Beyond Engineering - Building Trust & Knowledge in Regional Water Quality Management

Innovate Wisely propels Water Process Design beyond Engineering to build trust, knowledge and energy for a regional Water Quality Management Strategy for the South Burnett Region.

This article shows how incorporating project success planning, alongside technical engineering, supports project outcomes. It demonstrates, by way of a case study, how Water Process Design (WPD) and Innovate Wisely (IW) combined technical engineering with innovation success planning, to deliver a staged, ADWG aligned Drinking Water Quality Strategy (DWQS) for South Burnett Regional Council.

CASE STUDY AT A GLANCE:

- Client: South Burnett Regional Council (SBRC), Queensland
- Period: 2025

• Context: Multiple small schemes with different raw water and network risks; ADWG compliance exposure (e.g., THMs, manganese), ageing assets, poor SCADA controls, operator burn-out.
• Our role: WPD was the lead consultant for technical options and IW facilitated the human elements of the strategy. Tools deployed included Trust Analyser™ diagnostics and Knowledge Canvas™ mapping.
• Outcome: A staged, risk aligned investment DWQS roadmap with clear owners, decision gates and a stakeholder engagement and community education plan.

REGIONAL WATER QUALITY ISSUES IN SOUTH BURNETT

Like many regional communities, SBRC faces significant water quality issues. Challenging environmental conditions, population growth, and aging infrastructure all impact water quality management.
SBRC operates multiple (eight), geographically dispersed drinking water schemes that supply both townships and rural communities. The schemes face persistent water quality challenges, including (not limited to):

- Manganese exceedances
- Elevated trihalomethane (THM) levels, with limited bromide removal capacity
- Challenges in secondary chlorination and other critical infrastructure
- Increasing climate and environmental variability affecting source water quality
- Financial and resource limitations, common to rural councils.

These challenges placed the Council at risk of regulatory non-compliance, reputational damage, and increased operating costs without a clear strategic path forward.
Regional Water Quality Opportunities

The SBRC Council is unwavering in its commitment to water quality for community, environmental and economic benefits. The shire's water quality management and operator expertise is exceptional. This hard-working team is driven by a community service ethos, providing the best possible water quality, albeit with outdated infrastructure and technology.

The South Burnett community is a leader in regional water resilience, with water security and efficiency a way of life, with its strong agribusiness foundations.

"We have been driving the Sigma like a Ferrari for a long time now", says Adam Branch, Manager, Water and Wastewater, SBRC.
"It's time for a major upgrade to our water treatment systems and networks. And we want to do that in the most effective and cost-effective way.
"To do that we need options based on the knowledge and ideas of our operators, expert advisers, community and councillors, to address the right issues with the best solutions."

SBRC DRINKING WATER QUALITY STRATEGY

To address the many water quality challenges, including changing ADWG compliances and ageing infrastructure, WPD was engaged to lead a region-wide DWQS. The strategy identifies cost-effective, resilient pathways for safe, reliable services, prioritising compliance with ADWG changes and community health.

Recognising the strategy must go 'beyond engineering' and build ownership, trust and aligned accountabilities, Innovate Wisely was engaged to enhance project planning and formation.

Utilising InnoWise® 360 trust and knowledge-based tools, workshops with local councillors and operators produced a staged investment roadmap, balancing engineering with stakeholder engagement. This approach provides a transferable model for regional councils.

SBRC's solid existing planning frameworks set a foundation for a technical options assessment to interpolate with Council's Drinking Water Quality Management Plan and 10-year Capital Works program.

In developing the DWQS, SBRC is leading a water quality management framework that is adaptable in such way that it can benefit other regional and civic water providers and communities.

Stricker Standards - Australian Drinking Water Quality Guideline Changes

A major focus of the DWQS is to ensure compliance with the Australian Drinking Water Guidelines (ADWG), published by the National Health and Medical Research Council (NHMRC). The ADWG sets the national standards for safe and good-quality drinking water (since 1972). The current version of the guidelines (version 4.0) was first issued in 2011 and is updated regularly with additional likely changes planned as follows:

- Mandatory adoption of Health-Based Targets (HBTs) – requiring councils to demonstrate that treatment plants consistently achieve required log reduction values (LRVs) for bacteria, protozoa, and viruses.
- Tighter limits for PFAS and DBPs (Disinfection By-Products) – including THMs (Trihalomethanes) which form when chlorine reacts with natural organic matter as well as chlorate (ClO_3^-).
- Further guidance on metals and metalloids leaching from plumbing – again highlighting bismuth (Bi), silicon (Si), selenium (Se), lead (Pb), and manganese (Mn).
- Digital compliance and real-time monitoring – guidance on the use of SCADA (Supervisory Control and Data Acquisition) systems, automation, and integrated data reporting to demonstrate water safety daily, not just through periodic testing.

