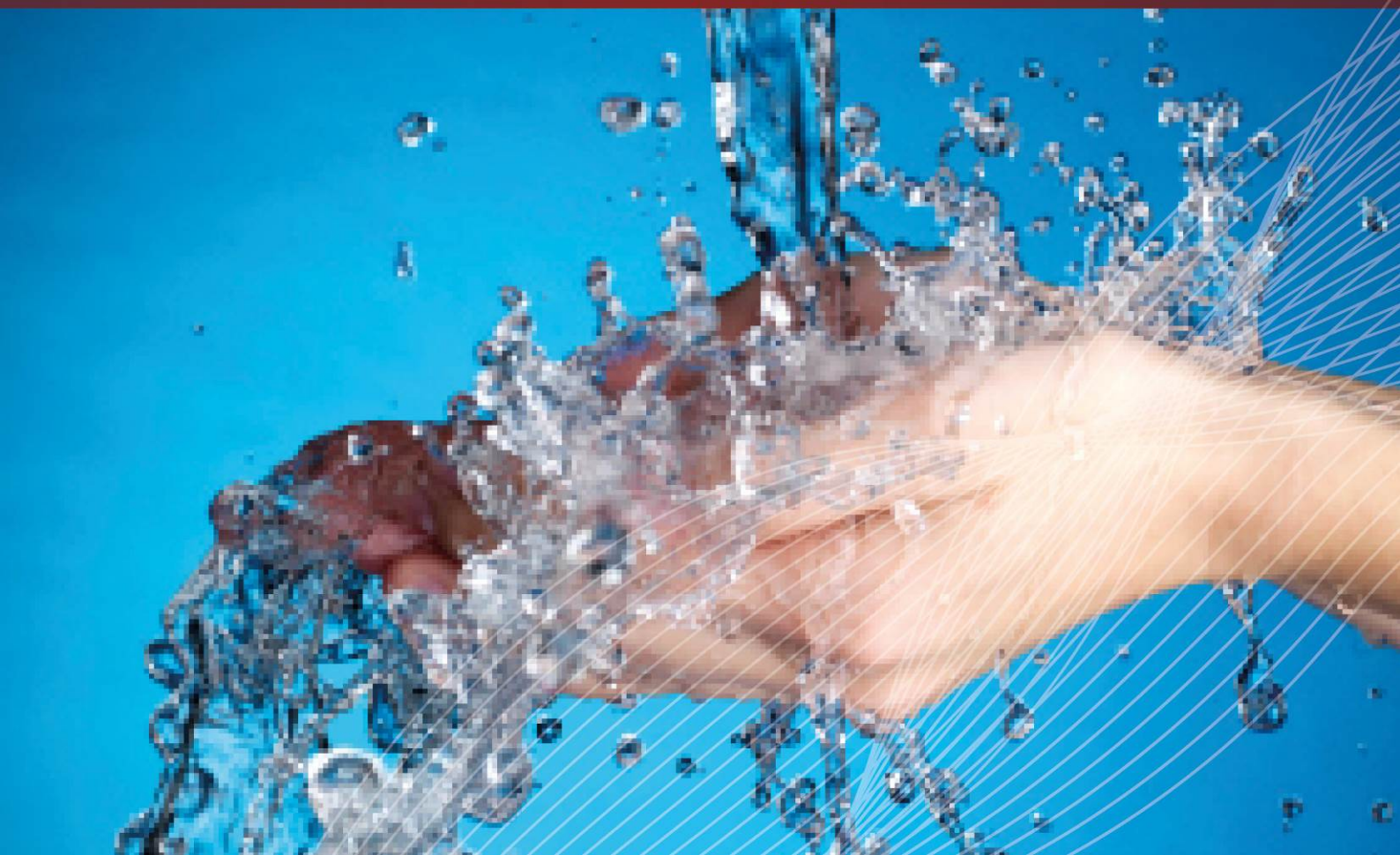
Australian Water Recycling
Centre of Excellence

Guidance Document

Keys to successful implementation of water reuse projects: Lessons learnt from national and international case studies

A guidance document for a study funded by the Australian Water Recycling Centre of Excellence

Griffith University, University of Queensland, March 2014



Risk Communication (Sub-Stream 2.3)

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About the Australian Water Recycling Centre of Excellence

The mission of the Australian Water Recycling Centre of Excellence is to enhance management and use of water recycling through industry partnerships, build capacity and capability within the recycled water industry, and promote water recycling as a socially, environmentally and economically sustainable option for future water security.

The Australian Government has provided $20 million to the Centre through its National Urban Water and Desalination Plan to support applied research and development projects which meet water recycling challenges for Australia's irrigation, urban development, food processing, heavy industry and water utility sectors. This funding has levered an additional $40 million investment from more than 80 private and public organisations, in Australia and overseas.

