

Goal #1: Increased Water Literacy of All Stakeholders (10 pgs)

Timeline: 2016 - 2018 (pilot)

OUTCOME: Water Literacy of elected officials, administration, and residents is improved to the level of basic literacy*

Key Messages: Water Literacy Defined and Speaking a Common Language, AEP Water Conversations & Provincial Water Literacy Program (AWC)

Municipalities are a collection of people speaking a common language; for the most part, English. Those who live in the Red Deer River basin but don't speak English as their dominant language may find it challenging to fully understand and communicate with those that are primary English speakers. Similarly, those that work in the field of watershed management, and even general municipal matters, have a distinct communication advantage over those who do not. Although we're all speaking English, the words we use may or may not carry the same meaning and weight based on each person's level of understanding, or literacy. Particularly, our ability to know what a complicated word like "eutrophication" means, let alone pronounce it, can have profound effect on our success in protecting water quality.

We can probably all agree on the value and importance of water in our lives - it's essential for life. But, according to recent polling and public engagement, most of us have low water literacy and are unaware of where our water even comes from, let alone how to manage it sustainably and protect its quality. Municipal and public interests primarily focus on drinking water quality because that's what we can see when we turn on the faucet. But as our water literacy grows, we appreciate that there are as many facets as there are faucets when it comes to protecting water quality and we need to be able to speak with common understanding.



Blueprint

11 ways you can help
protect our water.

Water Literacy Defined

According to the Alliance for Water Education, “*Water Literacy means knowing where your water comes from and how you use it. It’s a simple concept but information about how all your water is supplied can be very complex. First, bringing water to you is not just delivering flow to the tap and toilet. Every item in your house required water to be created, so you are surrounded by their embedded water cost. Food, clothes, furniture, electronics - everything costs water to produce. For example, producing electricity is very water intensive. Dams require strong flowing rivers, coal and nuclear plants need billions of gallons to operate. Even solar panels require water to be manufactured. Depending on where your electricity comes from, it takes 6 to 12 gallons of water to produce one hour of power for a single 60W light bulb.*

Water Literacy can be measured as a set of standards for water information that every young adult should know by age 18 as basic knowledge for healthy and sustainable living in the 21st century. Being “Water Literate” means having a basic understanding of:

- *Water footprints and how to calculate them*
- *Virtual water - the embedded water footprint of imported products and food; how water travels around the world to meet demand*
- *Groundwater and healthy watersheds: Integrated water cycles with human demand as part of the system; groundwater recharge and consequences of overdrafting; up-to-date research on contaminants and how they travel through the water supply*
- *Infrastructure: how we move and control surface water and process wastewater*
- *The energy-water-food connection (aka “nexus”)*
- *Water, health, and sanitation*

Advanced water literacy includes competency in understanding and explaining:

- *Competing demands: agriculture, industry, growing populations in urban centers, wildlife needs*
- *Ownership (allocations) of water: global trends and issues*
- *Water scarcity: predictions and impacts on food supplies*
- *Water conservation choices; emerging practices and technology*

According to the Alberta Water Council, current water literacy programs offered in Alberta cover a good diversity of topics. However, additional topics missing from water literacy programming include - water allocation, water and human health, water quality concerns and results of rural water quality monitoring, water use by agriculture and industry including the hydraulic fracturing industry and environmental impact of this use including the risk of spill and contamination, the requirements and costs of drinking water and wastewater systems, and the role of traditional and Aboriginal governments in water resource management.

There are many water literacy programs targeted at primary grade school students but there are fewer programs offering “life-long learning opportunities” to higher grades, post-secondary students, and even fewer to young professionals or middle-aged adults. There are not a lot of water literacy programs for the following specific audiences:

- *Landowners including acreage owners*
- *Crop and livestock producers*

- *Individual industries (not including agriculture)*
- **Municipal councillors, planners, and developers**
- *Some topics for the general public*

Alberta Water Conversations

<http://aep.alberta.ca/water/water-conversation/default.aspx>

In February 2013, the Government of Alberta hosted a series of public conversations on the topic of water to update the Water For Life Strategy Action Planning process.

The Water Conversations engaged participants for their views about enhancements that might be needed to ensure Alberta's water resources will continue to meet our current and future needs. The engagement was broad, involving a total of 20 community conversations held in locations across Alberta; a series of in-person conversations with stakeholder groups and others having particular interests in water including Alberta First Nations and Metis organizations, recognizing their special relationships with water and land.

