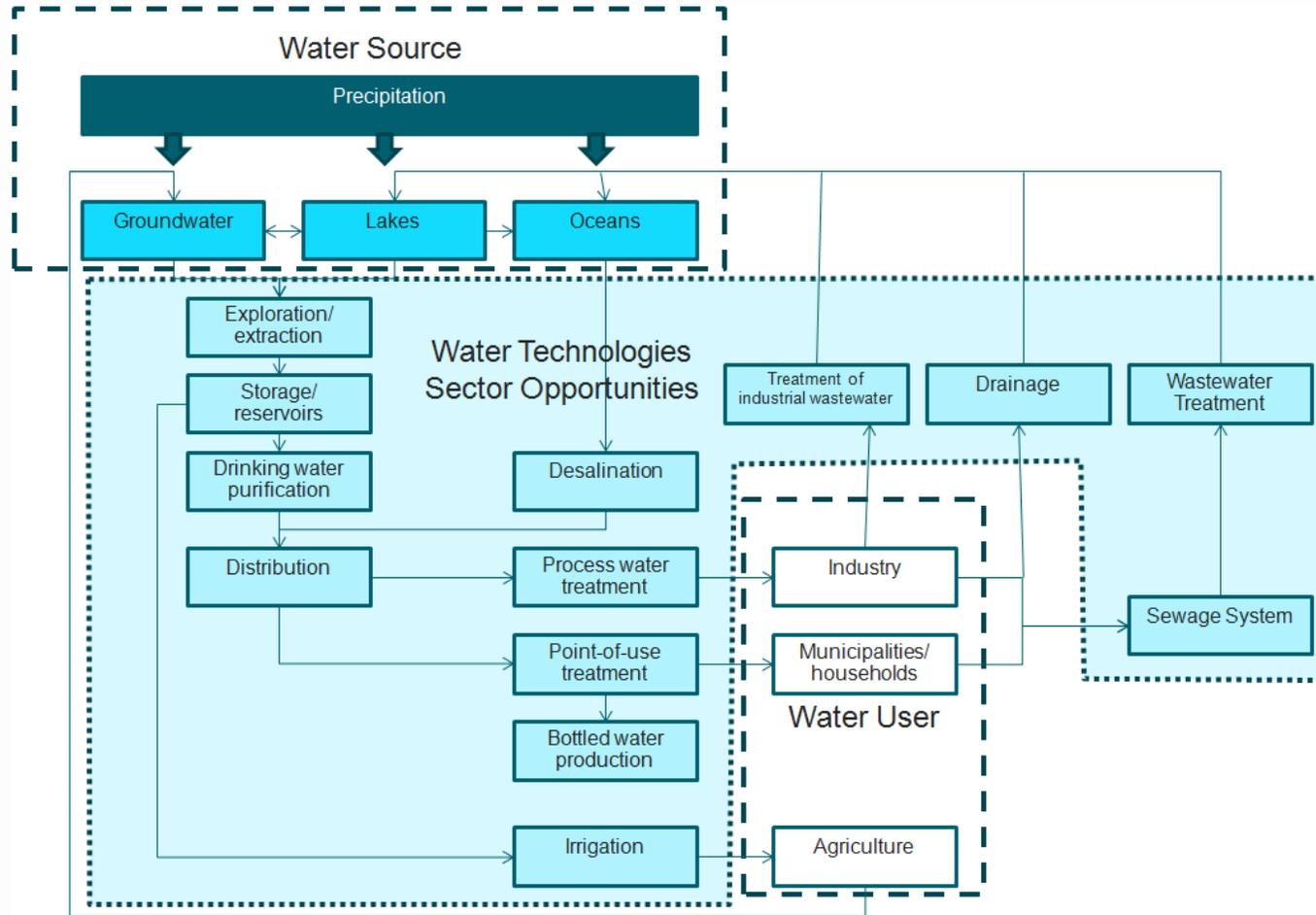
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<sup>9</sup> 2030 Water Resources Group, Charting Our Water Future – Economic frameworks to inform decision-making, McKinsey & Company, 2010

<sup>10</sup> *The Water Opportunity for Ontario*, Ontario Centre for Environmental Technology Advancement (OCETA) and XPV Capital, March 2010, p.17.



FIGURE 2.2: WATER VALUE CHAIN



Source: Water: a market of the future, Sustainable Asset Management USA, Inc., 2010, p.25.



Tax breaks and other financial incentives have been used to attract investment from multi-national corporations in the water technologies sector. Investments include the following:

- GE Water & Process Technologies invested \$83 million (US) in 2006 to build a global R&D centre, which resulted in the immediate employment of 100 top-tier researchers.
- GE Water & Process Technologies and National University of Singapore established the NUS-GE Singapore Water Technology Centre, which was an investment of \$100 million, This Centre and the partnership will help expedite fundamental research and industry innovation in water treatment.
- Siemens Water Technologies opened its global water R&D Centre in 2008. This centre provides an environment for water technology researchers from Singapore's PUB, universities and environmental authorities to collaborate on water and wastewater projects.
- CH2M Hill is a leading consulting engineering firm with its regional headquarters in Singapore. This corporation's office employs more than 350 highly trained professionals.<sup>11</sup>

In **Germany**, the German Water Partnership was formed between a large number of equipment, engineering and consulting companies, a number of research and development facilities, and several associations and institutions that comprise the country's water industry. This Partnership is supported and promoted by federal ministries focused on export development. In addition, this Partnership works with the German Agency for Technical Cooperation to migrate German water standards, technical specifications, legislative and regulatory frameworks, and technology to developing countries. The Partnership has also generated significant project and research activity in German industry, scientific organizations, and not-for-profit organizations involved in the environment. These results have been achieved by integrating financing, engineering and innovative technologies with proven infrastructure construction, supervision and commissioning capabilities and, where required, the contract operation of facilities and training of local operations management and personnel.<sup>12</sup>

**Israel** is a leader in the development of water technologies and solutions to address issues associated with water scarcity and security. Issues include desalination, water reuse and drip irrigation. By making water a top priority, Israel's water industry exports were estimated to be worth \$2.0 billion in 2010 and these exports are growing steadily.<sup>13</sup> The Novel Efficiency Water Technologies program (NEWTech) is led by the Ministry of Industry, Trade and Labour and aims to

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<sup>11</sup> *The Water Opportunity for Ontario*, Ontario Centre for Environmental Technology Advancement (OCETA) and XPV Capital, March 2010, p.18.

<sup>12</sup> Water Canada Magazine, Do Canadian water technologies have a chance on the global market?, <http://watercanada.net/2010/innovateinvest/>, last modified on May 12<sup>th</sup>, 2010, viewed on September 18<sup>th</sup>, 2012.

<sup>13</sup> Israeli annual water technology trade tops \$2 billion, Globes, <http://www.globes.co.il/serveen/globes/docview.asp?did=1000698030&fid=1725>, last modified November 15<sup>th</sup>, 2011, viewed on September 19<sup>th</sup>, 2012.



address water scarcity problems while advancing Israel's water technology capability at an international level. NEWTech has established 26 incubators that assist entrepreneurs in commercializing new technologies. These incubators operate in all fields of research and development. Out of the 200 incubated companies, 15% are clean tech related. The total cumulative private investment in graduated incubator companies has reached nearly \$3 billion (US).<sup>14</sup>

In **the Netherlands**, local infrastructure has been an important stimulus for developing the water sector. In 2007, the Dutch government approved a 100-year infrastructure plan to extend its coastline, reinforce dikes and build huge storm barriers. This \$1.5 billion (US) a year plan is laying the framework for the Dutch to future-proof their economy, increase their capacity in water technology, and develop their expertise in water technologies. The Dutch water technologies experts are building a global export industry around advising other low-lying jurisdictions on flood control and rising sea levels.<sup>15</sup>

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<sup>14</sup> State of Israel, Ministry of Industry Trade and Labour, Office of the Chief Scientist, Technological Incubators Program, <http://www.incubators.org.il/article.aspx?id=1703>, 2010, viewed on September 19<sup>th</sup>, 2012.

<sup>15</sup> Water: A Global Innovation Outlook Report, IBM Corporation, 2009, p.37.



## 2.2 National Trends and Commercialization Context

### 2.2.1 National Trends

Water resources are used throughout the entire Canadian economy. Whether it is used for generating electricity, cooling power plants, growing crops, developing the oil sands, or manufacturing forestry products and other consumer goods, industry and agriculture rely on sound water management practices.

Canada is fortunate to have the largest freshwater reserves in the world. However, our consumption of water is much higher than other countries around the world. This high consumption suggests that many of the domestic water technology solutions lie in conservation and the improved management of water resources. These water demand management practices are as follows:

- **Agriculture** - less water intensive crops, automated irrigation and crop yield enhancing technologies
- **Industry** - optimizing inputs for power production and other heavy water use
- **Municipalities/ households** – appropriate price signals and fee structures and improved water treatment and distribution productivity.<sup>16</sup>

**Water Policy** - Canada's provincial and territorial governments have primary jurisdiction over water allocation according to frameworks based on either:

- Prior allocation (First in Time, First in Right), which applies to British Columbia, Alberta, Saskatchewan, Manitoba, Yukon, the Northwest Territories and Nunavut
- Riparian rights (in terms of access to water based on adjacent ownership or occupation of land) is the basis of the water-user permit systems in Ontario, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland & Labrador
- Statutory regulation (civic law), which applies to Quebec

These policy frameworks recognize the importance of maintaining ecosystem integrity. Although each of these frameworks has its shortcomings, future policy will place less emphasis on permitting the extraction of more water and more emphasis on directing available water to the most valuable uses. The demand for water will become more urgent and provinces will need to be flexible to accommodate change and shifting development priorities. For example, communities in southern Alberta are faced with serious water shortages. The Province of Alberta has undertaken a

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<sup>16</sup> Water and the Future of the Canadian Economy, The Innovolve Group, 2010, p.25.



review of its water allocation management system. This review process will allow government, industry and the public to explore options to better meet future water needs and support regional development. Water issues span across Canada. The following table identifies high-level issues each region is confronting.

FIGURE 2.3: CANADIAN REGIONAL WATER ISSUES

Atlantic Canada	Central Canada	Prairies	Pacific Coast	Northern Canada
<ul style="list-style-type: none"> <li>■ Runoff and contamination from intensive agri-chemicals</li> <li>■ Receding water tables and rising costs of water and wastewater treatment</li> <li>■ Poor water quality threatening aquatic life</li> <li>■ Saltwater intrusion into aquifers</li> </ul>	<ul style="list-style-type: none"> <li>■ Growing demand from industry, power plants, farms and urban sprawl</li> <li>■ Access to safe drinking water and wastewater treatment for First Nations communities.</li> <li>■ Integrated watershed planning and aging infrastructure</li> <li>■ Blue-green algae in Quebec lakes</li> <li>■ Trans-boundary issues shared between Ontario, Quebec and American states</li> </ul>	<ul style="list-style-type: none"> <li>■ Strong population growth putting pressure on water supply</li> <li>■ Severe droughts and floods</li> <li>■ Access to safe drinking water and wastewater treatment for First Nations communities.</li> <li>■ Water rights transfers present environmental threats and management challenges</li> </ul>	<ul style="list-style-type: none"> <li>■ Low snowpack levels are reducing stream flows</li> <li>■ High levels of agricultural runoff and municipal wastewater discharge in the densely populated lower Fraser River Basin</li> <li>■ Access to safe drinking water and wastewater treatment for First Nations communities.</li> <li>■ Pesticides and fertilization of crops under irrigation are damaging ecological systems in south-central valleys</li> </ul>	<ul style="list-style-type: none"> <li>■ Access to safe drinking water and wastewater treatment for First Nations communities.</li> <li>■ Changes in permafrost</li> <li>■ Climate change</li> </ul>

Source: Water and the Future of the Canadian Economy, The Innovolve Group, 2010, p.30. with additions made by Millier Dickinson Blais Inc.

**Water Infrastructure and Delivery Costs** - Despite the provincial and territorial water allocation frameworks, it is the municipalities that are delegated the operational aspects of water management. Much of the bulk water and wastewater infrastructure assets were built during the 1950s to 1980s. The combination of high cost of water infrastructure and low water pricing has resulted in insufficient funds to cover the costs of maintaining and replacing infrastructure, upgrading



water systems and replenishing municipal reserves. In addition, increased urbanization has heightened the demand for municipal water services. Many Canadian municipalities are left with insufficient funding to operate and maintain the facilities. They have higher operating costs due to the need to pump and treat water along with

- Additional energy costs for excess water treatment, pumping and heating
- Higher sewer flows and unnecessary treatment and disposal costs
- Oversized infrastructure to meet water peaking points.

The following figure highlights average water consumption and the water and wastewater expenditure as a share of net disposable income in Canada compared to other countries. The figure indicates that Canadians are abstracting larger amounts (1,130 cubic metres per person) of water compared to European countries, Australia and Japan. This high abstraction level occurs despite the fact that Canadians spend an equal amount on water as a proportion of new disposable income. These findings indicate a large amount of waste and inefficiencies in Canada's water infrastructure system.

FIGURE 2.4: WATER ABSTRACTIONS AND EXPENDITURE AS A SHARE OF AVERAGE NET DISPOSABLE INCOME

Country	Water Abstractions (m3/capita)	Average Water and Wastewater bills as a share of average net disposable income (%)
Denmark	120	1.0
United Kingdom	150	0.7
Germany	390	0.9
France	510	0.7
Australia	640	0.6
Netherlands	640	0.3
Japan	650	0.3
Canada	1,130	0.3
United States	1,630	0.3

Source: OECD Factbook 2011: Economic, Environmental and Social Statistics. Managing Water for All: An OECD Perspective on Pricing and Financing, Key Messages for Policy Makers, 2009.

**Sector Innovation** – Despite inefficiencies in the water infrastructure system, Canadian water technology sector firms maintain a technical lead in such areas as purification, membranes and hydrogeology and have substantial expertise in



traditional water services like consulting, engineering, quality analysis and construction. It is these types of firms that can provide innovative solutions to water management in Canada and throughout the world.

Improving water management in agriculture, industry and household use will create technologies and business models that are better able to compete for high value opportunities in the global water market. Success in Canada's water technology sector will be measured by whether firms and government policymakers can assemble a healthy "ecosystem" (i.e. water value chain) to meet opportunities throughout the entire value chain. This value chain will need to encompass improved regulatory frameworks, effective information flows and incentives, better reporting standards, strong demonstration projects, successful patents, and new collaborative approaches for business.<sup>17</sup>

Many of the solutions in Canada can be resolved through better management, stronger governance and smarter financial investments in water systems. In 2008, the Conference Board of Canada identified water management technologies and desalination and waste-water treatment and reuse as two pathways for Canadian expertise. Canada's water management technologies companies include a number of water purification, ultraviolet disinfection and membrane technology and well as water information systems and software companies. There are an estimated 700 water treatment firms, but only 100 firms specialize as technology suppliers and many are small and medium sized enterprises. The industry is fragmented which affects the commercial capacity to expand outside of Canada. Most firms in the sector operate as small suppliers of niche technologies to manage water quality, deployment, filtration and purification. This market structure offers little incentive for companies to scale up to a globally efficient size or to combine to offer more integrated solutions.<sup>18</sup>

The Conference Board's *Canada's Pathways* report continues to state that opportunities exist in desalination and in wastewater treatment and reuse. Products and services among Canadian companies include technologies such as anaerobic and aerobic sludge digestion, treatment of biosolids, and desalination techniques for purifying seawater. Canada has a significant stock of water and wastewater treatment infrastructure. As was mentioned earlier, much of this infrastructure was developed during the 1950s to 1980s . There is a need for renewal within the next 10 years. This presents opportunities for Canadian firms to address domestic needs and apply these technologies to international markets. As the following figure also addresses, Canadian firms in the water technologies sector also have expertise in consulting, quality analysis and water analytics. Some of these firms are large companies such as SNC Lavalin, but many of the firms are small and medium sized enterprises.