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Research background

This research project aimed to identify the keys to successful implementation of potable water reuse projects. Case study research was applied to national and international sites to examine the elements of successful and unsuccessful reuse projects. The research focussed on risk perception and communication issues and sought to identify barriers and enablers to communication between scientists, policy and regulation professionals, and the water industry. Stronger links and effective communication between these stakeholder groups will ensure that they better understand each other, and aid in facilitating the successful implementation of potable water reuse projects.

Case studies

Criteria for case study selection were developed to ensure that the most relevant case study sites were chosen so that data obtained would be applicable to the Australian context. The framework for case study selection was based around four key criteria; a) sites must be examples where recycled water is intended to be used to augment drinking water supplies, b), sites should be examples of planned recycled water projects (as opposed to “unplanned reuse” where a town downstream is indirectly reusing another other town’s recycled wastewater without planning to do so, c), selected sites should include examples of both surface water augmentation and aquifer recharge and, d), sites must be relevant to the Australian culture and political system.

Given the number of recycled water projects in the United States and the similarities of culture and political systems between the USA and Australia, there is high value in comparing and contrasting several Australian sites with several sites based in the U.S. Perth was chosen because it fitted the selection criterion of being a “planned” example of recycled water being added to the drinking water supply through aquifer recharge. SEQ was also selected because it is intended to augment the drinking water supply of Wivenhoe Dam (once the region’s water supply falls below 40 per cent).

The two U.S. sites - the City of San Diego and Orange County Water District - were chosen to compare and contrast with the Australian sites. Both of these sites are examples of “planned” projects to augment drinking water supplies with recycled water. Although the San Diego site is still in the testing phase, it provides a good example of surface water augmentation. The Orange County site, on the other hand, is an established example of aquifer recharge. The case studies aimed to identify the enabling and constraining factors involved during the course of project development and implementation.

A note about context

While the case study research has identified key elements for success, it should also be noted that the successful implementation of reuse projects depends, to some extent, on the contextual drivers of each particular site. For example, the implementation of the Californian sites was driven by the need for an independent water supply, prevention of saltwater intrusion, and reduction of wastewater discharges into the ocean. In Western Australia, it appears that long-term water

shortages and a subsequent public awareness of water issues has enhanced acceptance of the groundwater replenishment project. By contrast, in SEQ the onset of rainfall and restored dam levels (and thus decreased urgency for the project), combined with negative media reports about recycled water, caused a significant drop in community support for the Western Corridor Recycled Water Scheme.

The contextual differences between each of the case study sites were also highlighted through the wide-ranging variance in preferred recycled water terminology across sites. As every recycled water project is different, interviewees emphasised that "*there is no cookie cutter approach*". It is important to examine the particular community and develop a strategic outreach plan that fits that community and its experience (Tennyson, 2013).

Critical elements of successful reuse schemes

There is much to be learnt from examining the factors behind the successes and failures of recycled water projects. The key elements for the successful implementation of potable reuse projects identified from the case study research are outlined below. (A summary of these critical elements is also presented in Table 1).

Long-term approach to stakeholder engagement and communications

Communications experts consistently emphasised the critical importance of a long-term approach to the implementation of potable reuse projects. Having a communications strategy that engaged with all stakeholders (community, politicians, policy/regulation professionals, media) from the very beginning, and continuing to engage was described as key. "*You can't just develop the public trust once you're trying to sell the project. That's something that takes a longer-term investment".*

Ongoing engagement with all stakeholders

Communication experts and industry professionals all agreed that it is important to understand that successful implementation of recycled water projects means that the communication and engagement process is never over.

Communication professionals also stressed the importance of conducting ongoing market research on public acceptance, and continuing to share the results with politicians, policy makers and regulators to build confidence.

Begin with a trial/demonstration plant

An initial trial allows time to build up data demonstrating the safety of the water, establish appropriate health regulations and build stakeholder confidence in the safety of the project.

Visitor centre

A visitor centre should be an integral component of the communications strategy, and greatly assists in measuring and tracking public support. "*The more people you can walk through the whole process the more people will support it".*

Early political support

To avoid recycled water projects becoming politicised as an election issue, interviewees stressed that it was critical to engage key decision makers and opinion leaders to obtain their support early. A strong recommendation was to obtain politicians' written support for reuse projects – as this makes it very difficult for them to later change their position.

Cultural values and stakeholders' differing risk perceptions

Scientists, policy/ regulation professionals, politicians and the public were shown to hold quite different perceptions of water reuse risks depending on their professional training, work role/setting, personal values and/or experiences. These results are consistent with previous research (Chapman et al., 2011) and with cultural cognition theory which proposes that psychological mechanisms predispose individuals to credit or dismiss evidence of risk in patterns that fit values they share with others and values (Kahan & Braman, 2006). The different values and priorities of stakeholder groups involved with implementation of recycled water projects leads to problems with communication and consensus about types and levels of risks.