Many participants felt Albertans have low levels of water literacy, specifically about how drinking water is provided including the true costs of delivering the service which can be hidden to the consumer. Participants said work needs to be done to raise awareness among Albertans about how drinking water and wastewater systems work in order to help sustain the systems. Some suggested Albertans may be unaware that they do not pay for water but they do pay for the systems that treat and transport water to and from their homes. The cost of maintaining and updating these systems is not always reflected at the local level and as such, Alberta has been working with communities to consider the full cost accounting of such systems, which involves the need for waterworks systems to develop financial plans that would

demonstrate how infrastructure and operations would be sustained over time to ensure the provision of safe drinking water. Given the importance placed on safe and secure drinking water, it is important that Alberta engages the public to build greater understanding about ways in which we can all continue to support safe and sustainable drinking water and wastewater systems.

To achieve this goal of improved water literacy, the Government of Alberta is developing a water literacy plan with direction provided by the Alberta Water Council (Water Literacy Team) that would complement other environmental literacy plans for air, land, and biodiversity. These actions will promote environmental stewardship among Albertans by increasing awareness, knowledge, and skills in order to bring about collective action in support of future drinking water and wastewater policy.

Provincial Water Literacy Strategy (AWC)

Around the same time as the Alberta Water Conversations, The Alberta Water Council established the Water Literacy project team to provide recommendations to improve water literacy in Alberta. The work of this project team also supports the Government of Alberta's [Water for Life](#) strategy, the [Our Water Our Future - A Plan for Action](#), and the development of a provincial water literacy strategy. To carry out this work, the Water Literacy project team first distributed a survey among water literacy practitioners to inventory current water literacy programs, products, assessments, and research in Alberta and some other jurisdictions. Using the findings from this survey, the project team was able to compile a list of program best practices. A consultant was then retained to assist with the development of a valid water literacy assessment tool, the assessment of a sample of Albertans, and advice on potential future assessment

activities. The findings from the inventory survey and the assessment were then considered as the team developed recommendations and this report. The Alberta Water Council holds that water literacy means having a basic understanding of the value and importance of water in life, understanding where water comes from, and how to use it sustainably. Water Literacy is an important component of the Water for Life strategy as it states that Albertans will have access to the knowledge needed to achieve safe drinking water, healthy aquatic ecosystems, and reliable, quality water supplies for a sustainable economy. It also forms the foundation for successful education and outreach efforts, cultivating a stewardship and compliance ethic, and enabling informed public input to the Government of Alberta and other decision-makers.

Alberta has a number of active organizations with a diversity of programs working to promote water literacy through various means. However, there are a number of areas that could be improved and new areas for consideration by water literacy practitioners. The key findings highlighted by the team emphasized a need to:

- Enhance the connection between policy-makers and water literacy practitioners as well as collaboration among practitioners,*
- Improve existing tools and provide new tools to inform program design, delivery, and evaluation techniques, and*
- Strengthen the capacity and efforts of water literacy practitioners in the province.*

Water literacy assessments were found to be an important tool that could be used by water literacy practitioners to assess and improve program design, delivery, and evaluation over time. Based on these key findings, the project team recommends the following:

Recommendation 1: That the Government of Alberta collaborate with partner organizations such as the Alberta Council for Environmental Education to improve existing, or develop a new interactive water literacy portal that would promote water literacy tools, events, networking, collaboration, and information-sharing among water literacy practitioners and policy-makers by the end of 2017.

Recommendation 2: That the Government of Alberta work with partner organizations to build upon existing work and develop new tools that would assist water literacy practitioners with designing, delivering, and evaluating the success / effectiveness of programs by end 2018.

Recommendation 3: That the Government of Alberta work with partner organizations such as Watershed Planning and Advisory Councils and others to improve the dissemination of existing water literacy products and programs, and develop new water literacy products and programs that would inform Albertans on basic water topics and gaps identified by the end of 2018.

Recommendation 4: That the Government of Alberta and partner organizations periodically assess their distribution of funding and resource support to water literacy practitioners to ensure supported initiatives demonstrate effective program planning and evaluation.

Recommendation 5: That the Government of Alberta and partner organizations utilize the assessment tool at pre-determined intervals to collect data from a larger sample size through existing outreach and engagement activities. Data should be collated, shared, and assessed to track trends and improve program design, delivery, and evaluation over time.