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<sup>17</sup> Water and the Future of the Canadian Economy, The Innovolve Group, 2010, p.11

<sup>18</sup> Canada's Pathways Towards Global Innovation Success: Report of the Leaders' Panel on Innovation-Based commerce, The Conference Board of Canada, October 2008, p.11.



FIGURE 2.5: CANADIAN INNOVATION IN THE WATER VALUE CHAIN

Water Services	Water Treatment	Distribution	Management	Wastewater Treatment
<ul style="list-style-type: none"> <li>Engineering &amp; consulting</li> <li>Quality analysis</li> <li>Infrastructure construction &amp; rehabilitation</li> <li>Water analytics</li> </ul>	<ul style="list-style-type: none"> <li>Ozone disinfection</li> <li>Ultraviolet (UV) disinfection</li> <li>Micro-filtration or ultra-filtration</li> <li>Reverse osmosis</li> <li>Ion exchange</li> <li>Electro-dialysis</li> <li>Desalination</li> <li>Other technologies (e.g. coagulation, flocculation and clarification)</li> </ul>	<ul style="list-style-type: none"> <li>Automated systems &amp; instrumentation to monitor and control pollution</li> <li>Products to optimize management &amp; operation of water/wastewater treatment &amp; conveyance infrastructure</li> <li>Transmission and usage efficiency metering &amp; system management</li> </ul>	<ul style="list-style-type: none"> <li>Water information systems &amp; software</li> <li>Agricultural efficiency technologies</li> <li>Quality enhancement, filtration &amp; desalination</li> <li>Biosolid utilization (e.g. waste-to-energy)</li> </ul>	<ul style="list-style-type: none"> <li>Wastewater-to-product &amp; recycling technologies</li> <li>Residential &amp; industrial grey water treatment</li> <li>Anaerobic and aerobic sludge digestion</li> <li>Nitrification &amp; denitrification systems</li> <li>Enhanced biological phosphorus removal</li> </ul>

Source: Water and the Future of the Canadian Economy, The Innovolve Group, 2010, p.38.

To take advantage of the sector innovation, Canadian firms must overcome challenges regarding commercial scale, regional intelligence and market access. These firms can either scale up to provide complete solutions or insert themselves into the broader global supply chain of larger companies or government buyers.<sup>19</sup>

### 2.2.2 Commercialization Context

Innovation and creativity are among the most significant factors for driving growth and remaining competitive. New products and service innovations and process innovations provide competitive advantages in timing to market, cost, quality or customer service.<sup>20</sup> Commercialization is the transforming of ideas into actions that lead to commercial success. Companies that have proven to excel at commercialization operate within the following framework:

<sup>19</sup> Water and the Future of the Canadian Economy, The Innovolve Group, 2010, p.10.

<sup>20</sup> Commercializing R&D: A new way to accelerate new product introduction, Deloitte Development LLP, January 2012, p.5.



- They generate sustaining and disruptive innovation. Sustaining innovation strengthens the firms' existing market position whereas disruptive innovation focuses on finding simple, convenient offerings to non-consumers and poaching over-served customers from competitors. These innovations require thoughtful balance to determine resources and capital allocation and alignment with strategic objectives and market needs.
- They have a disciplined product development process. Innovation can be managed by making incremental investments in an idea to compare strategic alignment, viability in the market and feasibility in production. The production team needs to be informed of what the customer needs are and what the performance goals are for the product or service.
- They apply new product design methodologies. These methodologies focus on speed to market and cost of production. The advantages are faster, streamlined production lines; more targeted products with simpler, more focused designs; and products with fewer, more standardized parts. Failing to incorporate new product design methodologies can add unnecessary costs and delays to reaching full production.<sup>21</sup>

For government-funded research and development (e.g. universities, colleges, hospitals), there are three broad channels for the commercialization of technologies. These are the selling or assigning ownership of the technology to an existing company, licensing the technology to an existing company, or starting a new company. The choice of the right channel is critically important.

**Selling or assigning ownership of the technology to an existing company** – This channel for commercializing technologies involves controlling the market and making the entry of a competitive business very difficult. Other major companies may offer to buy these technologies in order to improve their products and services offerings.

**Licensing the technology to an existing company** – This channel involves applying the technologies by way of a licensing agreement to different markets and different partners who will commercialize the technologies in these markets and create multiple revenue streams. The inventor does not have to take the risk of developing a new business.

**Starting a new company** – This channel involves a thorough understanding of market potential for the opportunity. The risks are high for the business person to maximize the value of the technology in the market. This channel will require an experienced business team with support resources, expertise and networks.

Each pathway to commercialization has associated issues. Commercialization means giving up some control over the technology and collaborating with others with common objectives but differing motives. There will need to be a functional prototype of the technology. Innovators of new technologies need to understand the potential market for the technology,

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<sup>21</sup> Ibid.



the value of the technology, and the companies that control the market. In addition, these innovators cannot commit to commercialization alone, but they require a management team around them.

## 2.3 Local Trends and Context

The single largest advantage that the Walkerton area has that will attract future investment in the water technologies sector is the Walkerton Clean Water Centre (WCWC). The WCWC is a state-of-the-art facility, located in the East Ridge Business Park, with capacity for water technology research and training courses for water operators. The training facilities have led to a steady stream of operators coming through the centre throughout the year.

Many of the business people in the community are firmly rooted in the Bruce County area. Many have lived in the area for their entire lives. People who locate to the area from other communities come to Walkerton because they have been offered employment. They are typically offered employment in a public sector organization (i.e. government administration or a school board) or at Bruce Power. Local stakeholders who participated in the engagement process indicated that only a few local companies have become involved in the water technologies sector (refer to Appendix A for further responses). Veolia Water, a large multinational corporation, operates the local municipal water system and a local manufacturer can supply stainless steel containers and pressure vessels to businesses.

There are local innovative businesses in the Walkerton area. There are several businesses in the area that have adopted innovative processes to remain competitive. Some of these businesses include Larsen & Shaw (hinge manufacturing), Bogdon & Gross (high quality furniture manufacturing), Price Schonstrom (stainless steel containers and vessels manufacturing), P&H Foods (food processing) and Carrick Wines & Ciders (winery and cidery). However, it is challenging for these and other local innovative types of businesses to get financial support or specialized managerial expertise since there are no clusters of professionals with this expertise. Saugeen Business Development Corporation provides funding for business expansion and is very supportive of the local business community, but its financing capacity is limited.

Local stakeholders identified some **advantages** that could be used to attract further investment in the water technologies sector. They are as follows:

- **Lower Housing Costs** – Residents have lower costs to purchase homes than large urban centres such as Kitchener-Waterloo, London and the Greater Toronto Area.
- **Vibrant Agricultural Community** – The community has a strong agricultural heritage and the success of the agriculture industry impacts the rest of the community. There have been agricultural related investments made in the area as agricultural crop prices have been particularly strong lately.



- **Strong Work Ethic and Employee Commitment** – Many stakeholders had boasted about the strong work ethic in the community, which may be directly related to the community’s agricultural roots. There is also a good local source of labour, low employee turnover and high employer and employee commitment.
- **Government Services Centre** - As the County Seat for Bruce County, Walkerton provides stable employment for regional government services. Other publicly funded services such as healthcare (e.g. public health unit and hospital) and education (e.g. two local high schools) are also provided in the town.
- **Good Market Accessibility** – Walkerton is located within two hours of larger urban centres such as Kitchener-Waterloo, Guelph and London. All of these urban centres are accessible by regional and provincial roads.
- **Immediate Access to the Natural Environment and Amenities**- Stakeholders enjoyed the fact that they have immediate access to the natural environment such as Lake Huron, Saugeen River and hiking trails without “the hustle and bustle of city life.”
- **Ease of Getting Projects Implemented** – Some stakeholders mentioned that the small community has benefits when getting an idea or potential project implemented. There are fewer people involved in the processes at the municipal or non-profit organizations and people want to work towards solutions. An environmental project example provided by a stakeholder was the municipal Styrofoam recycling project. This project diverts Styrofoam from the municipal landfill thereby extending the life of the landfill.
- **Lower Development Costs than Large Urban Centres** – The cost to develop a property in the Walkerton area is lower than large urban centres that have higher land values/lease values and development costs.

Business owners and entrepreneurs have made the area a successful location for business investment, despite local economic challenges. Stakeholders identified the following **challenges** to business expansion in the Walkerton area, which are particularly relevant to attracting new investment in the water technologies sector. They are as follows:

- **Finding Employment for Spouses**- The Walkerton area could be perceived as a remote community from people who are used to city life. If Walkerton is attracting people to the area, it is competing against larger centres that typically provide more employment opportunities for spouses.
- **Government and Bruce Power Employment Opportunities** - A large segment of the local population is attracted to government or Bruce Power employment opportunities, which typically pay more than smaller employers and are perceived as more stable and secure. Many of the people who are attracted to Bruce Power are offered salaries or wages that many other smaller companies cannot compete with.
- **Population and Labour Force Retention** - The Walkerton area will need to retain more employees and the general population instead of losing a large segment to larger urban centres. Much of the young population will educate themselves in larger urban centres and find employment elsewhere. Many of these people become educated,



credentialed, creative and ambitious, but are drawn to large communities with diverse employment opportunities. This is especially relevant for people educated for professions in the environmental industry. There is no local cluster of people in environmental careers who create environmental products and services. There needs to be the local message that environmental initiatives, products and services pay off and that they can be provided locally. A business owner's ability to find skilled trades people like mechanics and truck drivers in the local area is also difficult. This trend is not unique to Walkerton alone, however, but is common across many communities in Canada.

- **Lack of Financing** - Many of the local businesses that want to expand have difficulty if they require financing. The chartered banks were criticized for not providing financing to local businesses because they were located in rural Ontario. The Saugeen Business Development Corporation provides financing to expanding businesses, however, the available finances are not nearly enough.
- **Lack of Land and Leasing Options** - The Municipality has plans to develop a 32 acre municipal complex in the centre of East Ridge Business Park. Once these lands are removed from the inventory, there are limited serviced land options for expanding businesses. In addition, finding available commercial space in the downtown has become an issue.
- **Flat Local Economy** – Businesses that rely on the local population to sustain themselves operate in a relatively flat local economy. Growth expectations need to be realistic and there is an increased emphasis by business owners on providing exceptional service to keep customers.
- **No Public Transportation** – The lack of public transportation in the area created a local community that is reliant on the automobile to get to and from their workplace. Transportation costs to maintain vehicles takes on a larger part of household expenditures than they would in larger centres.

## 2.4 Key Findings

The Walkerton area is in good position to benefit from water technologies sector investment. The establishment of the Walkerton Clean Water Centre is a significant asset for the community with great potential for additional research capacities and business investment. The increase in global water usage is creating new industries and innovation worth billions of dollars both in traditional water infrastructure and water intensive industries such as agriculture and advanced manufacturing. Canada is fortunate to have large amounts of water resources and expertise and technological innovations which are essential to global prosperity and stability. This puts Canada in a leadership role for providing innovative solutions and Walkerton is home to a strategic asset and provincial investment in the sector.



However, Canadian firms are faced with challenges to overcome regarding the commercial water technologies scale, regional market intelligence and market access to export markets. These firms can either scale up to provide complete solutions or insert themselves into the broader global supply chain of larger companies or government buyers. At a smaller scale, Walkerton businesses and entrepreneurs may be able to provide water technology solutions to industry, agriculture and municipalities, but there is a need to better understand factors for business investment that drive location decision making.



## 3 Location Factor Assessment

Having defined larger trends in the global and national water technologies sector, it is important for the Municipality of Brockton and BEDC to understand the location factors that are critical to supporting the development of a water technologies sector in the region. Understanding those factors will allow the Municipality to identify the assets and competitive advantages that need to be highlighted in an investment attraction campaign. It will also provide an understanding of the “gap” areas where efforts will need to be focused to generate a stronger value proposition in support of investment. Though the weighting applied to each location factor will be different on a company by company basis in the water technologies sector, there are several factors that most businesses will assess in a location decision regardless of their core activities and markets.

Generally speaking, there are 10 broad location factors that companies in most economic sectors will look at when considering location decisions. These factors are based on site selection worksheets developed for the Local Economies in Transition initiative completed by the Economic Developers Council of Ontario (EDCO) and a range of private sector partners in 2008.

- **Labour force:** population characteristics, employment/unemployment, availability of labour, labour management relations.
- **Local industry:** Largest employers, recent projects and new companies, presence of suppliers, existing research base
- **Transportation and distribution:** Proximity to current/future markets, proximity to suppliers, proximity to major infrastructure (road, rail, air, water), third party trucking availability
- **Taxes:** Local/provincial/federal tax rates
- **Utilities:** Availability and cost of electricity, natural gas, water/sewer, telecommunications
- **Local business environment:** Economic development involvement, environmental policies, permitting costs, processing times, recent local development activity
- **Property availability and cost:** Industrial/commercial building availability and cost, serviced industrial/commercial land availability and cost
- **Incentives/Business support:** Business financing, provincial/local incentives, international resources, local chambers of commerce and business associations
- **Education and training:** Elementary/secondary school performance rankings, community college and university programs, local employment and training services
- **Quality of life:** Healthcare, crime rates, recreation and culture, housing affordability, external perceptions



Success in investment attraction and marketing depends in part on finding the right balance between the strength of messaging and identifying the assets and attributes that can genuinely deliver on that messaging.

The importance of each of these location factors will vary from sector to sector and business to business. What forms a critical factor for investment in water technology instrument manufacturing may have minimal impact on location and investment decisions for businesses focused on constructing, designing, and operating advanced water technology systems. Overemphasis of a factor which is less critical to a certain sector may overshadow the rest of the messaging meant to reach businesses in that sector. Thus it is important to narrow down the critical factors that will influence investment in water technologies and understand the competitiveness of Brockton area in each of these areas. Overall, the location factors with the most influence on investment attraction in the water technologies sector include:

- Labour force
- Local industry
- Utilities
- Incentives and business support
- Education and training

## 3.1 Labour Force

The most recent labour force data provided by Statistics Canada estimates the size of the Stratford-Bruce Peninsula economic region labour force at 163,400 residents, of which 155,900 across the region are employed. The size of the labour force and employment base has decreased by nearly 5% since 2011.<sup>22</sup> In fact, the unemployment rate of 4.6% is the lowest across Ontario and rivals that of regions in Alberta, which indicates that many people in the region who are able to work are working. The Four County Labour Market Planning Board reported that at the end of 2011 there were 157,700 people employed in its region (i.e. Stratford-Bruce Peninsula economic region). The largest concentrations of people are employed in trade (retail and wholesale), manufacturing, health care, and social assistance at 24,700, 22,600 and 17,700 people respectively.<sup>23</sup> The following table highlights the most common occupations in these industries across the region. Many of the trade industry occupations are retail-related whereas in the manufacturing industry occupations are labour and assembly related. Sizable concentrations of people are employed in health care related occupations such as nurse supervisors, registered nurses and assistants. Despite the employment concentrations in

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<sup>22</sup> Labour Force Information – August 12 to 18, 2012, Statistics Canada, Catalogue No.71-001-X, p.49.

<sup>23</sup> Local Labour Market Plan, Four County Labour Market Planning Board, March 2012, p.11.



these three industries, the strongest employment growth has occurred in the professional, scientific and technical services, agriculture and finance, insurance, real estate and leasing industries.

