Australian Water Recycling
Centre of Excellence

Project Report

National Validation Framework for Water Treatment Technologies—Summary Information

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Australian Water Recycling Centre of Excellence

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National Validation Framework for Water Treatment Technologies—Summary Information

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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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NATIONAL VALIDATION FRAMEWORK FOR WATER TREATMENT TECHNOLOGIES

Summary information

Summary material prepared for the Australian Water Recycling Centre of Excellence

January 2013

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1.1 Purpose

The purpose of this information pack is to provide summary information on the proposed national validation framework for water treatment technologies (the Framework).

1.2 Background

1.2.1 Australian Water Recycling Centre of Excellence

The Australian Water Recycling Centre of Excellence (the Centre) was established in December 2009 following a $20 million grant from the Australian Government's *Water for the Future* initiative. The Centre's mission is to enhance the management and use of water recycling through industry and research partnerships, to build capacity and competency within the recycled water industry, and to promote water recycling as a socially, environmentally and economically sustainable option for future water security. It invests in industry-relevant research projects across all aspects of water recycling and these investments are guided by its Research Advisory Committee and its Strategic Research Plan, which is based around four goals:

1. Demonstrating the social, economic, and environmental value of water recycling
2. Establishing a National Validation Framework for water recycling
3. Demonstrating and communicating that reclaimed water is acceptable 'alternative water' for augmenting drinking water supplies
4. Establishing a national knowledge, training and education program for water recycling

The goal of establishing a national validation framework for water recycling goal was informed by responses to discussion papers released by the Centre soon after it was established. Responses to the Centre's discussion paper on risk management and validation suggested improved processes for technology validation was an important area of need and indicated that there was industry demand for a validation framework.

1.2.2 What is validation?

Validation is the substantiation of the ability of a technology or process to effectively control hazards, such as removing virus or protozoa from recycled water It is undertaken through scientific testing and studies in a laboratory or in-situ before a technology is installed. Different validation methods exist for validating different technologies. Validation can be undertaken for new or existing technologies, or can involve reviewing existing validation studies undertaken overseas or interstate. Validation of water treatment technologies is necessary to protect the public health interests of the community.

1.2.3 Current arrangements for validation of water treatment technologies

There are no specific jurisdiction requirements for validation of individual treatment technologies prior to their entry to the market. Rather, technologies are usually required to demonstrate validation of their performance when approval is sought for a complete recycled water scheme.

While states and territories do not have specific requirements for validation in isolation from overall recycled water scheme approvals, the general process for validation is typically as follows:

1. A technology or scheme proponent develops a new technology, or designs a new recycling scheme utilising an existing technology (such as one from overseas), to treat water.
2. The proponent either ensures the existence of a validation certificate for existing technology, or undertakes (or engages third parties to undertake) research, scientific testing and studies to demonstrate the treatment performance of a new technology.
3. The proponent presents the existing validation certificate, or the documented results of the validation study (including validation data), to the relevant regulators in each jurisdiction where the technology (or scheme) will operate.
4. The regulator(s) confirm validation of the technology, issuing it with a performance credit (log reduction value), and approve its use in an overall scheme.

1.2.4 Problems with current validation arrangements

Problems with the current approach to validation include:

- Inconsistencies in the approach to validation between jurisdictions
  - Creating uncertainty and confusion for all stakeholders, and contributing to duplicated effort and slow or patchy uptake of otherwise-viable technologies across Australia.
- Absence of guidelines, protocols and minimum standards for the conduct of validations
  - Resulting in uncertainty for technology and scheme proponents about how technologies should be validated, and about the minimum regulatory requirements for approval.
  - Adding to regulators' workloads as proponents seek guidance or submit unsuitable documentation.
  - Resulting in the validation process varying between jurisdictions and depending on the regulatory personnel involved.
- Absence of default performance credits for the same type, or similar groups of technologies
  - Leading to difficulty in designing schemes due to uncertainty about the number of treatment barriers required to achieve a target log reduction, and resulting in over-engineering of schemes.
  - Suppressing development and/or adoption of new and innovative technologies.
- Absence of transparent and consistent processes for recognising, or taking account of, validations undertaken interstate or overseas
  - Contributing to Australia not benefiting from certain technologies developed overseas, with technology proponents having to duplicate validation effort for Australian regulators, and regulators having to undertake additional reviews of the validation data submitted.
- Insufficient information or sharing of information