This DWQS positions SBRC to demonstrate proactive steps to compliance - by uplifting treatment reliability, network controls, as well as enhanced digital management and

reporting. By acting now SBRC is ensuring it can meet future compliance requirements, avoid reactive and costly retrofits, and protect public confidence.

What changed from traditional engineering: innovation consultancy integration

"Using the InnoWise® 360° framework, in addition to technical engineering review, we helped to turn a complex drinking water quality challenge into a prioritised, staged, and costed strategy", says Lee Foster, MD, WPD.

"The Trust Analyser™ and Knowledge Canvas™ tools were used in operator and councillor workshops to draw out underlying blockages to project success – including trust, energy and momentum.

"By measuring these metrics, we were able to identify forward-looking strategies to address stakeholder relations issues. As a result, a Stakeholder Engagement Plan now forms part of the DWQS to ensure alignment on the project vision, KPIs and knowledge management", says Lee.

We applied the InnoWise® 360° approach which is built on three human system levers:

1. Trust – the quality of relationships, clarity of roles, and confidence that commitments will be met
2. Knowledge – what people actually know, what they don't, and how decisions are made transparent
3. Energy – the finite attention and effort available to execute (time, capability, political capital, and budget).

"By integrating Innovate Wisely™ into our Drinking Water Quality Strategy, Water Process Design delivered the internal alignment and engagement that we wanted from the outset," says Adam Branch.

"The Trust Analyser™ workshops helped us identify key trust and momentum issues early, which informed a stakeholder strategy supporting smoother implementation and better project outcomes.

"I would highly recommend this process to any other regional councils facing similar issues to those we have here in South Burnett," he says.

INNOVATION CONSULTANCY TOOLS THAT MAKE THE DIFFERENCE

The Trust Analyser™ surfaces where intent is strong, but delivery confidence is patchy (e.g., unclear responsibilities, limited feedback loops). In SBRC, the trust profile read as moderate overall - enough goodwill to move, with specific fixes required around clarity and follow through. Energy framing helps sequence the work: what can be done now

with existing capability vs. where to invest in new capacity, and how to avoid scattering effort across too many priorities.

The Knowledge Canvas™ captures the problem framing, constraints, options and trade offs in a single view. It turns engineering advice and operational know how into shareable, auditable knowledge for councillors and managers.

How an innovation consultancy lens improves engineering outcomes

1. Better problem framing – leading to better options - by clarifying the why (compliance drivers, safety risk, community impact) and the constraints (budget cycles, operator bandwidth), the options analysis focused on solutions that were ADWG aligned, technically credible and executable.

2. Shared priorities - leading faster decisions - Trust Analyser™ workshops with councillors and operators nurtured alignment on project drivers (compliance risk reduction, resilience, affordability).

3. Measurable and management implementation – leading to staged implementation - the roadmap sequences immediate risk controls and quick wins ahead, protecting limited operational energy and building early credibility with the community and stakeholders.

4. Clear accountability and forward planning – leading to lower delivery risk. The Knowledge Canvas™ mapped forward project planning, operations, and governance requirements.

Measurable shifts (for innovation outcomes)

Risk: Fewer exceedances and near misses; tighter confidence intervals around THM/ manganese performance.
Governance: Decisions traceable to evidence; action owners and dates visible; fewer surprises in Council briefings.
Cost & sequencing: Capital staged to avoid unaffordable peaks; O&M impacts considered up front.
Engagement: Councillors and operators reporting higher clarity and confidence in delivery (trust profile moving from moderate to strong).

Five signals trust is blocking your engineering progress:

1. Decisions keep getting revisited despite having data on the table.
2. Deliverables are approved but no one owns the next step.
3. Operators feel recommendations don't reflect real world constraints.
4. Councillors are surprised by issues already flagged in technical reports.
5. Stakeholders are not aligned on priorities and funding.

If you recognise two or more of these, contact us to run a Trust Analyser™ and capture decisions in a Knowledge Canvas™ before progressing with detailed engineering.
Innovation consultancy lessons for regional councils

1. Start with alignment, not documents. Early councillor and operator involvement builds the trust and social license to act.
2. Make knowledge portable. Use a single view Knowledge Canvas™ that anyone- from the mayor to the treatment operator - can follow.
3. Design for energy. Sequence must do now controls ahead of capital intensive upgrades to build momentum and protect scarce capability.
4. Measure trust. It's not soft - trust gaps show up later as delays, scope creep and cost overrun.

Innovation consultancy services for councils & utilities

Are you interested in a DWQS or pre feasibility sprint? We'll facilitate two workshop processes to frame the problem, map options, and produce a sequenced roadmap aligned to budget and capability. Our application-based tools can be used ongoingly by your organisation and or with our support.

LEARN MORE ABOUT OUR INNOWISE TOOLS

- InnoWise® 360° – Plan → Measure → Improve cycles that keep strategy live and auditable.
- Trust Analyser™ – Fast diagnostic of delivery confidence and role clarity.
- Knowledge Canvas™ – A one page view that links risks, options and decisions to owners and KPIs.