Although all five recommendations above are targeted at the Government of Alberta, the team believes that these recommendations will align well with the provincial water literacy strategy that is currently under development. By collaborating with other water literacy practitioners, this strategy could be further strengthened and positioned for success. The provincial water literacy strategy is under development at the time of this plan being written.

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INTRO

Entry-level experiences for those who are new to water quality and watershed management. It provides the chance to become familiar with basic concepts, terms, and issues related to the Goal of Increased Water Literacy of all Stakeholders.

Key INTRO Actions:

- Subscribe to [RDRWA e-News](#), [AUMA / AAMDC](#), [Alberta WaterPortal](#), [Water Canada \(The Droplet\)](#), [Canadian Water Network](#) and / or [Canadian Municipal Water Consortium](#), etc.
- View RDRWA Outreach tools located on the Alliance's website (www.rdrwa.ca) and at the Alliance Office in Red Deer
- Request RDRMUG establish (or collaborate with RDRWA) a YouTube Channel for webinars / videos related to water quality topics for municipalities
- Review Basic Introduction to Water Management resources:
 - Water Facts in Alberta (*RDRMUG hyperlink*)
 - The Water For Life Strategy and Action Plans (*RDRMUG hyperlink*)
 - The Alberta Water Portal (www.albertawater.com)
- Conduct Water Literacy Assessments on a periodic basis ([Alliance for Water Education](#))

ADDITIONAL ITEMS / COMMENTS

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DIP

Actions for those familiar with the theory and practice of water quality and watershed management and are prepared to engage in meaningful, capacity-building activity related to the Goal of Increased Water Literacy of all Stakeholders.

Key DIP Actions:

- Review Red Deer River Watershed-specific resources:
 - Understand the Results of the State of the Watershed Report (2008) - Data Gaps (pgs 791-794)
 - Understand the Integrated Watershed Management Plan Recommendations (2015)
- Apply for Membership and Participation in RDRMUG, RDRWA, AUMA / AAMDC webinars and events
 - Read the AUMA Water Primer and Discussion Paper - (*RDRMUG link*)
 - Read NSWA Municipal Guide - scheduled for update (*RDRMUG link*)
- Be familiar with Watershed Management in the Land Use Framework - Fact Sheets
- Complete an Inventory of water-related policies, bylaws, plans for respective municipality (update annually), and Conduct Water Literacy Assessments (internally for new councillors and staff)
- Develop / Support and Implement a Resident Education Program (*incl. incentives - rebates*)
 - Utilize assets identified in the INTRO actions
 - Participate in creating a Master Watershed Steward certification (e.g., Watershed Ambassadors education program) with the RDRWA
 - Host Waterlution-type events, Celebrate World Water Day, host River / Stream / Creek Clean-ups

ADDITIONAL ITEMS / COMMENTS

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DIVE

Actions for those that are confident and versed on the topic of water quality and watershed management and are taking initiative to develop and implement the essential aspects and best practices related to the Goal of Increased Water Literacy of all Stakeholders.

Key DIVE Actions:

- Develop (or enhance) Elected Officials Education Program (www.eoep.ca) - to focus on water management
 - Support developing supplementary courses as part of the existing AUMA Elected Officials Education Program
 - Participate in hands-on learning and relationship building to prototype solutions to complex municipal problems
 - Literacy increases through exposure to new ideas and conversations / dialogue
 - A key example is the RDRWA Social Innovation Lab ([Project Blue Thumb](#))
 - Develop broad understanding of Regional Water Service Commissions (purpose and value proposition, operator succession, funding / pricing models, Full Cost Accounting for Integrated Risk Management, and Commission representation - succession planning for key officials)
 - Understand Intergovernmental Relationships in practice (responsibilities and collaboration)
- Ensure succession plan and professional development of councillors and municipal staff regarding water literacy (e.g., attending conferences and training, completing water literacy audits as part of orientations)

Check out these Case Studies:

- Alberta Water Council - Water Literacy Project Team
- Green Co-Op Model (Watershed Stewardship Group)
- RAIN Program (Green Communities Canada)

Key Partnering Orgs: AEP, AWC, LSC, ACEE, ALMS, AUMA, AAMDC, RDRMUG, RDRWA

Key Funding Sources: AEP, AARD, FCM, EC