  - Duplication of validation effort resulting from the lack of a centrally coordinated information base.
  - Technical expertise is already spread thinly across the states. Validating technologies in isolation from colleagues in other jurisdictions adds unnecessarily to work pressures and delays in approvals.
  - Lack of data can hinder regulators' and proponents' ability to determine feasibility of a proposed validation approach, and possibly result in inadequate validation assessments.

- Suppressed competition and innovation
  - Inefficient regulatory arrangements have the capacity to discourage competition and innovation by reducing market participation and investment due to the increased costs of business.
  - Current costs of validation are a barrier to entry of new technologies – many technologies currently being adopted are those already validated in that jurisdiction.
  - As a consequence, public health and water management outcomes may be sub-optimal.

- Investment in water recycling infrastructure
  - Inconsistent and duplicative validation requirements lead to higher than necessary recycled water scheme costs. While the contribution of validation to overall scheme costs may be modest, governments' have invested in a range of water recycling projects and the extent of this investment could be reduced if the cost of schemes was reduced.

- Foregone economic opportunities for Australia from developing water treatment technologies domestically
  - Validation efforts are often undertaken overseas by larger manufacturers due to clearer approval processes and lower costs. The costs of validation in Australia are higher than necessary due to the lack of clarity, national inconsistency in validation processes, and the need to replicate validation.
  - These problems disadvantage small and medium sized Australian based enterprises competing with larger international firms in the Australian utilities market as well as the export market.
  - This contributes to Australia importing technologies rather than producing and exporting them.

- Suppressed interstate trade
  - Inconsistent regulatory requirements between states create unnecessary obstacles to interstate trade. Some technology proponents find it difficult and costly to sell their products into interstate markets due to artificial differences in requirements.

- Inconsistent application of the Australian Guidelines for Water Recycling
  - The Australian Guidelines for Water Recycling suggest that validation be undertaken for recycled water schemes. Where validation is required it is inconsistent, resulting in the full public confidence and efficiency benefits of a national approach not being realised.

- Inconsistency with the regulatory reform agenda
  - Reduction of regulatory burden and red tape is a priority of the Australian Government and COAG. Current regulatory arrangements for validation of water recycling technologies are confusing, inconsistent, duplicative, and costly. They do not support the outcomes sought under COAG's seamless national economy agenda.
- Uncertainty regarding treatment performance of technologies
  - Government uncertainty or concerns about the effectiveness or safety of recycling technologies has contributed to the imposition of policy bans or restrictions on particular types of recycling or for particular end uses. This constrains the choices available to the community.
  - Uncertainty about treatment performance and the public health outcomes of recycling may also contribute to a lack of public acceptance of recycling, which may reduce the availability of different water supply or treatment options.
- Increased cost and time delays associated with water recycling schemes
  - Where schemes are installed, increased costs and time delays are passed on to and impact consumers, such as through increased costs of water service provision.
  - Where costs and delays prevent schemes from being implemented, the potential environmental and amenity benefits to the community are foregone.

1.2.5 Developing a national validation framework

In response to these problems, and in support of a more efficient and effective urban water sector, the Centre invested in the development of a national validation framework in two major project phases. In 2011, Phase 1 developed the draft framework that was eventually agreed as being the optimal technical approach for validating technology. In 2012, Phase 2 of the project undertook further work towards adoption of the Framework in two parts: first (Phase 2.1) an independent cost-benefit analysis of the proposed framework and development of a business case; and second (Phase 2.2) the progression of priority research activities identified in Phase 1.

