



The Colour of Sustainability

By Karl Zimmermann

Sustainability has taken on a new definition, but let's not be confused. In the context of rural water infrastructure, sustainability means creating a solution that works today and will continue to work for decades to come. This involves a water solution, not just a water technology. Finding a community's water solution is done by approaching the problem differently – by facilitating partnerships with trusted experts and providing resources to empower the end-users to be the designers and owners of their safe water solution.

This means that the local water operator is involved in designing the layout of the water plant. This means that the elders and long-time residents believe that the river, lake, or wells will provide clean water for years to come. This means that the children understand the importance of each treatment step and do not fear their water but gleefully drink from the garden hose on a hot summer day. Sustainable water solutions are not about green chemistry or energy-recovery pumping systems – sustainable water solutions are those that will be embraced and managed by the community for decades to come.

Revisiting the Concept of Sustainability

"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."

We know well this concept of sustainability as presented by the World Commission on Environment and Development in the 1987 *Brundtland Report*.

Considering how difficult it is to develop a consensus about the world's current needs and abilities, arguably, it is unlikely that we could develop a global consensus around future generations' needs and abilities.

As Thomas Nagel put it well, "Whether what we do now will matter in a million years could make the crucial difference only if its mattering in a million years depended on its mattering, period."

To make sustainability a meaningful concept, Marshall and Toffel (2004) instead categorized unsustainable actions in four hierarchical levels:

Level 1: Actions that, if continued at the current or forecasted rate, endanger the survival of humans.

Level 2: Actions that significantly reduce life expectancy or other basic health indicators.

Level 3: Actions that may cause species extinction or that violate human rights.

Level 4: Actions that reduce quality of life or are inconsistent with other values, beliefs or aesthetic preferences.

In parts of the developing world, absent water infrastructure may significantly reduce life expectancy and therefore apply to Level 2. In most North American settings where less-favourable options exist (boil water advisories, importing potable water), safe water solutions address Level 4.

Marshall and Toffel then argue that Level 4 should be left out of sustainability concerns. If sustainability incorporates value-driven issues, they argue, then achieving consensus about what constitutes sustainable or unsustainable actions would be challenging within a community, and unlikely or impossible across larger settings.

This argument might hold true at the global scale, but sustainability means something different in a community with established consensus and values. We therefore propose that when considering sustainability within a specific and organized segment of the population, Level 4 should be not only included, but moved up the hierarchy. More importantly, Indigenous communities' resilience is a by-product of a sense of place and connection to the ecosystem, the land, or homeplace, a place where 'all that truly mattered in life took place.' Living in harmony with your homeplace is perhaps a more appropriate, not to mention poetic, definition of sustainability.

A Sustainable Lens on the Future

When we accept that actions which significantly improve the quality of life are, by definition, sustainable, the challenge now lies in finding approaches to safe water solutions which create long-lasting improvements to quality of life or community health.

Many sustainability policies are perceived to require short-term sacrifice, espousing unpopularity. Because sustainability issues seldom

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occur neatly within a single political jurisdiction or election cycle, the typical approach of politicians in multi-party systems can impede coordination and undermine solutions to issues necessitating long-term visions, like drinking water.

Indigenous water transformations in particular are practically impossible when government, industry and university business models are inflexible. Success will depend on a willingness to embrace new processes, technological capabilities, and new value propositions to manage place-based (localized) community perceptions. These novel processes behest heavy investments and perhaps high-risk of failures.

Sustainable technologies can be bought. Investing in university or industry subsidies encourages innovation; examples like electric vehicle battery recycling surround us. However, sustainability in rural infrastructure cannot be purchased nor decreed by government. Nor does it come about via knowledge generated by academia alone, or through a push by industry to refine product offerings.

The underlying question we seek to answer is: what incentive system needs to be enacted for industry, universities and NGOs to make

appropriate investments and play their respective role in the evolutionary path that rural communities seek?

When it comes to infrastructure projects, the local governments do three key things for their communities:

- acquiring the solution.
- owning it.
- advocating for it (both internally and externally to their constituents).

This involves an awareness and assessment of needs, discovering value opportunities, storyboarding to size the outcome, and other active verbs: engaging, evaluating, selecting, procuring, demonstrating, rating, sharing, defending and celebrating.

We must shift our focus towards enabling local communities to be stewards of their own infrastructure solutions, building a sustainable lifestyle in harmony with their environment. To uphold this paradigm, outside actors (government, industry, academia, NGOs) can be encouraged to support, rather than dictate, local community governments through this process. Sustainability should be looked at through the

lens of how we can break down cross-sectoral silos and help local community governments do those three things better. If ever it's unclear how to provide support to local communities, the answer is conspicuously simple: ask them.

ABOUT THE AUTHOR

Karl Zimmermann is a Research Scientist with RESEAU Centre for Mobilizing Innovation and a PhD Candidate at the University of British Columbia. His lab research involves understanding how biological ion exchange filters can provide low-maintenance removal of natural organic matter for small water systems, while his work with RESEAU CMI facilitates partnerships and supports Indigenous communities to find their safe water solutions. Karl is also a UBC Public Scholar, asking the question, 'What tools enable technical experts to foster partnerships and support end-users in finding their safe water solutions?' When not in school, Karl is often found logging miles on the Fraser River with the UBC varsity rowing team – a decade-long passion which has shown him the importance of clean water for health and the enjoyment of life. 💧



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