FIGURE 3.1: MOST COMMON OCCUPATIONS, EMPLOYED LABOUR FORCE 15 YEARS AND OVER

Retail and Wholesale Trade	Manufacturing	Health Care and Social Assistance
<ul style="list-style-type: none"> <li>■ Retail salespersons</li> <li>■ Managers in retail trade</li> <li>■ Cashiers</li> <li>■ Other sales and related occupations</li> <li>■ Motor vehicle and transit drivers</li> <li>■ Sales representatives, wholesale trade</li> <li>■ Recording, scheduling and distributing occupations</li> </ul>	<ul style="list-style-type: none"> <li>■ Labourers in processing, manufacturing and utilities</li> <li>■ Mechanical, electrical and electronics assemblers</li> <li>■ Other assembly and related occupations</li> <li>■ Machining, metalworking, woodworking and related machine operators</li> <li>■ Recording, scheduling and distributing occupations</li> </ul>	<ul style="list-style-type: none"> <li>■ Nurse supervisors and registered nurses</li> <li>■ Assisting occupations in support of health services</li> <li>■ Paralegals, social services workers and occupations in education and religion</li> <li>■ Childcare and home support workers</li> <li>■ Other technical occupations in health care (except dental)</li> </ul>

Source: Statistics Canada, 2006 Census, Custom Tables, Catalogue no. 97-561-XCB2006007.

The Stratford-Bruce Peninsula is a unique economic region in that there is low unemployment across the region compared to other regions in Ontario. With that being stated, this region is challenged with regards to labour shortages. Many of the skills desired in the water technologies sector are highly specialized and technical. Thus many of the more critical labour force occupations needed to support the growth of this sector may be difficult to obtain in the region. Some of the specialized, technical and highly-skilled occupations are found in knowledge-based occupations like information systems analysts, civil engineers and civil engineering technologists, but also occupations focused on equipment operation and maintenance. Concentrations of people employed with this knowledge and these technical skills are lower than other larger centres like Waterloo, Guelph, Hamilton and Toronto.

Overall, the labour force in the region can assist with the growth of the water technologies sector based on existing skills. However, the historical trends of people leaving the area to pursue employment opportunities in other parts of the province and county has created a tight local labour market, which has in part alleviated some of the recessionary forces that have rippled through many other parts of Canada. Historically, the labour force seems stable. Though there are some people available for local employment opportunities, other sectors may draw these potential employees away from



water technologies sector in the future. In order to stay competitive, the Municipality of Brockton and regional partners should consider workforce development as a priority in order to ensure a supply of workers with transferable skills are available for the water technologies sector.

## 3.2 Local Industry

In part, the strength of local industry will play a role in attracting water technology investment. At present, Walkerton benefits from the Walkerton Clean Water Centre serving as an anchor for the sector. Water technologies training occurs at this facility; however, local industry spill over benefits from water technologies research is more limited. There is a small number of companies in the region focused on water technology systems and components, including:

- Veolia Water, a multinational corporation, which operates the local municipal water system
- Price Schonstrom Inc., which manufactures stainless steel containers and pressure vessels
- Larsen & Shaw, a local hinge manufacturer, which has integrated a sophisticated rain water collection system to its manufacturing operation in Walkerton

Beyond water technologies, the municipality benefits from local industry concentrations that can assist with the development of a water sector value chain. The Bruce County region has a stable labour force as many stakeholders who participated in the engagement process can confirm.

Based on the strength of the province's water technology sector, water technology innovators have emerged in the province and include:

- ZENON Environmental, which was acquired by GE Water & Process Technologies
- Trojan Technologies, which was acquired by Danaher Corporation.
- Veolia Water Solutions & Technologies
- evandtec Inc.
- Echologics Engineering Inc., a Division of Mueller Company
- Xogen Technologies Inc.

Five of these listed companies are multinational and operate with sophisticated global supply chains. Ontario's innovators are particularly focused on water management systems services, water distribution, wastewater treatment and conservation goods and services. More specifically, Ontario-based companies have significant capabilities in:

- Advanced filtration and disinfection technologies
- Water reuse and efficiency applications for municipal, industrial and commercial markets



- Water metering, quality monitoring and assessment
- Process automation and instrumentation
- Wastewater treatment and value extraction

Though the Walkerton area may not have the industry capability to manufacture these types of water technologies systems, the local area has the capabilities to serve as a demonstration location or “open-innovation ecosystem” to map, monitor and manage new water technologies and systems.

An open-innovation ecosystem – a term that will be used frequently throughout this report – is a particular approach to community involvement in the innovation process that was described by Dr. Henry Chesbrough at the University of California at Berkeley. It describes a range of approaches in which communities, scientists and other stakeholders work together to introduce laboratory-based ideas to the real world in collaborative, participatory and ecologically sensitive ways. This approach has led to new tools such as community informatics (the collection and use of data by communities), participatory design (the development of new tools through community collaboration), and living laboratories (geographically-bounded spaces in which communities work with researchers to use technologies in protecting and supporting local environments and ecosystems). All of these ideas form a part of the open-innovation ecosystem approach that is described in this document for Brockton.

### 3.3 Utilities

When considering utilities as a location factor for investment attraction, the discussion is often focused on the availability and cost of electricity, gas, water, sewer, and telecommunications. Decision makers in the water technologies sector require electricity providers to support manufacturing of advanced water technology products. Currently, Westario Power provides electricity services to the town of Walkerton and many other communities in Bruce, Grey, and Huron counties. Hydro One is the electricity provider for the rural areas surrounding Walkerton.

The existing rates for electricity services are competitive and comparable to many other communities across Ontario. In addition, the reliability of the system is a core commitment for both electricity services providers.

From the perspective of a water technology investor looking for a reliable connection to Ontario’s electricity grid and a minimal amount of regulatory approvals to establish the connection, a local, accessible utility operation like Westario Power is an asset for the municipality.

The municipality is serviced with natural gas lines and services by Union Gas. Any expansion of gas lines and distribution facilities is dependent on increased development activity. Union gas would expand its distribution networks when there is increased demand.



Wightman Telecom and Bruce Telecom are major telecommunication services providers for the region. These firms construct and operate fibre and wireless broadband networks for the rural communities throughout the region, making their services comparable to the larger, national telecommunication companies.

## 3.4 Incentives and Business Support

In many ways, the package of business incentives or support that a municipality can offer will be a critical element in attracting investment, particularly for slow growth or newly emerging sectors of investment. For a municipality targeting growth and investment in an area where there is no cluster of financing or managerial expertise a strong package of incentives and business support programs may be the only factor that encourages growth of that sector. However, the options available to Canadian communities are quite limited with regards to financial incentives to generate investment. Where American communities differentiate themselves on the financial assistance they can offer to a company, Canadian communities must use more innovative approaches, often based on flexible policies, streamlined regulations, or payment rebates/deferrals to create attractive environments for investment. The federal and provincial governments are much more flexible with regards to financial incentives.

### 3.4.1 FedDev Ontario Programs

The Federal Economic Development Agency for Southern Ontario (FedDev Ontario) has introduced a range of programs focused on strengthening the economy and positioning the region to compete at a global level and scale. The programs most relevant for the water technologies sector are:

- **Graduate Enterprise Internship:** designed to help develop business and management skills of graduate students and recent graduates of programs in science, technology, engineering and mathematics (STEM) by providing funding for internships with small and medium sized companies.
- **Investing in Business Innovation:** designed to boost private sector investment in start-up businesses to accelerate the development of new products, processes and practices and bring them to market. This program also helps angel investor networks and associations attract new investment.
- **Prosperity Initiative:** three funding program opportunities were developed to support:
  - **Productivity enhancement** – improvements to enhance the productivity of an industry and the adaption and adoption of new technologies, processes and skills development
  - **Regional diversification** – support activities that create new opportunities for economic diversification, market development and expansion, business attraction to diversify regional or community economies and business expansion supporting greater diversification



- **Building a competitive advantage for southern Ontario** – support activities to enhance the competitiveness of an industry cluster such as the adaptation and adoption of new technologies, processes and skills development in an industry, business opportunity development and expansion, and facilities improvement or expansion
- **Scientists and Engineers in Business:** designed to help recent graduates and graduate students in the STEM fields by improving access to financing and providing business support services to successfully launch and manage start-up businesses.
- **Technology Development Program:** designed to help research, innovation and commercialization organizations, the private sector, post-secondary institutions and not-for-profit organizations work together to accelerate the development of technologies that will result in new market opportunities.
- **Youth STEM:** designed to encourage southern Ontario students from kindergarten to grade 12 to pursue an education and career in science, technology, engineering and mathematics.

### 3.4.2 Ministry of Economic Development & Innovation Programs

The Ontario Ministry of Economic Development & Innovation (MEDI) has a number of programs that can support innovation. These programs include:

- **Innovation Demonstration Fund:** designed to provide funding for the development and demonstration of new energy and water technologies. This program will support pilot demonstrations that will lead to the commercialization of processes or products in Ontario that are globally competitive. By supporting pilot demonstrations, this fund addresses the financing gap which exists between R&D and the commercialization of new technologies.
- **Green Focus on Innovation and Technology (GreenFIT):** designed for the Province's own purchasing processes to create opportunities for new green technology companies as they introduce innovative and sustainable environmental solutions into local and global markets.
- **Ontario Water Innovation Award:** designed to recognize excellence, leadership, entrepreneurship and exceptional performance in a company that is developing a commercially successful water technology related to conservation or water treatment.
- **Investment Accelerator Fund:** designed to help eligible start-up companies develop their technology and gain entrepreneurial expertise to bring their product or service to market.
- **Ontario-China Research and Innovation Fund (OCRIF):** supports collaborative projects between researchers and innovative companies in Ontario and China. Funding proposals focus on four research themes. Water and water-related technologies is one of the themes.



- **Ontario Centres of Excellence:** these networks help to bridge the gap between research and the marketplace by bringing universities, industry and government together to help in the application of new science and technology to success business development.
- **Ontario Emerging Technologies Fund:** co-invests with qualified venture capital funds and other private investors directly into companies working within the focus areas that include clean technologies.
- **Ontario Network of Excellence:** designed to focus on the needs of clients, which include technology-based entrepreneurs, companies or researchers who are commercializing new approaches to new technologies. ONE also supports businesses that want to pursue innovation at a globally competitive scale. The ONE programs can be accessed through Regional Innovation Centres. The nearest RICs to Walkerton would include Communitech Technology Association (Waterloo), Innovation Guelph, and TechAlliance of SouthWestern Ontario (London). The directors at these RICS are valuable resources to direct entrepreneurs to funding sources.
- **Ontario Research Fund:** designed to provide researchers with the support they need to undertake cutting-edge research. This fund will support the direct and indirect operational costs of water and wastewater-related research.
- **Ontario Tax Exemption for Commercialization:** designed to encourage the commercialization of intellectual property which has been developed by qualifying Canadian universities or colleges. OTEC provides a refund of corporate income tax and corporate minimum tax paid for a qualifying corporation's first ten taxation years. Priority areas include the bioeconomy.

### 3.4.3 Other Programs

Other programs outside of FedDev Ontario or MEDI and particularly relevant to the water technologies sector include:

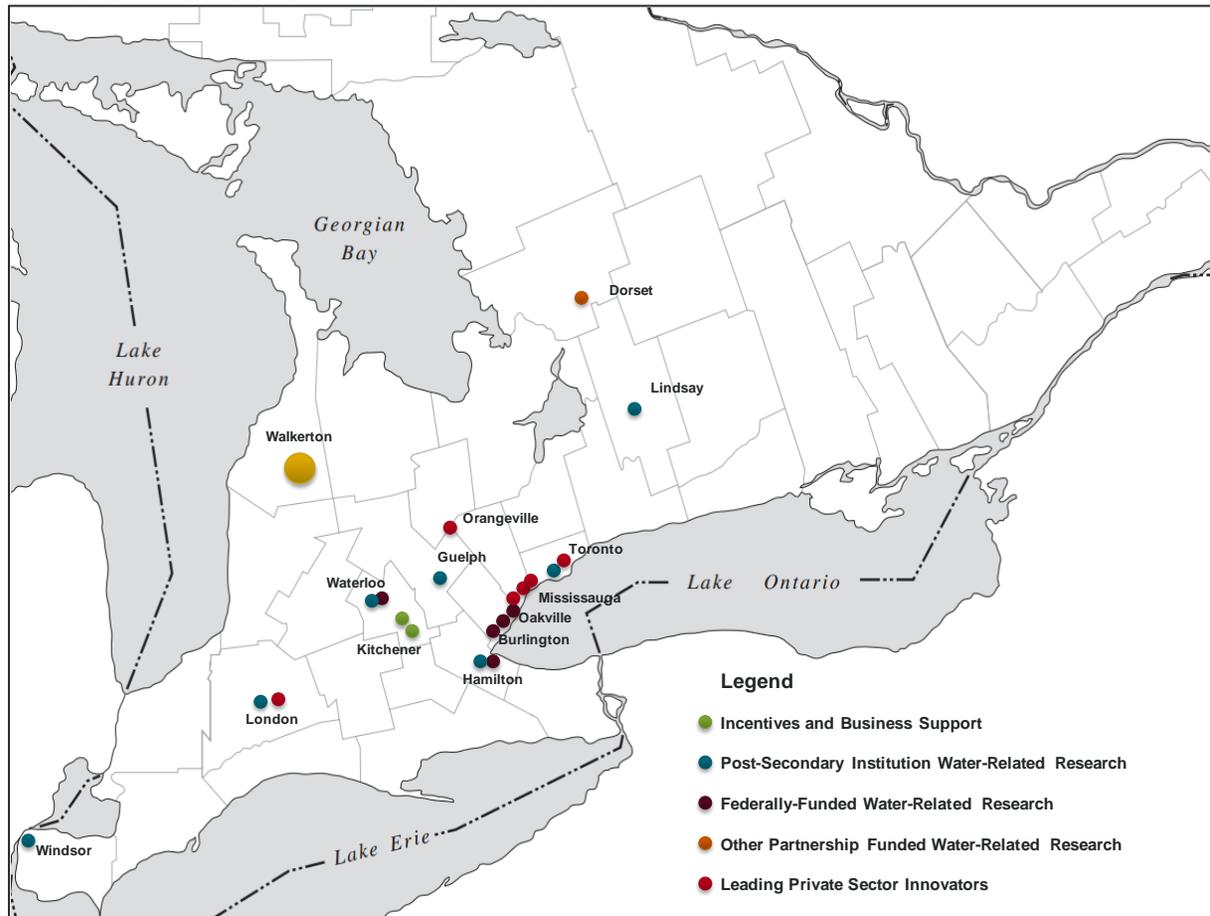
- **National Research Council's Industrial Research Assistance Program:** a long standing program that provides technology advice, assistance and services to small and medium enterprises to help them build their innovation capacity. The program's professionals bring a diverse network of organizations, services and programs to help SMEs develop and exploit technologies in the competitive, global and knowledge-based economy.
- **Ministry of the Environment's New Environmental Technology Evaluation Program:** designed to assist the development, marketing and application of new environmental technologies. The program is specifically oriented to assist companies with technologies that are new to Ontario but is also applicable to companies with interests in marketing existing technologies outside of Ontario.
- **Federation of Canadian Municipalities' Green Municipal Fund:** designed to fund leadership and innovation projects in municipal sustainable development. These initiatives must aim to achieve significant environmental impact and have the potential to be replicated in other communities.



### 3.5 Education, Training and Research Capacity

One of the key elements to cluster development is having a readily available supply of local talent that can engage with businesses in the sector. Local education and training programs will enable the development of that local workforce, both through new entrants to the labour force and existing workers looking to access new employment opportunities.