For Phase 2.1, the Centre engaged The Centre for International Economics (The CIE) and Aither to undertake an independent cost-benefit analysis and develop the business case respectively. Both parts were informed by consultation and engagement with a range of stakeholders involved in water recycling, public health and water management (a list of stakeholders consulted and summary of outcomes is provided at Appendix A). The final business case incorporates the results of the cost-benefit analysis

1.3 The proposed national validation framework

The proposed framework is a national-level process for validating water treatment technologies. It aims to remove duplication and inconsistency by validating technologies once at the national level according to nationally agreed protocols. It has been developed in the context of water recycling and, in the first instance, to apply only to high exposure, centralised recycled water schemes involving the treatment of wastewater. However the framework could be used to validate technologies for a variety of different water treatment systems including drinking water. It could easily be extended to low exposure schemes and other water types and may also provide a useful model for validation of broader environmental technologies.

The Framework is not a new, additional layer of regulation. States and territories would retain their full regulatory responsibility for water recycling scheme or treatment system risk assessments and approvals. The Framework simply provides a process by which jurisdictions can develop and agree on consistent approaches to and requirements for validation of technologies used in those schemes or systems. States and territories can then implement the agreed approaches and requirements through their own legislation and regulations. This is analogous to the process used to develop and implement the Australian Drinking Water Guidelines and Australian Guidelines for Water Recycling.

1.3.1 Key elements of the framework

The Framework includes proposed new functions, and draws on existing entities with proposed new or modified functions. The functions of the different entities are designed to address different problems with current approaches to validation. Key elements of the framework include:

- A **Rule Setting Group** made up of state and territory regulator and industry representatives whose role is to determine and publish national validation requirements for treatment technologies. The Rule Setting Group will provide consistency and certainty in validation requirements.
- **Independent Assessors** who review validation studies and testing undertaken by proponents. Independent Assessors provide scientific rigour and assurance that validation has been undertaken in accordance with requirements.
- A **Framework Administrator** that provides governance and administrative support for the Framework, including the Rule Setting Group, Certification Body and Database Manager.
- A **certification step** where the Framework Administrator and proponent are notified by independent assessors that a technology has been validated in accordance with national requirements.
- A National **Database of Validated Technology** maintained by the Framework Administrator, that holds information on validated technologies for use by regulators and scheme and technology proponents. It provides a 'one-stop-shop' for validated technologies.

1.3.2 Comparison of the Framework and current arrangements

Key differences between the current arrangements and arrangements under the proposed Framework include:

- There would be a consistent and agreed set of protocols[1] to determine what validation studies are acceptable and how they should be undertaken
- New validation studies would be undertaken according to the developed protocols or previous studies being reviewed against them
- There would be consistent crediting across Australia of treatment performance for validated technologies
- Proponents would only have to undertake validation once at the national level, or for validations already undertaken interstate or overseas, not have to repeat them
- A single national database of technologies that have been validated would be maintained for use by regulators and proponents.

1.4 Summary of benefits and costs of implementation

Benefits

General benefits of implementing the Framework include:

- Clarifying and harmonising scientific and regulatory approaches and requirements
- Improving institutional arrangements and the efficiency of delivering public health, water and environment outcomes
- Reducing financial and other costs to government, industry and the community
- A nationally consistent and agreed process that is transparent and independent
- Standardised protocols for validation methods and studies, default performance credits for technologies, and transparent recognition of existing validations
- Improved information and sharing of information
- confidence and assurance for governments, regulators and the community that water treatment systems can safely and effectively supply water fit for its intended purpose

In addition, benefits associated with implementing the specific option recommended in the Business Case include:

- Potential to generate benefits sooner by focusing on areas where jurisdictions already have some validation requirements in place

[1] Protocols can be developed over time to apply to existing or new/emerging technologies, and some protocols have already been developed or are under development through Phase 2.2 of the Centre's national validation framework project

- Reduces setup and ongoing costs by integrating Framework administration into an existing organisation
- Allows the Framework administration to be responsive to validation demand and future growth
- Doesn't preclude a standalone organisation from being established in the future
- Draws on resources as required, improves functionality over time

Benefits specific to particular stakeholders are outlined below.