Strategies for overcoming barriers to risk communication

To overcome this significant communication barrier, participants from all case study sites stressed the importance of creating opportunities to get researchers, policy/regulation and industry professionals in "the same room". Interviewees from water utilities emphasised the importance of developing good relationships with regulators by working with them from the start.

Interagency working groups

The Perth case study provided an example of how the formation of an interagency working group between the Water Corporation and key government agencies was highly successful in facilitating effective communication between stakeholders. The parties entered into a four-partner way memorandum of understanding to work together to develop the necessary regulatory framework for the groundwater replenishment project. The group aimed to work collaboratively and with transparency, and met on a regular basis.

Similarly, in Orange County the partnership between Orange County Water District and the Orange County Sanitation District was a key element to the success of the project. Given the mutual benefits of avoiding the significant cost of building a new ocean outfall, and instead investing the funds into groundwater replenishment, the two agencies formed a joint committee for the Groundwater Replenishment System.

Communicating public support

It was noted that water regulators, as protectors of public health, attach importance to ensuring that the community is confident in the safety of recycled water projects. Interviewees therefore stressed the importance of building confidence in regulators

by undertaking stakeholder engagement and sharing data demonstrating community acceptance of projects.

Transparency

Policy and regulatory professionals highlighted how transparency and information sharing are essential to successful stakeholder communication.

Expert advisory panels

Having an independent expert panel was described by participants as essential to building confidence in regulators and in guiding the development of regulations and testing regimes.

Understanding communities' values

Both industry and communications professionals stressed the importance of engaging with communities through learning about and addressing their concerns rather than just running mass media campaigns.

Community support – the case of San Diego

In San Diego, the Water Purification Demonstration Project receives strong support from a coalition of environmental, business and community organisations known as the "Water Reliability Coalition". The group was spearheaded by environmental groups who wanted to reuse wastewater locally rather than import their water from Northern California and then discharge wastewater into the ocean.

Conclusions and recommendations

Studying the successes and failures of reuse projects from around the world provides valuable insights into the experience of others that can inform stakeholders in the future. This research has highlighted a number of strategies that have been used successfully to overcome the communication barriers and facilitate effective stakeholder communication and engagement. Critical elements for successful implementation of recycled water projects have also been identified.

It is recommended that there would be high value in developing a comprehensive decision support tool for assisting utilities or government agencies considering the implementation of recycled water projects.

Critical elements for success	SEQ	Perth	Orange County	San Diego
Long-term approach to stakeholder engagement and communications	Limited time for engagement due to the urgency of the project. Key messages focussed on timely delivery. Under- investment in stakeholder engagement and outreach - communications were not considered a priority.	Started community and stakeholder engagement well before the trial began in 2010. The process has been successful in gradually building community confidence.	Widely recognised as a model public outreach program for potable reuse project. Started community and stakeholder outreach "very early on" - "over 40 years of trust and data".	Comprehensive education and outreach program has been implemented since 2010.
Ongoing engagement with all stakeholders	Communication strategy wasn't successful in maintaining the confidence of key stakeholders. Engagement ceased after the project was put on hold.	Constancy, consistency, and a long term perspective are key aspects of the project's community engagement strategy.	"Process is never over … always evolving". Concerted efforts are made to create opportunities to talk to all groups. Extensive communication crisis toolkit – strategies for dealing with potential scenarios – continually revised to deal with new issues.	Consistent sustained outreach (e.g., progress reports on the project, extensive use of social media, frequent briefings, especially with elected officials. Receives strong support from the local stakeholder group, the Water Reliability Coalition.
Begin with a trial/demonstration plant	Not enough time to implement an official trial due to the urgency of the project.	Completed the three year Groundwater replenishment trial	Began with Water factory 21 (non-potable reuse to prevent sea water intrusion) which was later expanded to the Groundwater Replenishment System.	The Water Purification Demonstration Project began in 2011 and was formally accepted by the San Diego City Council in 2013. This has set the stage for the implementation of a full-scale project.
Visitor centre	Under- investment in an appropriate and well-resourced visitor centre.	Visitor centre is an integral part of the overall communications strategy.	Visitor centre is an integral part of the overall communications strategy.	Visitor centre is an integral part of the overall communications strategy.
Early political support	Lack of political commitment – the project was just one mechanism for drought proofing SEQ. Project put on hold after rainfall, and just before an election.	Early and ongoing political support. Worked closely with government regulatory agencies to develop policy and regulation.	Early and ongoing outreach with elected officials – obtained their support in writing.	Aimed strongly at community leaders to obtain support. The Water Reliability Coalition also influenced political leaders/lobbied city council members.

Table 1. Critical elements for success

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