FIGURE 3.2: WATER CLUSTER IN SOUTHERN ONTARIO





Currently, there are many education, training and research programs available across Ontario, but many of these programs are located in the GTA. These water-related organizations include universities, research centres and national water institutes and they provide a foundation for a broad range of leading water expertise. These organizations include the following:

- **University of Guelph:** Water Reclamation and Reuse Information Centre; Water Resource Engineering; Guelph Institute for the Environment; Controlled Environment Systems Research Facility; ecology@Guelph, Urban System Environmental Design Centre, and Ontario Rural Wastewater Centre and research chairs involved in the nature, delivery and quality of water
- **University of Waterloo:** Waterloo Institute for Groundwater Research, Centre for Advancement of Trenchless Technologies, and affiliated with the Canadian Water Network and Natural Sciences and Engineering Research Council of Canada (NSERC) Chair in Water Treatment
- **McMaster University:** McMaster Membrane Research Group and Water Resources Environmental Information Systems Laboratory
- **University of Toronto:** Drinking Water Research Group and a research facility for the application of ultraviolet light in water disinfection and purification
- **Western University:** Centre for Environment and Sustainability and wastewater technology research
- **University of Windsor:** Great Lakes Institute for Environmental Research
- **Sir Sandford Fleming College (Lindsay):** Centre for Alternative Wastewater Treatment
- **Walkerton Clean Water Centre:** Technology demonstration facility to demonstrate leading-edge drinking water technologies and training facility for water treatment operators.
- **Dorset Environmental Science Centre (District of Muskoka):** An environmental science facility where watershed researchers monitor Ontario's inland aquatic ecosystems and watersheds.
- **Environment Canada's National Water Research Institute (NWRI) and Water Science and Technology Directorate** at the Canada Centre for Inland Waters (Burlington): Researchers from the NWRI work with researchers from other departments, universities, and research organizations to address water-related issues of public concern and to resolve environmental issues of regional, national or international significance to sustain our natural resources and freshwater ecosystems.
- **Environment Canada's Wastewater Technology Centre** at the Canada Centre for Inland Waters (Burlington): Researchers evaluate and demonstrate wastewater treatment and sludge processing technologies to reduce the impact of wastewater and biosolids on human health, wildlife and the environment.



- **Networks Centres of Excellence Program/Canadian Water Network** (Waterloo): A multi-institutional research network that address key challenges in water management across three areas — protecting Canada’s watersheds and ecosystems, protecting the health of Canadians, and ensuring that Canada has sustainable water infrastructure.
- **United Nations University Institute on Water, Environment and Health** (Hamilton): An international network of researchers who are addressing global water problems to meet the Millennium Development Goals related to water.

Overall, there has been extensive interest in the development of clean water, water systems design and training programs throughout Ontario. The Walkerton Clean Water Centre (WCWC) is part of a larger, sophisticated network for water technologies education, training and research. This network is presented from a geographical perspective on the previous page. The WCWC and Municipality of Brockton have a role to play and can strengthen their involvement in the province and country’s water technologies sector. With that being said, the strong Walkerton profile and name recognition has provided the municipality with a solid base for water technology demonstrations and technical training programs. Additional research programs could be developed for the Walkerton area where leading public sector researchers and innovators can test their concepts and/or monitor the adoption of new technologies.



# 4 Regional Assets and Opportunities

## 4.1 Value Proposition

The preceding research indicates that Brockton has become part of a much larger sophisticated network of education, training and research programming. However, the municipality has no concentration of people specialized in education and skills that are immediately transferable for the water technologies sector. In addition, there are a limited number of businesses that have become involved in the sector. Factors that make the community appealing to investors and businesses and factors that are challenging for business expansion were identified by the local community (these are presented in the following table for reference).

FIGURE 4.1: FACTORS THAT MAKE BROCKTON APPEALING AND CHALLENGING FOR BUSINESS EXPANSION

Appealing	Challenging
<ul style="list-style-type: none"><li>■ Lower housing costs</li><li>■ Vibrant agricultural community</li><li>■ Strong work ethic and employee commitment</li><li>■ Government services centre</li><li>■ Good market accessibility</li><li>■ Immediate access to the natural environment and amenities</li><li>■ Ease of getting projects implemented</li><li>■ Lower development costs than large urban centres</li></ul>	<ul style="list-style-type: none"><li>■ Difficulty finding employment for spouses</li><li>■ Private sector competing for labour against the government and Bruce Power's employment opportunities</li><li>■ Retaining the population and labour force</li><li>■ Lack of financing</li><li>■ Current lack of land and leasing options</li><li>■ Flat local economy</li><li>■ No public transportation</li></ul>

There are many incentives available through FedDev Ontario and the Ministry of Economic Development and Innovation that encourage sector development. The sector requires a tailored value proposition that captures the primary strengths of the community: **a small, rural community with a sophisticated water treatment demonstration and training facility and available water research capacity for the larger national and international network of water related expertise.** These are the competitive advantages that the Municipality of Brockton must emphasize in order to differentiate itself from major competitors such as the cities of Guelph, Waterloo, Hamilton, Toronto and others that are home to universities with water-related research.



In considering this value proposition, it is important to understand what factors are critical for supporting investment and location decisions in the target sector. Understanding the location factors that are important will allow Brockton and the BEDC to identify its assets and competitive advantage to attract and encourage activities in the water technologies sector. Businesses in this sector require specific research and development resources and financing arrangements to be successful, which differentiates it from traditional business sectors such as agriculture, manufacturing or real estate. Building on the elements of the previous sections, the value proposition for Brockton should rely on the following factors:

- Labour force
- Local industry
- Education and training
- Resource availability

The manner in which of each of these factors contributes to an overall value proposition for Brockton in the water technologies sector are outlined below.

## Labour Force

At the surface, the labour profile for the larger economic region that Brockton is a part of is ill-suited for water technologies sector development. However, Brockton has:

- A strong concentration of health care and social assistance professionals, which can be attributed to the presence of the South Bruce Grey Health Centre (a Walkerton location) and the Hanover & District Hospital.
- A growing concentration of people with occupations in professional and technical services, agriculture, finance, insurance and real estate.

Many of the people in these occupations are well-educated and are interested in the long term sustainability of the Brockton area.

## Local Industry

In some sectors, companies and investors deliberately seek to place themselves at the centre of a “cluster” of industries operating in a similar space. This allows greater opportunities to create partnerships and joint ventures, leverage external research results, and reap the benefits of business-to-business networking in a tightly-linked industry. Overall, the Province has the foundation for a cluster of water technologies with multi-national corporations, entrepreneurs, education and teaching facilities, leading research centres, and water-related networks to create environments for sector



collaboration. At a more local level, the cities of Guelph, Waterloo, Hamilton /Burlington, Toronto and London are the stronger centres for leading edge water-related research than Walkerton. However, the Walkerton area is home to the province's Walkerton Clean Water Centre, a demonstration and training facility for water treatment. Some of the localized strengths in Walkerton are:

- A firmly rooted base of companies that have demonstrated high levels of entrepreneurial energy and competitiveness.
- A group of drinking water treatment researchers who have the tools to transfer knowledge to operators and other suppliers through practical hands on operator training.
- An openness for additional demonstrations projects in the water technologies field.
- An agricultural community that recognizes the importance of source water protection first hand and uses irrigation systems to improve crop yields.
- A local commitment from employees and employers to provide quality products and services that sustain the local economy.
- Well-established, local utility providers who are able to provide streamlined access to electricity and telecommunications services.

## Education and Training

The sector-related education, training and research programs available within Walkerton and the larger southern Ontario region form the key element of the area's value proposition. Walkerton Clean Water Centre is the dominant local advantage. Hands-on training programs for municipal and First Nations community water systems operators are available. Training systems include conventional and advanced water treatment systems, monitoring and control instruments, a distribution system, and numerous types of operating devices such as valves and pumps. In addition, post-secondary students from Ontario's colleges and universities can attend water related program training.

The post secondary institutions in Guelph, Waterloo, London, Hamilton and Toronto have a wide variety of programming available that can develop the workforce with skills and aptitudes needed in the water technologies sector. Some colleges such as Sir Sandford Fleming College have also developed water treatment programs. This current strength in the province's water technologies sector and openness to adopting new technologies in the local sector should be highlighted by the Municipality of Brockton.



## Resource Availability

Walkerton's location in rural Ontario is a strength for attracting new water cluster investment opportunities. All marketing materials and activities should seek to highlight this rural location with good access to university and federal research professionals and financing incentive programs offered through FedDev Ontario and MEDI.

The factors that set Walkerton apart are that it has a state-of-the-art demonstration and training facility with immediate access to the natural environment (e.g. rivers, forests, agricultural land) and natural amenities (i.e. Lake Huron, Saugeen River, trails). This immediate accessibility makes Walkerton an open-innovation ecosystem for pilot demonstration projects for water technology researchers who want to map, measure, model or monitor their water research and technologies. Added benefits are the community's willingness to be involved in these projects and the test location where water management solutions can be implemented in domestic and international markets.

While work remains in teasing out the nuances of this value proposition, this provides a general overview of the key elements of Brockton's competitive case. From an existing base of assets within the community, the value proposition identifies those which are most compelling to sector researchers and industry leaders. In the next section of this report the broad network of support businesses and organizations for the water technologies sector are outlined with the intention of providing a targeted list of the "suppliers" that this value proposition can be articulated to.

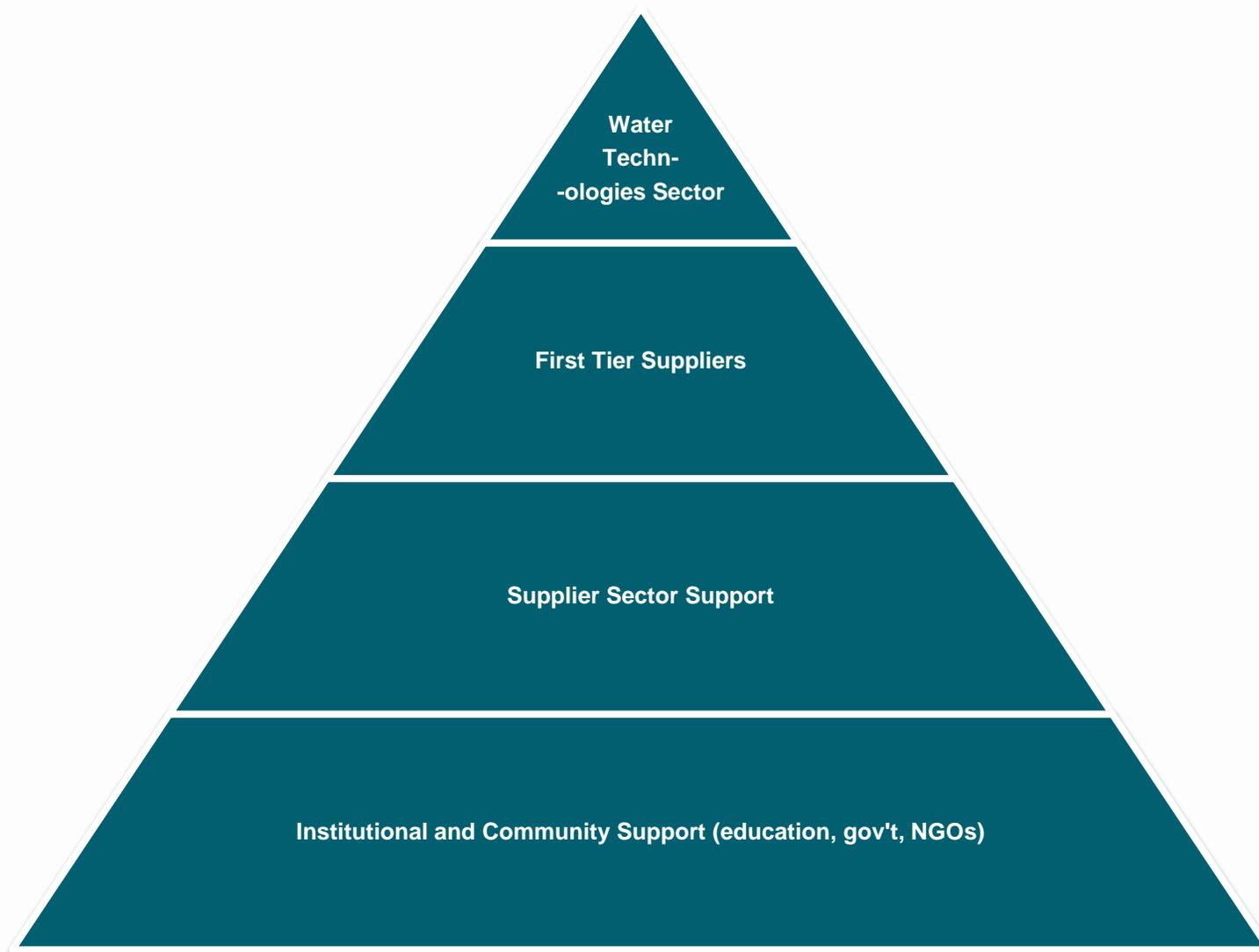
## 4.2 Value Chain Assessment

The development of a strategy to attract investment and develop a local sector of activity is not merely an exercise in identifying areas of strength. It is a more nuanced approach attempting to articulate key core messages about how the current configuration of the sector may be deployed and supported to drive economic growth and increased employment. It is about identifying the specific reasons why an existing local business, new entrepreneur, external business, or sector researcher would choose to invest, reinvest or test their research technologies in the Walkerton area.

In the previous section, the set of location factors that can act as an asset in support of water technologies investment were outlined. This section further outlines the broader network of industry, institutional, and community support that is needed to encourage the development of the water technologies sector. The consulting team uses a pyramid model to visualize the broader network needed to support the growth of a fully-functioning, innovative, and adaptive industrial sector.



FIGURE 4.2: WATER TECHNOLOGIES PYRAMID OF SUPPORT





The top of the pyramid is populated by the companies and organizations that operate in the most visible areas of the water technologies sector, perhaps the company or individual that owns and manufactures a water purification system for example. The next layer of support is composed of first-tier suppliers, or those companies that supply the immediate inputs to the companies and organizations in the targeted area. Typically, this layer contains any manufacturing or preliminary processing industries as well as any construction activities. The subsequent layer is composed of companies and organizations that provide the services required by businesses and organizations in the target sector, such as financial and professional services, or sales and distribution. The final layer of the pyramid is composed of the broader institutional and community-based support organizations that lead research efforts and service companies and organizations in the target sector.

To understand the lower levels of the pyramid, and the types of companies and organizations that will ultimately support the development of each target cluster, the consulting team employs a value chain assessment using a methodology developed by Dr. Edward Feser at the University of Illinois at Urbana-Champaign (UIUC). In the course of his work on regional economic analysis and supply chains, Dr. Feser has done detailed analysis on national level US statistical data related to input/output of sales in order to develop a measurement of the relative strength of inter-industry linkages. Feser's work shows the connection between "Core" and "Linked" Industries. The average propagation length (APL) is used to note the strength of the industry connection, both forwards (linked industries that "purchase" from the core industry), and backwards (linked industries that "supply" the core industry). Generally speaking, the average propagation length is the average number of steps or amount of time it takes a stimulus in one industry to propagate and affect another industry<sup>24</sup>. The lower the APL value, the tighter the linkage between a specific industry and the core industry. The relationship is noted by the figure below.

FIGURE 4.3: CONCEPTUAL DIAGRAM OF INDUSTRY LINKAGES



<sup>24</sup> Dietzenbacher, E. and Romero, I.. (2007). Production Chains in an Interregional Framework: Identification by Means of Average Propagation Lengths. International Regional Sciences Review.