The Australian Government

The Framework provides assurance and confidence to the Australian Government that public health, water and environmental objectives are being achieved, and are being achieved in a cost-effective, efficient and effective way. It increases the level of compliance with national guidelines invested in by the Australian Government, such as the Australian Guidelines for Water Recycling, and collects data and information that supports updating those guidelines. The Framework also reduces regulatory burden and red tape, a key priority of the current Australian Government and of COAG. The Framework would also ensure the effective and efficient validation of technology used in over 50 stormwater harvesting and reuse projects with approximately $650m worth of Australian Government investment.

State and territory governments and regulators

The framework reduces duplication of effort amongst states and territories in managing validation processes and approvals of technologies and overall recycling schemes. It will free up resources within government departments and regulatory agencies that can be used to help deliver on other important public policy needs. It also helps facilitate improved health, water and environment outcomes by improving confidence in recycled water systems, reducing costs associated with implementing recycling schemes, and continuing to protect public health.

Local government

Local governments will benefit primarily from reductions in the time and cost associated with technology development and scheme approval and implementation. The Framework will assist local government in delivering integrated water management solutions as well as urban amenity, environmental, and water security outcomes by helping to ensure water recycling options do not face unnecessary barriers that prevent them from competing on equal economic footing to other solutions.

Technology proponents

The benefits for technology proponents mainly relate to decreased costs and time associated with developing new technologies and gaining approval for their use. This is achieved through clarity and consistency in regulatory requirements; reduced duplication of validation effort across multiple jurisdictions, and the removal of market fragmentation. The Framework also facilitates greater innovation by reducing costs of new technology development, which will benefit those proponents who successfully develop new technologies.

Scheme proponents

Scheme proponents will largely benefit from reductions in overall scheme costs and time taken to gain approval as well as greater confidence in approvals processes and use of wider range of pre-validated technology. Specifically scheme proponents benefit from having an 'off-the-shelf' listing of validated technologies with agreed performance, easier and cheaper scheme design, more innovative technologies, reduced scheme cost and time taken to approve and implement, increased confidence to develop proposals and make investments, and greater government confidence in wider range of recycling options

The Australian community

The Australian community benefits from the assurance that the Validation framework provides to maintaining protection of public health, as well as improved water security and urban amenity and environmental outcomes associated with recycling.

Costs

Costs associated with the Framework include:

- Setup and ongoing costs of managing the framework:
  - Developing validation protocols
  - Framework administration and coordination
  - Rule Setting Group participant costs
  - Assessment of independent assessors
  - Assessment of validation studies (although this could be outsourced to independent assessors and paid for by industry)
  - Managing certification including issuing statements
  - Establishing and managing the database of technologies
- Costs to industry of undertaking validation studies and having them approved by regulators
  - These costs are not new, and are reduced relative to the base case due to the removal of duplication of effort

Quantified benefits and costs

Cost-benefit analysis undertaken by the CIE indicated that there would be total expected net benefits of between $11m and $84m in NPV terms from implementing the Framework. These benefits result from combining the reduction in costs associated with removing duplication and pooling knowledge, with the cost of implementing and administering the Framework.

Removing duplication

Removing duplication of effort lowers the total number of validations required, benefiting both industry and regulators. The net benefit to industry would be approximately $0.97m in NPV terms from reducing the number of validation studies and the net benefit to regulators would be approximately $2.28m in NPV terms due to lower resourcing requirements. This results in a net benefit of $3.25m in NPV terms.

Pooling knowledge

National pooling of expertise under the Framework is expected to deliver cost savings due to more rigorous and accurate assessment of technology performance, which leads to reductions in the number or intensity of treatment barriers required (resulting in reduced capital or operational expenditure). This is estimated to reduce the capital and operating cost of future recycled water schemes and deliver net benefits of between $8m and $80m in NPV terms, depending on the size of future schemes.

Administration of the Framework

The cost benefit analysis estimated 1.5 full time equivalent staff would be required to administer the Framework with remuneration costs equivalent to Australian Public Service EL1 level ($115 257pa). Setup costs such as the refurbishment of office space were estimated at approximately $22,500 based on space required for 1.5 permanent staff.

1.5 Support for the Framework

The framework concept has widespread support across government, regulatory, utility and technology stakeholders. During consultation, a broad range of water sector stakeholders, including state, territory and local government agencies, utilities and manufacturers indicated support for the Framework in recognition of the benefits from pooling knowledge; having greater confidence in technology and the achievement of public health outcomes; removing the need to manage validation processes and proponents; reductions in costs, timeframes and over engineering; and from freeing up resources in a challenging budgetary environment. States are also supportive because the Framework contributes to their objectives for removing red tape while allowing them to continue to grant or withhold approval of recycled water schemes and treatment systems within their jurisdictions.

Scheme and technology proponents including water utilities and technology providers support the Framework because it provides them with clarity and consistency in regulatory requirements; reduces their costs and approval times; makes it easier to design and implement schemes; provides certainty for investment, and contributes to improved economic viability of a wider range of recycling and treatment options.

The benefits of the Framework concept have also been recognised by Australian Government agencies because it supports Australian Government objectives to reduce regulatory burden and contributes to COAG's seamless national economy agenda. It also supports over $650m of Australian Government investment in stormwater recycling and improves implementation of the Australian Government's Australian Guidelines for Water Recycling. The Framework also increases the potential for competition, innovation and economic activity, and interstate trade; reduces the need for subsidisation of recycling infrastructure, and improves conditions for local investment and attracting more technologies to Australia.

1.6 Implementation arrangements

Priority activities to support implementation of the framework include:

- Developing options for recovering or sharing the costs of Framework administration and operation, such as cost-sharing between the Australian and state and territory governments, or different models for cost-recovery from industry. This would include sharing or recovering costs associated with:
  - staffing and operational costs such as office space and equipment associated with the Framework Administrator
  - Validation protocol development
  - Participation of Rule Setting Group members (either in-kind or remunerated)
  - Database development, hosting and management
  - Reviewing validation studies[2]
- Developing an implementation and business plan covering the detail and process for
  - The RSG including Terms of Reference, membership and governance arrangements
  - Projected validation throughput and expected fee revenue (if a cost-recovery model was implemented)
  - Determining the priority validation protocols and agreeing a timeline for subsequent protocols (including the relative priority of broader protocols such as stormwater)
  - Agreeing and establishing validation protocols
  - Establishing the database
  - Transferring existing validations onto the national database
  - Establishing the list of independent assessors
  - Establishing the form of the validation statement (or certification statement)
  - Timing, sequencing and prioritisation of different implementation tasks

1.7 Next steps

Further progress on the proposed national validation framework for water treatment technologies involves action on the priority activities outlined above. The Centre is in a position to support the development of a detailed implementation plan including development of cost-sharing or cost-recovery model options for jurisdictions' consideration. However, the project is now at the stage where formal engagement and support from the jurisdictions is necessary before further investment can be made by the Centre.

The immediate next step, therefore, is to seek in-principle support from the Water Quality Sub Group and Water Thematic Oversight Group for implementation of the Framework, subject to consideration of, and agreement on preferred options outlined in the work on priority activities to be undertaken by the Centre.

Separately, the Centre intends to provide updates to key stakeholders involved in the business case and cost-benefit analysis to honour its' commitment to keep them informed of progress.

[2] These reviews are proposed to be undertaken by the private sector (by Independent Assessors) but depending on the cost-recovery or cost-sharing model, review costs could be borne by the administrator or by industry.

Appendix A – Stakeholders consulted and summary of outcomes

Organisations consulted in development of the Business Case and Cost Benefit Analysis

The following organisations were consulted in development of this Business Case and the cost-benefit analysis. Business Case consultations aimed to ensure understanding of and build support for the Framework, including outlining initial findings, discussing qualitative and quantitative costs and benefits and other impacts, as well as possible implementation options and approaches.

The cost-benefit analysis consultations aimed to identify and quantify the costs and benefits associated with implementing the Framework. Discussions were held with regulators, utilities, private service providers and technology suppliers to gather data and information for analysis.