For the Walkerton and area, this analysis offers a unique way of exploring the broadest set of organizations that can support activity across the water technologies sector. The following figure outlines the composition of the pyramid of support for the water technologies sector.

FIGURE 4.4: PYRAMID OF SUPPORT INDUSTRIES AND ORGANIZATIONS, WATER TECHNOLOGIES SECTOR

Pyramid Level	Notable Industry Subsectors and Organizations	
<b>First Tier Suppliers</b>	<ul style="list-style-type: none"> <li>■ Heavy and civil engineering construction</li> <li>■ Specialty trade contractors</li> <li>■ Navigational, measuring, medical and control instruments manufacturing</li> <li>■ Electronic and precision equipment repair and maintenance</li> <li>■ Electric lighting equipment manufacturing</li> <li>■ Architectural, engineering and related services</li> <li>■ Scientific research and development services</li> </ul>	<ul style="list-style-type: none"> <li>■ Management, scientific and technical consulting services</li> <li>■ Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance</li> <li>■ Cement and concrete products manufacturing</li> <li>■ Waste management and remediation services</li> <li>■ Computer systems design and related services</li> </ul>
<b>Sector Support</b>	<ul style="list-style-type: none"> <li>■ Electrical equipment manufacturing</li> <li>■ Commercial and service industry machinery manufacturing</li> <li>■ Other electrical equipment and component manufacturing</li> <li>■ Forging and stamping</li> <li>■ Semiconductor and other electronic component manufacturing</li> <li>■ Scientific research and development services</li> <li>■ Communications equipment manufacturing</li> <li>■ Cutlery and hand tool manufacturing</li> <li>■ Plastic product manufacturing</li> <li>■ Computer and peripheral equipment manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>■ Architectural and structural metals manufacturing</li> <li>■ Engine, turbine and power transmission equipment manufacturing</li> <li>■ Audio and video equipment manufacturing</li> <li>■ Machine shops, turned product, and screw, nut and bolt manufacturing</li> <li>■ Foundries</li> <li>■ Paint, coating and adhesive manufacturing</li> <li>■ Specialized design services</li> <li>■ Coating, engraving, heat treating and allied activities</li> <li>■ Wholesale trade</li> </ul>
<b>Institutional and Community Support</b>	<ul style="list-style-type: none"> <li>■ Community colleges</li> <li>■ Universities</li> <li>■ Grant making and giving services</li> </ul>	<ul style="list-style-type: none"> <li>■ Social advocacy organizations</li> <li>■ Civic and social organizations</li> <li>■ Business, professional, labour and other membership organizations</li> </ul>



The analysis provides a strong framework upon which to encourage sector research and build investment attraction initiatives in the water technologies sector. Particularly for private sector investment, the analysis provides a means of targeting lead generation and investment retention and expansion efforts for industries that have a strong link to businesses and organizations within this sector.

A number of third-party business directories, such as Hoover's or Scott's, categorize companies from across North America and the world based on standard industrial classifications like NAICS and Standard Industrial Classification (SIC) codes. The industries and organizations outlined in the pyramid of support above offer a discrete set of codes that can be cross-referenced with third-party data sources to refine the wider list of potential targets to a discrete list of companies in sectors that have proven value chain linkages to water technologies sector activity. The approach can be used in a similar fashion with databases organized by International Standard Industrial Classification (ISIC) codes, in target markets outside of North America.

The high-priority companies will be Ontario-based and can then be qualified further by determining which have the highest potential to expand or invest in Brockton. This prioritization of companies is typically done through research methods ranging from detailed corporate intelligence activities and collection of data on company intentions, to the identification of target companies in the value chain on the various sector- and growth-based lists published by companies across the globe, like Deloitte, the Branham Group, and Inc. Magazine.

Whatever the methods chosen to identify and pursue leads, the value chain and pyramid of support exercise above provides Brockton with a list of industry subsectors that can further support the growth of the water technologies sector in the region.



## 5 Strategic Directions

As a result of an assessment of broader trends in the water sector, as well as consultation with industry and research experts, the positioning and strategy for a water cluster in Brockton begins to take shape. The following section provides a proposed strategy for moving forwards on the initiative, including a potential vision for the community, a niche area of focus that fills a current industry gap, identification of the focus of programming and activity, and institutional development activities to support the sector.

### 5.1 Program Vision

Beyond the value proposition the community has access to a range of natural heritage and environmental resources that can act as a testing ground within the water sector. The community's agricultural and rural roots position it well to support activities related to drinking water monitoring and rural and private servicing on residential and employment lands. With proximity to Lake Huron/Georgian Bay, as well as major rivers and tributaries in the Grand River and Saugeen River watersheds, the community offers opportunities to support research in areas like climate change and source water protection, as well as studies of fresh water ecosystem biodiversity. The more streamlined regulatory environment in the Grey-Bruce area, paired with municipalities open to water systems innovation, is an asset in terms of accessing these natural resources and testing innovative technologies in real-world systems.

Further, the community is in proximity to a number of assets that drive research, commercialization, and business development in the sector. The community has access to post-secondary institutions, researchers, and commercialization organizations in southern Ontario with a focus in areas like clean technology and water technology. The community also has connections to existing and potential markets for water technology (e.g. municipalities, aboriginal communities, private sector businesses/operators) as well as a broader national discourse in the water technology sector through the Walkerton Clean Water Centre.

As a result, Brockton's opportunity to support the development of a water cluster in the community lies at the convergence of these natural heritage assets, its connections to the broader research and development infrastructure of the water sector, and connections to potential markets and policy makers. At this convergence is the idea of Brockton as an open-innovation ecosystem to support research and commercialization, demonstration of new technologies, and business development in the water sector. It builds on the idea that Brockton provides access to a highly dynamic natural environment with constantly changing variables and varied natural environmental systems that can support testing and demonstration of virtually any new technology, while offering the opportunity to build additional physical spaces and programs that can support the expansion of the sector beyond training and monitoring capabilities.



In much the same way as new technologies emerge from a laboratory, Brockton can be the source of new technologies. It can be an environment that encourages companies and researchers from across the region and globe to test their theories and develop new technologies with the potential to generate positive impacts locally and well outside of the Brockton area. However, it retains an advantage in its “living” status – researchers and businesses have access to a constantly changing natural environment, while a steady stream of collaborators, customers, and entrepreneurs move through the community and access training and business development support. This creates a frequently changing natural and institutional environment, providing new opportunities to test, market, and collaborate on new technologies.

## 5.2 Program Direction

One of the primary challenges in assessing the potential for a water cluster in the Brockton area is identifying where, in an already sophisticated provincial water sector, the cluster will fit. With the development of the Southern Ontario Water Consortium (SOWC) as an open-innovation ecosystem approach to water sector development there is an emerging strength in the province related to research and development, testing, and demonstration in water technologies. The intent for the water cluster anchored in Brockton is to expand on these capabilities and opportunities in the Grey-Bruce area, as well as to fill a critical gap area at the later stages – primarily technology commercialization and business incubation. In general, the focus of the Brockton water cluster initiative should be the movement of new technological innovations to marketable products (i.e. from laboratory to pilot/early stage businesses) and the support of small businesses and entrepreneurs in the water sector.

### 5.2.1 Technology Commercialization

The commercialization of early-stage technologies developed in Ontario remains a critical gap in the current innovation infrastructure across the province, and thus a primary target area for the proposed water cluster in Brockton. Dr. Randall Goldsmith of the Oklahoma Technology Commercialization Centre provides a model of strategies and actions for the commercialization of advanced technologies, such as those related to the water sector. Each stage has a technical stage, market stage and business stage. The model is a framework for measuring progress in the different stages, namely identification of information and technical assistance needs, project development costs and the forecasting of financing requirements. Although the model was designed for new product introduction and new company creation it does provide guidance for programs that could be offered to support commercialization from local researchers within an expanded local water sector.



FIGURE 5.1: RANDAL GOLDSMITH COMMERCIALIZATION MODEL

	Concept Phase	Development Phase	Market Entry Phase	Market Expansion Phase
Market	<ul style="list-style-type: none"> <li>Initial market and opportunity concept</li> <li>Lead customer identification and engagement</li> </ul>	<ul style="list-style-type: none"> <li>Develop marketing plan, including customer segmentation and relationship strategies</li> </ul>	<ul style="list-style-type: none"> <li>Implement promotion plan</li> <li>Perform competitive market intelligence</li> </ul>	<ul style="list-style-type: none"> <li>Target vertical and adjacent markets and increase market penetration</li> <li>Enhance partnership delivery channel and CRM</li> </ul>
Business	<ul style="list-style-type: none"> <li>Identify financial, physical, and HR requirements</li> </ul>	<ul style="list-style-type: none"> <li>Secure required financing</li> <li>Establish management team, financial, and business plans</li> <li>Determine break-even point</li> </ul>	<ul style="list-style-type: none"> <li>Manage financing, skills, and production needs</li> <li>Adjust strategic and business plans to respond to market opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Diversify internal and outsourced skills to meet ROI objectives</li> <li>Establish international partnership</li> </ul>
Technical	<ul style="list-style-type: none"> <li>Determine features and performance requirements</li> <li>Perform competitive technology intelligence</li> </ul>	<ul style="list-style-type: none"> <li>Move development into prototyping, testing, and production phase</li> <li>Source raw materials and establish QA systems</li> </ul>	<ul style="list-style-type: none"> <li>Establish manufacturing facilities and technical support</li> </ul>	<ul style="list-style-type: none"> <li>Determine incremental product development cycle</li> <li>Continuously assess competitive product functionality and emerging technologies for adoption</li> </ul>

In the concept phase, the Brockton Water cluster initiative could focus on helping companies and researchers by assessing the water technologies market and opportunity, offering support in customer identification and engagement, offering insight on water technology features and performance requirements (especially as it relates to testing and monitoring standards), and performing sector competitive intelligence research and patent searches with the assistance of external partners in the sector. As the new products and processes move through to the development phase, the water cluster in Brockton should provide access to the necessary resources needed to develop marketing plans, secure financing, and test products - especially within the Brockton and Grey-Bruce regions.

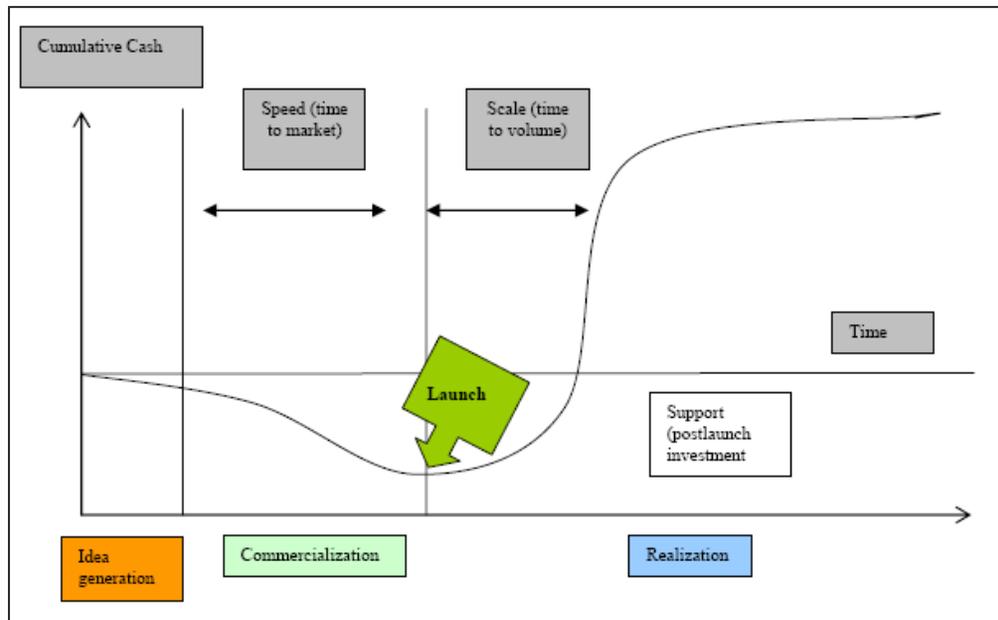
As new products and processes in the water sector enter into the market phase, the water cluster should look to develop local (and connect with external) businesses resources (e.g. mentoring) that allow companies to perform competitive



market intelligence and manage financing, skill development, and production needs. As the water technologies cluster expands the players within the Brockton water cluster can continue to offer resources in support of continuing market expansion for locally developed and commercialized products and processes.

Figure 5.2 illustrates a series of sequences in the commercialization process. There are specific programs that should be targeted for delivery in the Brockton water cluster that would be beneficial to local businesses, entrepreneurs, and researchers during the commercialization process. In the two initial phases of idea generation and commercialization, investment in the project (cumulative cash) is low. Brockton should look to deliver and facilitate connections to federal and provincial funding programs that assist with technology development (such as those listed in Section 3 of the report).

FIGURE 5.2: ANDREW AND SIRKIN COMMERCIALIZATION MODEL



After products and processes are launched into market, the scale (time to volume) corresponds to the time needed to reach a profitability threshold. The sooner the product or service reaches the optimal production scale, the faster it will generate profits. As noted earlier, a business mentoring program could deliver value in this regard to a local water technology cluster.



The third phase – realization – puts emphasis on the profitability of investments and post-launch business and entrepreneurial support programs. To offer support to companies and entrepreneurs at this phase the water cluster initiative will need to focus on talent acquisition, development, and training – likely in partnership with economic development stakeholders from across the southwest Ontario region. Programs to manage intellectual property, control the growth process, and develop access to new markets may also be helpful.

### 5.2.2 Business Incubation

There are currently a number of incubator facilities in southern Ontario, many of which are focused on innovative areas of the provincial economy. However, with the development of a water cluster in Brockton, there is an opportunity to develop a more sector-specific approach to business incubation with the intent of supporting early stage companies after new technologies have been commercialized while leveraging proximity to expertise in systems management and natural water systems in which companies can test and demonstrate new products.

Academics developed the incubator label and concept in order to distinguish certain active business support structures from a range of other structural types, including Business Parks and Research or Technology Parks. Business Parks are typically differentiated from incubators or incubation programs by the fact that they are generally passive; they focus on land and real estate, but not on the economic development, project initiation or business support services that characterize incubation efforts. Research and Technology Parks often do offer more active incubation-style support services, but in contrast to incubation programs they tend to emphasize the presence of and access to primary research or testing facilities, including laboratories. In part, this also tends to result in a heavier influence of research and development and commercialization programs within the programming of these facilities.

From this perspective, the term incubator is used in the academic literature (and much of the economic development literature) to refer to any proactive, service-oriented facility (physical or virtual) designed to enhance the performance of specific individual businesses through a series of infrastructure supports, advisory services and/or shared resources. Underneath this description, though, it is clear that the term incubator covers a very wide range of activities and structures. Some of the more key attributes of a successful technology incubation program include:

- Below-market rent for physical space with basic equipment
- Access to sophisticated equipment at no or reduced cost
- Free or subsidized business services, saving the start-up firm operating capital
- Improved access to capital markets

Although there is general agreement on most of this list, the first point is contentious. The majority of literature seems to agree that “cheap rents” are a mistake: they can send the wrong impression to the local real estate and business



communities and artificially insulate incubating businesses from the realities of real-world operating costs. Literature suggests, however, that a broad range of activities are, in fact, helpful within the incubation context. These include:

- Help with business basics, such as business planning assistance, assistance understanding regulatory requirements, economic development advice, etc.
- Access to specialized service providers, including lawyers, accountants, patent officers, e-commerce and web design professionals, international trade experts, etc.
- Networking opportunities among clients
- Specialized seminars and training programs
- Access to shared infrastructure and shared administrative support services
- Access to financing programs, both formal and informal, including traditional lenders, angel investors, venture capital, micro-financing, etc.
- Access to computer labs and other shared technology resources
- Access to resource libraries and specialized databases of information
- Assistance with technology commercialization
- Mentoring and advisory programs
- Security systems
- Access to marketing and promotional opportunities
- University and college linkages and access to research and development results
- Pre- and post-incubation services

While the focus of these programs is often on bricks and mortar facilities, virtual incubation has a place in the overall scheme of things. Virtual incubation efforts could offer access to business advisors and mentors, access to networks of lenders, participation in workshops and seminars, and a range of administrative support services for home-based businesses. Such approaches are also seen as key drivers of additional revenue for the incubation program. The Waterloo Technology Accelerator, for example, houses some 19 incubator tenants, but involves another 47 companies in its virtual program, at an average cost of \$500 per month, adding more than a quarter of a million dollars annually to the Centre's bottom line. They can also be a critical first step in the launch of an incubator as a way to test the market and determine if further development (e.g. facilities) is required based on local interest.