Organisation	Business Case	Cost-benefit analysis
Water and environment agencies		
Department of Sustainability, Environment, Water, Population and Communities	✔	
NSW Metropolitan Water Directorate	✔	
NSW Office of Water	✔	✔
Department of Energy and Water Supply (Queensland)	✔	✔
Department of Environment, Water and Natural Resources (South Australia)	✔	
Department of Primary Industries, Parks, Water and Environment (Tasmania)	✔	
Department of Sustainability and Environment (Victoria)	✔	
Department of Water (Western Australia)	✔	
Environment and Sustainable Development Directorate (ACT)	✔	
Office of Living Victoria		✔
Health agencies		
National Health and Medical Research Council	✔	
NSW Health	✔	✔

Organisation	Business Case	Cost-benefit analysis
Department of Health (Northern Territory)	✔	
Queensland Health	✔	
SA Health	✔	
Victoria Health	✔	✔
Department of Health (Western Australia)	✔	✔
Economic regulators		
Independent Pricing and Regulatory Tribunal (New South Wales)	✔	✔
Essential Services Commission of South Australia	✔	
Essential Services Commission (Victoria)	✔	
Public water utilities		
ACTEW Water	✔	✔
Melbourne Water		✔
Power and Water Corporation (Northern Territory)		✔
SA Water	✔	✔
Seqwater		✔
Sydney Water Corporation		✔
Water Corporation (Western Australia)	✔	✔
Yarra Valley Water		✔
Private water industry		
CH2M Hill		✔
Koch Membranes		✔
Osmoflo		✔
PentAir		✔
Siemens	✔	✔

Organisation	Business Case	Cost-benefit analysis
The Water Factory Company	✔	✔
Trojan UV		✔
Veolia Water	✔	
Industry associations		
Australian Water Association	✔	
NSW Water Directorate	✔	✔
Queensland Water Directorate	✔	✔
Smart Approved WaterMark	✔	
Water Australia	✔	
Water Services Association of Australia	✔	✔
Research organisations		
CSIRO		✔
National Centre of Excellence in Desalination Australia	✔	
University of New South Wales		✔

Key messages from consultations

Key messages arising from consultations included:

- universal support for the concept of a national validation framework for water treatment technologies and processes
- universal encouragement to extend coverage to include stormwater, grey-water and decentralised systems
- acceptance that the proposal cuts red tape and is consistent with many state governments' objectives
- recognition that state prerogatives are not impacted
- recognition from some states that current reviews of regulatory arrangements for recycling present an opportune time to bring forward the Framework
- suggestions that the cost benefit analysis (CBA) undertaken had been unduly conservative

- universal interest from regulators and government agencies in recovering the costs of establishing and operating the Framework, and some support for cost recovery from industry
- widespread interest from jurisdictions in representation on the Rules Setting Group (RSG)
- agreement that a detailed implementation plan would be critical for the Framework to be agreed by governments, including further detail on
    - Terms of Reference for the RSG, including membership, roles, responsibilities and lines of reporting and accountability
    - detail of the cost recovery or cost sharing model
    - timing of implementation
    - whether it is feasible for the RSG to accredit assessors
- suggestion that start-up funding may be required to support framework implementation and early operations
- agreement on the need to progress the proposal through the Water Thematic Oversight Group

Consultations on specific aspects of the Framework

The following sections summarise the outcomes of business case consultations in regard to different aspects of the Framework or its implementation.

On problems with the current arrangements

Consultation with a range of stakeholders confirmed problems with the current validation arrangements outlined in the Business Case. Specifically, stakeholders suggested that:

- Removing ted tape and regulatory burden was a priority area
- Stormwater recycling and decentralised systems are a significant growth area and where most future regulatory and operational challenges lie
- Over engineering of schemes has not been uncommon in some jurisdictions, resulted in significant costs and time delays for some proponents
- Regulators faced challenges in keeping pace with developments in recycling and validation
- There has been confusion about roles and responsibility for validation
- Some proponents were frustrated at unpredictable outcomes due to inconsistent professional judgement being applied
- Long project delays had been experienced, with confusion about requirements, inconsistent application of regulations, confusion about ultimate decision making bodies, and insufficient capacity or capability in approving agencies
- Proponents had suffered significant financial costs as a consequence of delays

- Validation processes need to be much clearer and more transparent, with much greater certainty regarding outcomes, and that improved arrangements would be required to allow the market for water treatment technologies to grow and prosper in the future
- Current recycled water regulations are inconsistent and burdensome and are generally discouraging the uptake of recycling

On the Framework and its development

Consultations provided the opportunity to confirm stakeholders' understanding of the Framework concept, including the proposed functions of new and existing entities.

- There was universal support for the concept of the Framework. Comments included: "supportive of the idea", "proposal makes sense", "seems like a no-brainer", "can't see why it isn't a good idea".
- Stakeholders suggested re-branding the framework to describe it as a validation framework for water treatment technologies, rather than limit it to recycling.
- It was suggested that the Framework's value proposition would be increased if it applied more broadly, including to stormwater and grey-water, or potentially even broader to drinking water.
- Implementation arrangements were suggested as a critical area
- States and territories recognised that the intent of the Framework is "not to replace current regulation, but to support it".
- Stakeholders suggested it would be critical that regulators have confidence in protocols, assessors, accreditors and the database
- Feedback was provided on the need for protocols to address specific operational conditions.
- Technology proponents sought clarification about how protocols would address specific issues such as extrapolation of validation to different sizes of the same technology type.

On different options for the Framework's implementation

Consultations provided feedback that was considered in the development and analysis of options in the Business Case.

- Stakeholders consistently suggested the inclusion of stormwater, grey-water and on-site and decentralised systems
- Stakeholders thought that only including high-exposure schemes was unduly limiting the Framework
- Some stakeholders suggested the cost-benefit analysis could have adopted a broader scope given the emergence of stormwater recycling and the review of drinking water guidelines, and that as a result, the analysis seemed unduly conservative
- Stakeholders suggested that keeping costs of the Framework low would be essential to successful implementation

- Suggestions that the Framework be designed to an appropriate scale
- Some stakeholders saw merit in a staged roll out
- Stakeholders confirmed the potential for both operational and capital cost savings associated with reducing treatment intensity or removing treatment barriers

On benefits of the Framework

Consultations confirmed the range of benefits of the Framework outlined in the Business case. Stakeholders also provided the following comments.

- Government and regulatory stakeholders confirmed knowledge, skills and capacity benefits of the Framework, including providing a knowledge hub for best practice management of water recycling, and data and information to support the Australian Guidelines for Water Recycling
- Confirmed the cost-benefit analysis assumptions about the potential to remove treatment barriers due to pooling of knowledge at the national level
- Confirmed the Framework would help provide assurance and confidence to governments and regulators, including creating confidence in reclaimed water of all forms if its scope was extended
- Some jurisdictions with fewer resources available for validation confirmed the Framework's protocols would be very beneficial
- Government stakeholders confirmed the Framework is consistent policies to reduce red tape and regulatory burden
- Some states saw their current reviews of regulatory arrangements for recycling as an opportune time to bring forward the Framework
- Industry stakeholders confirmed the Framework would help reduce regulatory burden by decreasing confusion and uncertainty and duplicative requirements
- They also suggested the Framework would provide clarity and this should assist in reducing approval times, and would provide credibility to Australian industry
- Scheme proponents suggested significant benefit in having 'off-the-shelf' technologies, would result in adoption of newer more efficient and effective technologies, and would avoid time and cost of validating new technologies when upgrading or replacing technology
- Suggested there would be benefits to local government, regional utilities and smaller operators from information and guidance provided through the framework and database of technologies, and increase local governments' confidence when purchasing treatment technology
- Technology proponents suggested the Framework would be of benefit to smaller operators for whom a confusing regulatory environment is a threshold barrier to participation
- Stakeholders confirmed broader benefits to the Australian economy and community, including benefits of increased competition and innovation

- It was suggested the Framework would be valuable for remote communities in helping them understand what technologies are available and what they are capable of

On implementation of new functions under the Framework

Consultations revealed that most stakeholders had already accepted the Framework as a good idea and that they were generally more interested in discussing the specifics of how the Framework would be implemented. The following comments were provided on the different new functions proposed under the Framework.