In the end, incubation services should be regarded as a continuum, with services and structures designed to assist businesses as they progress from start-up to graduation. The underlying assumption in this approach is that individual companies, rather than an overall sector or cluster, must be the focus of activity. Although an incubator program may be set up with lofty and high level goals (youth retention, cluster development, technology commercialization), the success of



the program lives or dies on the basis of individual company performance. Without successful individual graduating businesses, the incubator cannot meet the larger goals of the initiative. As a result, the primary focus of the incubation program must always fall on addressing the needs and challenges of the individual business and the individual entrepreneur.

A central focus of the Brockton water cluster should be the development of business incubation resources that leverage the water sector expertise and small business support resources available in Brockton and southern Ontario to fill the gap in small business and entrepreneurial support in the provincial water sector. Over the short term, the initiative should focus perhaps on the development of virtual services that require fewer resources to launch – leveraging existing expertise across Ontario and in Brockton to support small business development in the sector, primarily from researchers in southern Ontario. Over time though, Brockton should look to establish a more permanent facility for business incubation in the area, leveraging the area's access to natural heritage resources, growing research and expertise within the cluster (as it emerges), and connections to external networks (e.g. Ontario Centres of Excellence, Southern Ontario Water Cluster).

## 5.3 Program Focus

Building on the vision of the cluster as an open-innovation ecosystem for water technologies, and the direction of the program focused on commercialization and incubation aspects of the water sector, the cluster approach requires a targeted focus for programming. In other words, the direction has been established to suggest how the cluster will deliver services to support the growth of the water cluster, but the areas of the sector where those services will be targeted is still absent. Based on broader trends in the water sector, especially within existing commercialization infrastructure across Ontario, and emerging areas of activity in the sector (e.g. technology integration, data management), the Brockton water cluster will have three areas of focus, as outlined below.

### ■ OCE Target areas

The Ontario Centres of Excellence (OCE) energy and environment area of focus has a history in supporting water sector projects in several discrete research areas, including wastewater treatment, drinking water treatment, stormwater management, and source water protection. Thus it should be a priority for the water cluster to focus investment attraction, technology commercialization, and business incubation efforts in these areas to ensure synergies with OCE can be built; either with OCE providing assistance with commercialization or with the water cluster providing assistance to the sector as an incubator or demonstration site.



### ■ **Training and Education**

The water cluster will also be able to leverage the existing strengths in education and training available at the Walkerton Clean Water Centre. At present, the Centre delivers training programs focused on treatment and distribution of safe drinking water, the operation of small drinking water systems, and entry-level training for drinking water operators, as well as training through the Centre's Mobile Training Units (MTUs). The intent is to have the cluster build on this expertise and offer new areas of training to assist local businesses within the cluster in operating new technologies developed across Ontario and by researchers within the cluster. The WCWC also has an opportunity to assist with the development of a workforce skilled in the new technologies that may be available to businesses across Ontario and around the globe.

### ■ **Digital Systems and Data Management**

With the sophistication of water systems comes the need to have more sophistication in the data systems that manage the treatment, distribution, and collection of water across urban and rural areas. The Brockton water cluster should look to build programming and expertise around this emerging area of activity at the convergence of water systems and information communications technology (ICT). In many ways, this will place the cluster at the leading edge of the sector. To cover the breadth of the sector's needs for the development of systems management the cluster should focus on supporting the development of technology solutions in four areas – mapping, measurement, modelling, and monitoring – the four components that allow for the management of a water system. The Brockton water cluster should look to build local capacity in each of these areas focused on the integration of ICT with water systems (e.g. geographic information systems, RFID technology, mobile communications, and database management). Like other sectors, the continued integration of ICT into the water sector is requiring new solutions to data management and the handling of significant amounts of data gathered in water systems management. Indeed, companies like IBM continue to develop solutions for municipal operators across the globe to ensure that water systems operate efficiently and safely. However, the integration of ICT with the water sector is also offering opportunities for new businesses and entrepreneurs to develop more sector-specific niche ICT solutions that can be used in the water sector to augment these larger scale efforts from multinational companies. This is particularly relevant for smaller and more rural municipalities, which may not have the capital needed to integrate full scale “smart city” concepts in the management of their infrastructure systems.

## 5.4 Institutional Development

The expansion of programming to support the concept of a water cluster in Brockton will likely require the development of new (or expansion of existing) facilities. In part, the Brockton water cluster concept benefits from the presence of the Walkerton Clean Water Centre and the training and demonstration capacity that the centre represents in the community. However, there is limited capacity to expand commercialization and incubation uses to further drive development of the



cluster, as well as support investment attraction activities through the existing facility. As such, there are several potential institutional components that may be developed in the Brockton water cluster.

- **Business Incubator**

While the concept may begin as a virtual service – supporting the incubation of new companies with existing spaces, connections to existing manufacturing capacity, virtual mentoring and business services, and assistance with testing and regulations in the area – there is a longer-term opportunity to develop a facility focused on support for new technologies in the water sector. The new facility could include shared administrative space, training and educational spaces to augment those at the WCWC, lab spaces to support light manufacturing (e.g. metal fabrication, assembly) or testing, and perhaps shared ICT infrastructure to support the development of digital systems.

- **Demonstration site and commercial centre**

There is an opportunity to support investment attraction and business development in the water sector through the expansion of demonstration facilities in the community as well as through the expansion of sector-specific and investment ready commercial spaces in the business park. The WCWC attracts a wide range of water systems professionals from the public and private sector every year which offers the opportunity to build a demonstration site for the developers of new technology in proximity to the centre. In turn, this promotes market access among new business ventures in the sector while offering the opportunity to distribute new technologies and processes – especially those that have been developed with the support of stakeholders in the Brockton water cluster – among the country’s municipal and private sector operators. To further the support for this opportunity the municipality could look to develop a commercial centre in conjunction with demonstration space in the business park. The Centre could focus on providing temporary space to water technology companies, small convention-type spaces to support demonstration and marketing of new products and services, or permanent spaces to augment the municipality’s current supply of office space and integrated commercial/industrial spaces that could be used by small businesses in the water sector.

- **Expanded facilities at WCWC**

In support of both of these initiatives, there may be an opportunity for capital expansions at the WCWC. This could include the development of additional lab and testing space, the development of additional infrastructure (e.g. to connect with other facilities or storage tanks), and the expansion of offices and research space to support the current activities of the centre which, with the expansion of a local water cluster in Brockton, have the opportunity to expand as well. One preliminary idea related to the expansion of the WCWC is the development of pressurized leak detection equipment as a means of testing new technologies to detect leaks in closed water systems, a unique opportunity across the globe. Further, there may be an opportunity to build a connection between the WCWC and a business incubator in the



community, where the WCWC anchors testing of new technologies in a closed-loop system while the incubator provides the spaces needed for business administration and product development (e.g. manufacturing or design). Though some of the expansion can be related to administrative space, the development of new testing and research facilities at the WCWC can continue to build the national and global reputation of Brockton as a centre for innovative new technologies.

## 5.5 Cluster Development and Investment Attraction

In order to further build the sector across the region a model based on the economic development notion of "cluster development" is appropriate. In examining Brockton's competitive advantage in the water technologies sector, Millier Dickinson Blais has outlined that there are a number of foundational elements in the region that may contribute to the development of this sector. However, it should be noted that the prospects for development of a more active water cluster in Brockton are in part dependant on the municipality's ability to attract investment, researchers, and businesses to the community building on these preliminary assets.

Introduced by Harvard University's Michael Porter, cluster theory describes the interactions of concentrations of interconnected businesses, suppliers and associated institutions within particular areas of business and industry. Clusters can be defined in four ways:

- Geographically (i.e. interactions within a specific region)
- Horizontally (i.e. interactions between businesses to share resources)
- Vertically (i.e. interactions based on supply chain management)
- Sectorally (i.e. interactions between businesses in a given business field)

Initially, the term cluster was applied only to large and significantly resourced industry concentrations. In the Canadian context these locations would include the automotive manufacturing cluster in Ontario or the oil and gas cluster in Alberta. Outside of Canada, clusters would include the world-renowned locations such as Silicon Valley in California for Information and Communications Technology or Zurich, Switzerland, for pharmaceuticals. More recently, economic development practitioners have taken to employing the concept in a less grand sense, and more as a short hand for explaining the potential to grow local economies by building on areas of concentration and interconnectedness within their own community. In addition, economic development practitioners want to foster growth by nurturing an entrepreneurial and innovative business environment. If supported by adequate levels of human and financial capital, this interconnected and entrepreneurial environment can create the thickness of resources and infrastructure needed to support the development of an interconnected industry cluster.

*'You need a local champion to drive the success of a business or idea'.*

*Walkerton Resident*



Although the community has established the Walkerton Clean Water Centre, which serves as a demonstration and training facility intended to generate activity in the local water technologies sector, there is limited thickness in the area's human and financial resources to promote the sector further. Thus a more concerted effort is needed to attract the necessary resources to build a local water-related cluster in Brockton.

The presence of an industry sector and supporting assets, in and of themselves, may not be sufficient to generate the development of a cluster through investment attraction or differentiate the local economy from its competitors seeking to build similar clusters of activity. The key question then becomes:

- **How can Brockton differentiate its approach to cluster development to best capitalize on its existing assets and build a stronger competitive advantage and identity over other areas of Ontario?**

The value proposition is unique for Walkerton since it is a small, rural community in Ontario that is home to a state-of-the-art demonstration and training facility. This value proposition provides Brockton with a unique advantage of becoming a demonstrator of innovative water technology processes and research and a driver of the larger southern Ontario sector into the future. However, the municipality needs to extend its value proposition to support additional areas of activity – small business development, entrepreneurship, and research – which can build out the water sector cluster in Brockton. Since much of this capacity must be attracted to the municipality, the strength of the value proposition takes on greater relevance.

What Millier Dickinson Blais proposes is a multi-step, sequential strategy for creating the necessary conditions for further development in the water sector and articulating a clear message to potential investors, businesses, researchers, and entrepreneurs in the sector about the opportunities in Brockton. This strategy consists of two components:

- **Demonstrate the local capacity for water sector development at all stages of the value chain** by supporting and developing pilot demonstration projects in the community, developing a concept for the open-innovation ecosystem in the Brockton area that demonstrates how the community can support water sector businesses and entrepreneurs, and promoting opportunities for testing, research, and market access from the community.
- **Build the community's capacity to attract investment** by becoming the demonstration and commercialization hub of the provincial water sector, with dedicated staffing and support focused on nurturing the sector, resources needed to connect external investors with research and testing capacity available in Brockton, networks needed to strengthen the capacity of local businesses and entrepreneurs, and the development of virtual services and a continuum of physical spaces that support small business development and longer-term business viability in the water sector.



# 6 Investment Attraction Strategy

## 6.1 Understanding Marketing Strategy

In general terms, a “marketing strategy” is the particular vision or expression of strategic direction that serves to underpin a firm or an organization’s efforts to maintain and expand market share. In the economic development context, the concept is usually applied to the notion of an external communications, advertising and promotion plan focused on increasing a community or region’s “market share” of new investment. However, these basic understandings do not adequately address the significant variation in theory and approach between traditional private sector marketing strategies, and those employed within the economic development context to attract investment.

Most approaches to marketing strategy have been developed in the context of the private sector where typical strategy structures include:

- Market dominance strategies, which focus on a company’s position as a leader, challenger, follower or niche actor
- Innovation strategies, which focus on a firm’s relative ability to alter market conditions through new technologies, products, techniques or services
- Growth strategies, which seek to define opportunities for market expansion related to choices between horizontal integration, vertical integration, diversification and intensification

To a significant extent, these models are only weakly connected to the strategic marketing needs of public and not-for-profit players in the economic development space. In part, this reflects traditional marketing’s focus on what is known as the “four P’s”, which are product, price, place and promotion. The notion is effective marketing strategies can be based on any one of (or any combination of) these four key elements:

While the four P’s concept is simplistic at the surface, it provides shorthand that allows those interested in investment attraction to begin to think in tactical terms about marketing directions, a process that reached its culmination in 1980 with the publication of Michael Porter’s seminal work, *Competitive Strategy: Techniques for Analysing Industries and Competitors*.

Porter’s work has become a foundation piece for modern economic development, though often with only a superficial understanding of its content. In his work, Porter suggests that marketing strategies may be focused in one of three directions:



- **Cost Leadership Strategy** (defined as a “broad” strategy) – building market share by creating the lowest cost option in the marketplace. In economic development terms, this approach emphasizes attraction factors such as low taxation, low land costs, low regulatory hurdles, etc.
- **Differentiation Strategy** (defined as a “broad” strategy) – building market share by de-emphasizing cost factors, and instead suggesting that potential customers/investors cannot access what they need from other sources or in other jurisdictions. In economic development terms, this approach emphasizes unique or near-unique resources and assets (access to required raw materials, for example) within a community that will dictate an investor’s location decision in a global context.
- **Segmentation Strategy** (defined as a “narrow” strategy) – building market share by recognizing that the community’s value proposition is neither lowest cost nor most unique. Instead, this approach emphasizes the targeting of specialized industry niches, and works through the development and maintenance of relationships, specialized knowledge and customized support structures.

In the case of Brockton’s water sector investment attraction efforts, it is this third approach that is most appropriate from a marketing strategy perspective. While attractive in many respects, Brockton is not the lowest cost jurisdiction seeking investment in this sector despite the lower real estate costs. Similarly, while Brockton has the Walkerton Clean Water Centre to anchor investment from within the water sector, it is not sufficiently “differentiated” from a range of other Ontario jurisdictions to suggest that firms “must” locate to the region. Instead, Brockton needs to focus on a segmentation strategy. Porter suggests that Cost Leadership and Differentiation strategies are “broad”, by which he means they market to large – often global – audiences and targets. Segmentation emphasizes a “narrow” and targeted focus, which makes them much more focused, tangible and practical.

In essence, a segmentation approach aligns well with the opportunities identified and outlined in this report. While all investment is welcome, Brockton is exploring a strategic economic development process which has identified the water sector as an area in which it is positioned to support and attract new investment and research. To pursue these opportunities, the municipal and economic development stakeholders must intensively focus their efforts on this segmented target, creating relationships, expertise, capacity, networks, support structures, academic linkages and a range of other specialized segment-serving instruments and programs.

In this light, the water sector represents an identified niche target area that should be addressed through marketing and investment attraction activities that build upon three key pillars:

- **Linking assets in the target area to support marketing efforts** – existing assets in the water sector in southern Ontario must be inventoried and key players gathered in advisory structures that direct and support efforts on an ongoing basis.