The Framework Administrator

- Acceptance that there are a limited number of appropriate existing organisations for the Framework Administrator at the national level
- Suggestions that the Commonwealth would need to recognise the Framework and take on a leadership role
- The Framework would need to be housed in a government agency – industry certification was not considered appropriate by most regulators
- Many stakeholders thought that given synergies between the Framework, the AGWR, and water quality more generally, that the NWQMS was the logical home for the Framework
- Suggestions by a number of stakeholders that the current review of the NWQMS would present an important opportunity to integrate the Framework under new management arrangements
- Matters related to decision making, governance and cost-sharing or recovery would need to be resolved to progress any proposal for new functions under the NWQMS
- Any proposals would need the support of a newly formed water quality sub group that sits under the Water Thematic Oversight Group
- Universal interest from regulators and government agencies in recovering the costs of establishing and operating the Framework - an approach where costs were recovered from industry was generally preferred
- Stakeholders wanted to see the detail of how the cost recovery model would work in practice, including the fee structure, the service or product being provided to participants, estimates of revenue from validations, and estimates of cash and in-kind resources required from states
- A business plan would need to be developed to help determine revenue projections, and this should be reviewed it over time

The Rule Setting Group

- Widespread interest in the Rule Setting Group (RSG) - jurisdictions all expressed a desire to be involved in the group
- The right representatives would be necessary to ensure the RSG would work effectively, including achieving agreement on rule setting
- The RSG must include regulators, but that it should also include input and advice from the manufacturing and research sectors

- Some concerns about how resource intensive the RSG may be
- Majority of stakeholders did not see a problem with in-kind resourcing for guideline development and suggested
- Some stakeholders noted evidence of established in-kind support for national water-quality related processes, such as NHMRC's Water Quality Advisory Committee and the National Recycled Water Regulators forum, that have been successful and self-sustaining
- It was noted that protocol development may require more resources and expertise than could be contributed in-kind from the jurisdictions
- General consensus regarding resourcing included: providing the RSG with seed funding to deal with initial workload; rules setting being delivered in-kind from then on; and protocol development, testing and certification being outsourced, with costs recovered through validation fees
- Significant interest in the Terms of Reference for the RSG, with the request that these be developed as a next step
- Generally agreed that the RSG should come under or be linked to a Ministerial Council or COAG, to engender confidence in the oversight and governance arrangements

Independent Assessors

- Potential or actual conflicts of interest need to be dealt with effectively, including how independent assessors are engaged by both the Framework administrator and by technology proponents while still ensuring their independence and rigour in reviewing validation studies prepared by proponents
- Suggestions that the RSG could consider what the requirements of Independent Assessors should be and that these requirements, along with the list of assessors, be endorsed by the Water Thematic Oversight Group to provide standing
- Suggestions that wherever possible, existing regulatory arrangements to ensure the standard of assessors should be utilised rather than creating new arrangements, such as potentially utilising JAS-ANZ or similar accreditation schemes

Certification body

- Confirmed that some form of documented assurance to both proponents and regulators confirming (or not confirming) validation of a technology was absolutely required
- Agreement that based on the volume of throughput a large scale certification scheme could not be justified
- Discussion on the way costs of certification could be recovered, such as through application fees plus ongoing licence fees
- Suggestion that product certification provides brand value and could justify licencing fees, and that certification could be reviewed at intervals and fees sought for re certification
- Suggestion that start-up funding would most likely be required prior to revenue being generated through any fees for certification

Database Manager

- Widespread support for the national database and general agreement on it being central to the operation of the Framework
- Agreement that the database need not be an expensive nor highly customised piece of infrastructure
- Suggestions that database had a small number of key functions that could be achieved at low cost
- Widespread agreement on the need to provide different levels of access to information held in the database, including securing commercially sensitive data while ensuring regulators have access to sufficiently detailed validation data
- Agreement that a high degree of external functionality, such as comprehensive web based functionality, was unlikely to be required, but warranted further discussion with stakeholders about their needs during implementation
- Stakeholders agreed that public internet presence outlining and promoting the Framework and its operation, including all protocols and approval processes was necessary but a separate matter to the database itself

Document history

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