*“The Municipality will have to do more than provide serviced lots in the business park but rather showcase other opportunities that pave the way for creative re-use of sites and thoughtful land use planning.”*

*Walkerton Resident*



- **Building and communicating specialized knowledge of the segment** – the Municipality of Brockton must have available specialized marketing materials addressing the needs and opportunities within the water sector and make these available through dedicated (possibly standalone) aspects of its web presence and presentation slides with summary materials for supporting direct contact in the sector.
- **Relationship building within the segment** – to underline the direct interest and connection to the water sector Brockton water sector stakeholders and influencers must develop direct links and contacts to the sector in its own space and at its own events and maintain that contact over time.

## 6.2 Providing a Delivery Model

The delivery of programs and services related to the development of the planning strategy for water cluster investment opportunities takes place in an environment with limited financial and human resource means. There are already regional economic development organizations that service the Brockton area. The Bruce Community Futures Development Corporation and the Saugeen Business Development Corporation are two organizations engaged in economic development projects and providing financing to expanding businesses. The Four County Labour Market Planning Board promotes labour market strategies to respond to changing economic and labour conditions. Each of these organizations has a legitimate and direct interest in the development of the water cluster in the area, but none of these stakeholders are in a position to drive and lead the development of the water technologies sector.

Under these economic development environmental conditions, the Municipality of Brockton, BEDC, and the Walkerton Clean Water Centre have a unique opportunity to be the organizational structures that drive sector development. Through a water sector working group, members from the Municipality, BEDC and WCWC would spearhead the creation of a specialized structure that unites the three interested parties under a single group. This working group should position itself as a facilitator, acting as a secretariat to support and implement plans and projects. Initially, the implementation plan would guide the working group's efforts, but as time passes this direction will be updated and refined by members.

When the working group is established, it has a number of key roles to direct activities in the development of the water technologies sector. The activities include:

- Developing and overseeing annual work plans to fulfil the action objectives outlined in the strategy and pursue other opportunities
- Increasing the dialogue and interaction between leading academic researchers in southern Ontario's universities who are interested in pilot demonstration projects
- Increasing the dialogue and interaction between leading businesses in southern Ontario's water cluster who are interested in pilot demonstration projects



- Advancing the incubator concept and its linkages with leading academic researchers
- Providing support, information and competitive intelligence to water technologies-related businesses that may express an interest in the Brockton area
- Initiating discussions with the local business community by exploring and promoting linkages with the water sector
- Coordinating marketing and communication initiatives that support growth in the water sector

This working group would be the first point of contact for researchers, young entrepreneurs and businesses looking to visit the area. Each group member should be capable of providing direct and specialized knowledge that could benefit outside interests from the private and public sector.

While it is clear that regional economic development organizations could play a key role in this working group, they have a regional mandate. It is more desirable to have a local prominent representative that can represent both the Municipality of Brockton and the Walkerton Clean Water Centre.



## 7 Implementation Plan

Investment and research attraction or marketing strategies must build on the unique assets and resources of a community to form a framework for achieving economic and community prosperity. This framework must contain inspirational objectives, as well as a set of associated actions to be implemented in pursuit of the desired outcomes. The most successful strategies are community-based, with the ability to draw on the expertise and connections of other organizations to achieve the vision for development. For that reason, the implementation plan for the strategy must be generated from a detailed assessment of the local economic assets and connections, and the insights and consensus of the local community.

The municipality of Brockton already has a goal for greater involvement in the water technologies sector – the development of a cluster of water technology activity based on its existing institutional strengths. From that goal has emerged a more detailed vision for the community in the sector. The resulting vision leverages the convergence of natural heritage assets in the community, its connections to the broader research and development infrastructure of the water sector, and connections to potential markets and policy makers, and establishes the potential of the community to fill a critical gap in the later stages of the sector – primarily related to technology commercialization and business incubation.

To achieve this vision the Brockton area must undertake strategic initiatives that have the potential to leverage that positioning into the expansion of opportunities in the water technologies sector in the local area. This section will build on the strategic directions and investment attraction strategy of the previous sections to develop an implementation plan for the Municipality of Brockton, BEDC and Walkerton Clean Water Centre that will detail how these partners can develop the water sector and accommodate increased water technology research, training and business activity. The actions in the implementation plan will be divided into the strategic direction areas focused on building the resources and profile needed to further anchor water technology sector investment in the Brockton Area:

1. **Develop Organizational Structures:** Build the local governance and organizational structures necessary to effectively manage the development and promotion of water sector opportunities in Brockton
2. **Develop Physical and Programming Capacity:** Build the local institutions and assets that encourage the development of a local water cluster in Brockton
3. **Build the External Profile:** Establish and maintain connections to the external water technologies sector and promote Brockton as an integral part of the sector in Ontario and an open-innovation ecosystem of new technology development and demonstration.



Each action will be outlined with accompanying rationale. All partners will need to understand that there will need to be resource commitments that need to be made and there will be a logical progression of activities needed to become a centre for water technology innovation. Each action will be identified as high (year one), medium (years two to three) or low (years four to five) priority. The partners will be able to measure progress towards more sector research and investment as performance measurements will be included for each action area.



## 7.1 Develop Organizational Structures

Action 1: Develop a regional water technologies sector working group to pursue sector-based initiatives, and generate commitments to ongoing staffing support to ensure its sustainability.		
Rationale and Key Elements	Priority	Performance Measures
<p>There are already a number of economic development organizations that serve the Brockton area, though none of these organizations have the capacity to pursue development of a new cluster independently. As such, the coordination of efforts around sector-based initiatives will be a key to the success of a cluster development strategy. If no one organization can pursue the sector independently, then a coordinated effort becomes the only strategy to undertake the activities necessary to build the sector.</p> <p>Membership on the working group includes the local CFDCs, the BEDC, the Municipality, the conservation authority, and the WCWC, but also other key stakeholders in the water sector from across the region and further throughout southern Ontario (e.g. industrial partners, academic researchers). By creating an industry-based body and supporting it through the work of existing economic development organizations, it will be possible to both enhance the external perception of industry support and involvement in Brockton while providing dedicated strategic resources to the growth of the sector, which become critical when considering more detailed goals associated with incubation.</p> <p>Potential action elements:</p> <ul style="list-style-type: none"> <li>■ Initiate discussions with regional partners regarding the establishment of the working group, ideally leading to the creation of an arm's-length structure, and identify leading potential academic or industry partners in southern Ontario to engage in the group</li> <li>■ Provide dedicated staff support from the BEDC and Municipality to pursue the implementation of this strategy under the guidance of the new organization, and establish commitments of staff or resources from external organizations to engage in sector-based initiatives</li> <li>■ Develop a prioritized list of sector-based initiatives to pursue through the working group structure, including potential industry or academic pilot projects</li> <li>■ Develop mechanisms to identify and pursue opportunities for additional external funding to support the continued growth of the sector on an ongoing basis (e.g. Ontario Centres of Excellence)</li> </ul>	High	<p>Number of active members</p> <p>Staff or in-kind contributions from 'external' organizations</p> <p>Funds raised from industry partners</p> <p>Number of successful project funding applications</p> <p>Number of external investment visits/inquiries supported</p>



## 7.2 Develop Physical and Programming Capacity

Action 2: Undertake the foundational activities needed to pursue the development of a water technology incubation program in Brockton		
Rationale and Key Elements	Priority	Performance Measures
<p>Though a number of issues still need to be addressed, the findings of the study suggest that sector-based incubation programming is an opportunity in Brockton. Such a program would fulfil local interest in supporting business development – both within and outside of the water sector – while also occupying a critical gap area in current water sector programming. Though shorter term programming may focus on the establishment of organizations and programming, the ultimate goal of Brockton should be the development of physical incubator space in the municipality. As part of that goal, the working group should assess potential locations for the incubator facility, including in a new purpose-built facility or through expansion of existing facilities (e.g. WCWC).</p> <p>Potential action elements:</p> <ul style="list-style-type: none"> <li>■ Establish a not-for-profit corporation and board of directors (leveraging the working group structure) to guide development of the incubation program, including early-stage activities related to governance, external and internal funding, marketing, and staffing (e.g. Incubator Manager)</li> <li>■ Develop an interim incubation program (housed in a temporary facility) focused on the water technologies sector, and attract internal and external partners to establish high quality programming</li> <li>■ Undertake more detailed business and financial planning activities to guide the transition of the program to a permanent physical space and ensure sustainability over the longer term, including an assessment of potential location and facility options (e.g. East Ridge Business Park, within WCWC)</li> <li>■ Develop a full suite of business and sector-specific programming options and detailed marketing plan to promote the facility/program</li> </ul>	High & Medium	<p>Number of interim incubation program participants</p> <p>External funding secured for incubation project</p> <p>Internal funding secured for incubation project</p> <p>Number of pre-incubation stream clients</p> <p>Number of full-service incubation stream clients</p>



Action 3: Establish facilities and spaces in the municipality focused on supporting commercialization, marketing, and distribution of new and existing technologies in the water sector		
Rationale and Key Elements	Priority	Performance Measures
<p>The WCWC represents an asset with regards to generating interest in research opportunities in the Brockton area, especially with regards to the operation of municipal systems and testing of drinking water. However, the presence of the Centre – and the associated stream of water sector operators and experts that visit the Centre annually – offers additional opportunities to support the development of the sector through new physical spaces. The Municipality should set up demonstration facilities in proximity to the Centre, with the intent of promoting market access among new and existing business ventures while offering the opportunity to distribute new technologies and processes among the country’s municipal and private water sector operators and businesses. To expand the opportunity the Municipality should also investigate initiatives to expedite the development of local pilot-stage projects and demonstrations of new technologies across the region, while building mechanisms to leverage the movement of public and private sector customers through the region every year.</p> <p>To further the support for this opportunity, the municipality should establish a temporary or permanent commercial centre in conjunction with demonstration spaces across the municipality. The centre could focus on providing temporary space to water technology companies, small convention-type spaces to support demonstration and marketing of new products and services (e.g. ICT-based management of water systems), or permanent spaces to augment the municipality’s current supply of office space and integrated commercial/industrial spaces.</p> <p>Potential action elements:</p> <ul style="list-style-type: none"> <li>■ Investigate the potential locations for a demonstration site in proximity to the WCWC (perhaps within the East Ridge Business Park) with the capacity to support demonstration of a wide range of emerging and pilot-stage products and services in the water sector</li> <li>■ Identify commercial space available to support the permanent, temporary, or satellite presence of existing water technology businesses and service providers in the province near the WCWC, including office space and small convention-type spaces</li> <li>■ Develop a commercial services “package” targeted at existing water technology businesses that outlines available temporary and permanent spaces and facilitates opportunities to connect with operators through the WCWC (in-person or virtually). Explore a fee-for-service structure to cover expenses incurred by the Municipality to rent or lease space (as needed).</li> </ul>	Medium	<p>Number of new pilot projects per year</p> <p>Number of commercial services “package” clients</p> <p>Number of water technology deals facilitated per year</p>



<ul style="list-style-type: none"><li>■ Connect with researchers and technology-transfer offices (where applicable) at post-secondary institutions across southern Ontario (e.g. University of Waterloo, University of Guelph, Western University) to understand emerging water technologies, and opportunities near the pilot project stage where municipalities can offer support.</li><li>■ Review the Municipal, County, and Conservation Authority's planning and building regulations to identify any barriers to demonstration projects in agricultural, rural, and environmentally protected areas. If applicable, develop policy proposals for consideration by the Municipality, County and Conservation Authority.</li></ul>		
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Action 4: Identify a prioritized list of capital improvements to the Walkerton Clean Water Centre that will support the development of the sector		
Rationale and Key Elements	Priority	Performance Measures
<p>As the cornerstone upon which much of the value proposition has been built, the WCWC will continue to play a key role in the prospects and potential of the water sector in Brockton. As a result, there may be additional capital improvements that can be made to the facility that would better encourage the development of opportunities in the water sector, especially related to the areas outlined in Section 5.3. Though the facility is provincial, the local municipality and its partners can play a key role in developing infrastructure that may generate opportunities for local economic development tied to the facility, as well as partnering with the Province to establish new spaces within the facility to support expanded programming. As noted in the report, this could include space for an incubator, additional offices/meeting rooms/lab space, or additional equipment (e.g. pressurized leak detection) as part of the WCWC, or closed-loop infrastructure to connect the WCWC and other facilities (e.g. incubator or demonstration sites) to support research and demonstration.</p> <p>Potential action elements:</p> <ul style="list-style-type: none"> <li>■ Include the WCWC as a potential location for both interim and permanent incubation space in the municipality and establish a concept plan to either accommodate the incubator or connect with it</li> <li>■ Build a prioritized list of capital improvements (e.g. storage tanks, meeting rooms, labs, or IT hardware) that can be undertaken jointly or independently at the WCWC by the Province and Municipality to support other activities in the sector (e.g. incubation, commercial service centre, demonstration, or training and education)</li> <li>■ Liaise with the provincial government and the WCWC to explore internal and external funding opportunities to finance improvements or expansions</li> </ul>	High & Medium	Number of projects undertaken from prioritized list each year  Internal funding secured for WCWC capital improvements  External funding secured for WCWC capital improvements



## 7.3 Build the External Profile

Action 5: Develop and implement marketing programs and initiatives based on the directions and opportunities identified in this strategy to promote the water technology sector		
Rationale and Key Elements	Priority	Performance Measures
<p>The successful development of a local cluster of activity in the water technologies sector will require a range of different marketing approaches, material, and messages to be developed in support of Brockton. These marketing approaches include both formal and informal methods and tactics, and will need to be developed and delivered at different stages of the implementation process.</p> <p>Potential action elements:</p> <ul style="list-style-type: none"> <li>■ The sector working group and other regional economic development partners should leverage the reputation of the WCWC to build the identity of Brockton as a site for demonstration and expansion of water technologies</li> <li>■ Engage with the broader water technology sector through online channels, including the development of a water technology “microsite” and social media connections to sector experts, influencers, organizations, and businesses</li> <li>■ Print marketing materials such as brochures or sector profiles utilizing content from the economic development website, with the goal of creating “hard” materials that are aligned with online presence, that can be produced on demand and left with potential clients, investors, and collaborators moving through the WCWC</li> <li>■ BEDC and other partners should co-ordinate efforts through the working group to enhance participation in industry conferences and tradeshow, and potentially host small conferences or tradeshow</li> <li>■ Working through the working group and external partners, the BEDC and its partners should undertake a sector-based corporate calling program to key businesses and academic institutions outside of the region to proactively identify potential investors and incubation/demonstration clients</li> </ul>	High & Medium	<p>Number of water technology-specific content hits/page views per year</p> <p>Circulation of print marketing materials</p> <p>Number of inquiries generated through marketing materials</p> <p>Number of industry conferences and trade shows attended</p> <p>Number of participants at local industry conferences and trade shows</p> <p>Number of corporate calls undertaken</p>



Action 6: Establish Brockton as an internationally-recognized and well-connected open-innovation ecosystem for water technology sector incubation, commercialization and demonstration		
Rationale and Key Elements	Priority	Performance Measures
<p>With the potential success of the strategy over the longer term, the Brockton area has the potential to become a well-recognized centre for the development of water technologies related to the three areas outlined in Section 5.3. Beyond building organizational and physical capacity, and promoting the area, Brockton must position itself as the hub for that activity in the water technologies sector – becoming a type of open-innovation ecosystem for developing, and clearing house for distributing, new technologies across Ontario and around the globe. In order to become that hub Brockton and the working group should focus on building up regional strengths to support the industry, but also on connecting with strategic partners in industry and academia across Ontario, Canada, and the world.</p> <p>Potential action elements:</p> <ul style="list-style-type: none"> <li>■ Identify potential industrial and academic stakeholders from outside Ontario, and establish connections with researchers and academics working on technologies relevant to Brockton (e.g. wastewater treatment, drinking water treatment, stormwater management, source water protection, digital systems, and data management)</li> <li>■ Build an understanding of local capacity in the water technologies sector among external industrial and academic stakeholders</li> <li>■ Leverage the list of domestic and international connections in academia and industry to attract new external pilot projects in the sector</li> <li>■ Promote Brockton as an open-innovation ecosystem for practical research and pilot projects in the water technologies sector through external partners on an ongoing basis</li> </ul>	<p>Medium &amp; Low</p>	<p>Local employment in water technologies sector value chain</p> <p>Number of meetings with domestic and international investors in the water technologies sector</p> <p>Number of active pilot projects from external connections</p>



# Appendix A: Stakeholder Consultations



## Consultation Participants

Over the course of the project, a wide range of local and sector experts and stakeholders were consulted. Among those interviewed by the Project Team were the following individuals:

- Trudy Beitz, Member, Brockton Environmental Advisory Committee
- Tracey Cassidy, General Manager, Walkerton & District Chamber of Commerce/Business Improvement Area
- Bruce Davidson, Member, Brockton Environmental Advisory Committee
- Barry Dohms, Member, Brockton Economic Development Committee
- Michael Fagan, Senior Vice President, Bloom Centre for Sustainability
- Leanne Gelsthorpe, Business Development Manager, Ontario Centres of Excellence
- Dave Inglis, Mayor, Municipality of Brockton
- Mike McIntee, Chair, Brockton Economic Development Committee
- Chris Peabody, Councillor, Municipality of Brockton
- Evan Pilkington, Innovation Lead, Walkerton Clean Water Centre
- Richard Radford, Chief Administrative Officer, Municipality of Brockton
- Barry Randall, Member, Brockton Environmental Advisory Committee
- Kelly Reid, Member, Brockton Environmental Advisory Committee
- Nick Reid, Vice President – Strategic Partnerships, Ontario Clean Water Agency
- Casey Scherders, Member, Brockton Economic Development Committee
- Ralph White, Business Process Engineer, Ontario Clean Water Agency
- Albert Zwart, Member, Brockton Environmental Advisory Committee

The results of many of these consultations are summarized below, though all comments have been left unattributed in order to preserve the anonymity and privacy of respondents.

Additional consultations were also carried out with local youth, and are also summarized below.



## Local Community Engagement

The consulting team engaged with members of the Brockton Economic Development Committee and Brockton Environmental Advisory Committee to better understand the local business environment and business innovation. This engagement occurred through one-on-one telephone interviews. The following is a high level summary of responses.

### Local Business Environment

#### 1. How long have you been operating your business or living in the Walkerton area?

Many of the people have been operating their business or living in the Walkerton area for a large part of their working life.

#### 2. Why did you choose this area as a location for your business or to live?

People choose this area as a location for their business or to live because they are originally from the Walkerton area. People who locate to the area from other communities come to Walkerton because they have been offered employment. They typically are offered employment in a public sector organization (i.e. government administration or a school board) or at Bruce Power.

#### 3. What are the challenges to expanding your business operations in the Walkerton area?

**Finding Employment for Spouses-** The Walkerton area could be perceived as a remote community from people who are used to city life. If Walkerton is attracting people to the area, it is competing against larger centres that typically provide more employment opportunities for spouses.

**Government and Bruce Power Employment** - A large segment of the local population is attracted to government or Bruce Power employment opportunities, which typically pay more than smaller employers and are perceived as more stable and secure. Many of the people who are attracted to Bruce Power are offered salaries or wages that many other smaller companies cannot compete with.

**Population and Labour Force Retention** - The Walkerton area will need to retain more employees and the general population instead of losing a large segment to larger urban centres. Much of the young population will educate



themselves in larger urban centres and find employment elsewhere. Many of these people become educated, credentialed, creative and ambitious, but are drawn to large communities with diverse employment opportunities. This is especially relevant for people educated for professions in the environmental industry. There is no local cluster of people in environmental careers who create environmental products and services. There needs to be the local message that environmental initiatives, products and services pay off and that they can be provided locally.

Finding skilled trades people like mechanics and truck drivers in the local area is also difficult. However, this trend is not unique to Walkerton alone, but to many communities across Canada.

**Lack of Financing** - Many of the local businesses that want to expand have difficulty if they require financing. The chartered banks were criticized for not providing financing to local businesses because they were located in rural Ontario. The Saugeen Business Development Corporation provides financing to expanding businesses, but the available finances are not nearly enough.

**Lack of Land and Leasing Options** - The Municipality has plans to develop a 32 acre municipal complex in the centre of East Ridge Business Park. Once these lands are removed from the inventory there are limited serviced land options for expanding businesses. In addition, finding available commercial space in the downtown has become an issue.

**Flat Local Economy** –Businesses that rely on the local population to sustain themselves are in a relatively flat local economy. Growth expectations need to be realistic and there becomes an increased emphasis by business owners to provide exceptional service to keep customers.

**No Public Transportation** – The lack of public transportation in the area created a local community that is reliant on the automobile to get to and from their workplace. Transportation costs to maintain vehicles takes on a larger part of household expenditures than they would in larger centres.

#### **4. What can the Municipality of Brockton do to overcome these challenges to facilitate growth and attract new investment?**

The Municipality of Brockton is in a good position to overcome any challenges since the community is small enough that it can execute solutions and projects more easily than larger urban centres. There are several things that the Municipality of Brockton can do to overcome these challenges to facilitate growth and attract new investment. The Municipality can make sure that space (i.e. land or leased space) is available for businesses and entrepreneurs. Land and available properties need to be serviced with water and sewer, zoned appropriately or have by-laws adjusted to accommodate new businesses uses. However, the Municipality should not look at attracting new investment with this land and space



requirement only. The Municipality needs to promote itself with a focus on the advantages of clean water, quick access to a natural environment and a slower pace of life. Attention needs to be paid to the social and cultural context, which requires taking a holistic approach to promoting a community and a region and to demonstrate how various aspects of social and economic life are integrated. Other opportunities need to be showcased by paving the way for creative re-use of unused sites - such as the closed schools and jail - through thoughtful land use planning. Paying attention to how the community looks by addressing vacant buildings, construction sites, and landscaping along the streets and sidewalks all help in attracting small business owners and entrepreneurs who enjoy small community living and are not as dependent on where they are located.

The Municipality can improve its internal processes to be a more appealing location. Assign a triple bottom line type of accounting to measure the organization's economic, ecological and social performance. It can also engage in public and private financing arrangements that can help secure business expansions.

**5. How easy is it for local innovative types of businesses to get financial support or specialized managerial expertise?**

It is challenging for local innovative types of businesses to get financial support or specialized managerial expertise since there is no cluster of professionals with this expertise. Saugeen Business Development Corporation provides funding for business expansion and is very supportive of the local business community, but their financing is limited.

**6. What businesses in the area do you consider to be good examples that have adopted innovative processes to remain competitive? What is it about these businesses that makes them innovative?**

There are several businesses in the area that have adopted innovative processes to remain competitive. Some of these businesses include Larsen & Shaw (hinge manufacturing), Bogdon & Gross (high quality furniture manufacturing), Price Schonstrom (stainless steel containers and vessels manufacturing) P&H Foods (food processing) and Carrick Wines & Ciders (winery and cidery).

The people who lead these innovative businesses have creative minds, contacts and the ability to make things happen. They have vision and can provide a product that people want. They are business savvy and progressive thinkers.



**7. What local companies have become involved in the water technologies sector? What are they providing or servicing in the water technologies sector?**

The stakeholders indicated that only a few local companies have become involved in the water technologies sector. Veolia Water, a large multinational corporation, operates the local municipal water system. A local manufacturer can also supply stainless steel containers and pressure vessels to businesses.

**8. What advantages does the Walkerton area have that would attract investment in the water technologies sector?**

**Walkerton Clean Water Centre** - The single largest advantage that the Walkerton area has that would attract investment in the water technologies sector is the Walkerton Clean Water Centre (WCWC), which is a state-of-the-art facility located in the East Ridge Business Park. WCWC has the capacity for water technology research and offers training courses to water operators. The training facilities have led to a steady stream of operators coming through the Centre throughout the year.

**Lower Housing Costs** – Residents have lower costs to purchase homes than large urban centres such as Kitchener-Waterloo, London and the Greater Toronto Area.

**Vibrant Agricultural Community** – The community has a strong agricultural heritage and the success of the agriculture industry impacts the rest of the community. There have been agricultural related investments made in the area as agricultural crop prices have been particularly strong lately.

**Strong Work Ethic and Employee Commitment** – Many stakeholders had boasted about the strong work ethic in the community, which may be directly related to the community's agricultural roots. There is also a good local source of labour, low employee turnover and high employer commitment.

**Government Services Centre** - As the County Seat for Bruce County, Walkerton provides stable employment for regional government services. Other publicly funded services such as health care (e.g. public health unit and hospital) and education (e.g. two local high schools) are also provided in the town.

**Market Accessibility** – Walkerton is located within two hours of larger urban centres such as Kitchener-Waterloo, Guelph and London. All of these urban centres are accessible by regional and provincial roads.



**Immediate Access to the Natural Environment and Amenities-** Stakeholders enjoyed the fact that they have immediate access to the natural environment such as Lake Huron, Saugeen River and hiking trails without “the hustle and bustle of city life.”

**Lower Development Costs than Large Urban Centres** – The cost to develop a property in the Walkerton area is lower than large urban centres that have higher land values, lease values and development costs.

## Educational and Research Institutions Engagement

The consulting team engaged with leaders in the water technology sector for their insight and to help inform the planning strategy. Questions focused on Ontario’s water sector, the Walkerton Clean Water Centre and the concept of a business incubator that specializes in water, energy and environmental technologies, products and services.

**Ontario Water Sector** – New innovative areas of water research address:

- **The water-energy nexus** - There is a lot of energy that is used to pump and process treated water through municipal infrastructure. There need to be improvements in energy efficiencies.
- **Waste by-products** – Some companies can turn the waste from water treatment plans into new products. For example, phosphorus waste can be used as a fertilizer for farm land.
- **Pathogen detection** - Tools can be used to detect pathogens in the water system.
- **Leakage detection** – An estimated 20% of water that is pumped through municipal water infrastructure leaks through underground pipes. Leakage detection systems can pinpoint where leaks are occurring and ultimately service a greater population base.

The sector adopters of new technologies are typically the engineering firms that recommend new water management technologies and systems. These firms and their clients are conservative by nature and take calculated risks. A provincial success story, however, is the Town of Collingwood's adoption of water purification membrane technologies. This adoption of technologies helped Ontario companies such as Trojan Technologies and Zenon Environmental demonstrate their sophisticated, leading-edge products. A common issue is that water technology researchers may not be addressing the end users (i.e. water systems) real challenges. The WaterTAP, established under the *Water Opportunities and Water Conservation Act*, will help address this water research and market gap.

The Ontario Centres of Excellence is currently targeting its research funding at areas including wastewater treatment, drinking water treatment, stormwater management, and source water protection. This suggests that most new technologies emerging in Ontario in the coming years will fall into those areas of activity.



There is a need for a demonstration site community for new technologies. However, municipalities do not want to serve as the test site. Walkerton has the controlled testing environment and can serve this market gap. Companies and engineering firms need to see the new technologies functional before they will recommend adopting them as part of new or improved water systems. Typically, there is a 10 year gap between a technology concept to an applied technology.

**Walkerton Clean Water Centre** – The training modules at the WCWC are taught to water system operators. The centre uses sector tested and applied technologies at the Centre; however, new technologies research and demonstration of this research is not as well developed. The Walkerton area will be challenged by getting leading researchers and students in the sector to locate nearby because of the geographic distance to larger urban centres. Although technological advancements have made interacting and collaborating with fellow researchers and colleagues very easy regardless of distance, the psychological barrier remains prominent. Many of these researchers are drawn to larger urban centres because of the amenities.

The Walkerton Clean Water Centre could also benefit from the development of additional testing systems, such as a closed loop testing system not linked to the public water system.

**The Innovation Gap** – The lack of a demonstration capacity in Ontario (and more generally across North America) is hampering the ability to move new technologies from the laboratory to the marketplace. By moving into this space, Brockton can fill a genuine need in the research community and would have no real competitors. This approach allows the “whole cycle” to occur in Walkerton. Within a 10-25 km radius, a researcher could get access to everything they need, with local partners to help navigate the system.

As the sector is increasingly data-driven, developing the computer support and modelling systems in the community is a perfect corollary to this role. The presence of these systems in Walkerton will provide an additional rationale for activity in the community, and the potential development of open source web portals for sharing data and research with the global water technology community, cementing the Municipality’s reputation as a “go to” destination. This builds on the data-driven focus of the sector on the “5 M’s” of emerging water technology systems: mapping, measuring, monitoring, modelling and managing.

**Walkerton Business Incubator** – Technology incubators are already in Ontario. Walkerton will need to differentiate itself in the marketplace to be successful. An area of opportunity for Walkerton is the application of technologies to the water, energy and agriculture nexus. Walkerton decision makers need to demonstrate that technologies can improve water efficiencies in drinking water systems and agricultural irrigation systems.

The psychological barrier of being located too far from larger urban centres could serve as a deterrent to attracting young talent to the business incubator. Positioning the incubator as a rural technology incubator may be attractive to young



people who used to live in rural communities. In addition, the proximity to the Bruce Power plant can also be used to attract young talent to the area.

## Youth Engagement

The consulting team facilitated a workshop session with local secondary school students in October 2012. The session held at the Walkerton Clean Water Centre and was part of the larger "WaterWORKS" event, a project of the Grey Bruce Sustainability Network. This event was a day-long interactive program for high school students designed to demonstrate the water cycle in the Walkerton area.

Over 30 students participated in the workshop session with the water cluster consulting team. The youth were encouraged to brainstorm ideas in response to three questions. The responses were used to help inform the strategic directions and implementation plan. The three questions and responses are as follows.

**1. Think ahead – as a 25 year old: what type of a community do you think you'll want to live in? What does it look like? How is it different than Brockton now? How is it the same?**

- A community with job opportunities (e.g. medical, graphic design), a shopping mall, roller rink, indoor swimming pool, two hockey rinks, two local high schools with better course selection in environmental studies
- A community that continues to have a variety of restaurants to eat and hang out in
- Clean air with open, agricultural spaces
- A place where people know their neighbours
- A place for families
- Recreation and entertainment amenities (e.g. arena, fishing, camping, hunting, snowmobiling trails, beaches, racetrack)
- A small town than maintains the country land. Not a city that is busy.
- More transportation options other than a car
- Low cost of living
- Less politics
- More community clean ups and events
- More local food



Photo courtesy of the Grey Bruce Sustainability Network.



## 2. How can you be involved in improving the community – getting it to where it should be?

- Pursuing volunteer opportunities at old age homes, community events (e.g. Fall fair), animal shelters, and local businesses
- Tree planting, collecting donations
- Putting groups together to protest or assist in making change happen
- Become a municipal councillor
- Promoting local jobs and educational opportunities

## 3. How would you want to be involved in the water cluster?

- Helping water evaluators who go through the area
- Test Saugeen River water
- Environmental science courses, projects and responsibilities in high school that maintain water systems
- Create small businesses that promote people returning to the area
- Create workshops and programs offered to all ages to promote the return of people and help promote new people to the area. These workshops and programs could be offered to people all around the world.
- Having a co-op placement in the water cluster
- Having a career opportunity in water stewardship, conservation, monitoring or training water operators
- Rebuilding ecosystems (e.g. landscaping)
- Rain barrel distribution
- Rain water harvesting
- Water conservation
- Social media campaign
- The water cluster cycle is shown in the pictured graphic at right

