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PRODUCTIVITY COMMISSION

NATIONAL WATER REFORM

DR J DOOLAN, Commissioner
MR J MADDEN, Associate Commissioner

TRANSCRIPT OF PROCEEDINGS

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COMMISSIONER DOOLAN: I would just like to say good morning. Welcome to the public hearings for the Productivity Commission's National Water Reform Inquiry following the release of our draft report in September. My name is Jane Doolan and my fellow Commissioner is John Madden, and I'd like to begin by acknowledging the traditional custodians of the land on which we meet, the Kaurna people, and pay my respects to their elders, past and present.

The purpose of this round of hearings is to facilitate public scrutiny of the Commission's work to get comments and to get feedback on our draft report. Following this hearing in Adelaide, we will also be holding another hearing tomorrow in Melbourne, and working then towards completing the final report to be handed to Government in December this year, and that will be having considered the evidence presented at our hearings and the submissions that we are currently receiving.

Anybody who has registered their interest in the inquiry will automatically be advised of the final report's release by Government which can be up to 25 parliamentary sitting days after completion which could take us through to June.

We do like to conduct all hearings in a reasonably informal manner, but I do remind participants that a full transcript is being taken, and for these reasons comments from the floor can't be accommodated but at the end of the proceedings I will provide an opportunity for any persons who wish to make a brief individual presentation.

Participants are not required to take an oath but should be truthful in their remarks and they are welcome to comment on the issues raised in our submissions as well, and the transcript will be made available to participants and will be available on the Commission's website.

So in case of an evacuation, downstairs, out the front and down the street, that's our current information, Rick. Okay?

So Darryl, after those proceedings, I'd like to welcome Darryl Day from International Centre of Excellence for Water and Resource Management. Thank you.

MR DAY: Thank you, Commissioner, I'd just like to perhaps start by acknowledging the huge amount of work that has gone into the draft report and I think it's particularly reflective of the way you've approached the review, and particularly making yourself available and encouraging the interaction that has taken place. So well done. I think we've all been a bit overwhelmed with the volume of work that you've covered but it does document an enormous amount that has happened over a long period, so congratulations.

I would like to perhaps focus on three areas and one is the Renewable National Water Initiative. The second one is the alignment with international obligations, and thirdly, the importance of research, knowledge and capacity development. ICE WaRM was established through administrating government initiative as an international set of excellence and is owned by four universities and another shareholder, and it works in the policy space internationally, very much supporting institutional capacity development, so we're in a quite niche area of interfacing with government policy and building confidence in order to implement that policy.

So there's a number of issues that we're perhaps able to draw from in the interaction of that work and reflecting back on the national water initiatives and the journey through that policy reform.

The discussion we always have in that context is the nature of a reform journey doesn't happen overnight, and in Australia's case we're nearly up to 25 years since the work started in putting together the 1994 agreement. Sadly, I was involved in some of the conversations around 1994 when the first taskforce of looking at the performance evaluation of the implementation of the 94 agreement, so it's been I suppose something I've had a number of different perspectives of the importance of long-term policy setting and the challenge of continuing the journey of implementing.

So water policy isn't an end point. It's a journey and it needs to be continually reviewed and adapted and I think that's what you've articulated very well in the need for continuing the commitment.

I suppose the reading of the draft document to me sort of highlights the importance of being able to articulate the criticality of continuing with that policy reform, and I suppose my greatest concern is, it might find its way on to a shelf and not be given the priority given where what policy sits on political agenda federally and in state jurisdictions at the moment, and I think the criticality is there, and our lessons from the two periods' reform of 94 and 2004 were that we were fortunate that we were well on the way to addressing a lot of the issues when the millennium drought occurred.

Had we not been as advanced as we were we wouldn't have had the success in managing the economic changes that needed to occur. So when we're thinking about the policy context it's what are going to be the challenges in five and ten years where the decisions we make today need to support the needs of us at that point of time be it the greater cities, be it the impact of climate change, be it community aspirations and expectations of water, and of course water is a complex issue that touches us all, and I think we are always at risk of understating the complexity of what we're dealing with.

In terms of the reform, I remember well the conversations around forming the 2004 National Water Initiative where it was seen that the utilities were included but a light touch in that 94 reform was about micro-economic reform in 2004 was very much to address primarily environment issues, but it did include utilities but at that time point in time it was very much understated I think in terms of where utilities were at in recognising the reform journey, and I think going forward the challenges of water for our urban environment says it is really a major centrepiece of, you'd probably call it National Water Initiative Mark II.

The criticality of good governance and regulation around that I think is important to come through in the recommendations. We have different approaches to economic regulation around the country and some argue that's good to encourage regulators to be innovative and indeed create some competition between regulators, but certainly there's a number of jurisdictions that have been left behind what is good economic regulation either from the way we view it in Australia or internationally.

I think one of the things that hasn't been spoken about enough is the siloed approach to regulation and the interdependencies between the different regulators' requirements for additional environment regulation in driving price. The requirements for public health regulation have an impact on technical solutions such as treatment plants. The technical regulation itself, quite a lot of innovation and technological changes happening in the urban space.

So with the four silos of regulators, economic, technical, environmental and public health, I think there needs to be a framework that each of those sits under and has linkages so we do understand the interconnection. So I don't believe Australia is ever going to get in the position of having a single economic regulator.

Indeed a single regulator will cross any of those areas, but a framework that provides consistency, and particularly as we see a number of emerging water services providers operating in different jurisdictions, for efficiency I think it's very, very important for that framework to be established, and there's a great deal of work to be done in bringing that together.

This is not just a conversation for Australia, but I perhaps point out the International Water Association produced a list and charter in 2014, and there's quite a lot of work continuing around the world, including at the Water Development Congress in Mexico next month around regulatory reform, and working through the take-up of the principles that have been developed.

In Europe there's just recently been a separation of the water economic regulators from the water and energy regulators to give a specific focus to water regulation, so there's quite a journey. Whilst Australia is well advanced in terms of a lot of regulatory thinking, particularly economic regulation which, as I said, it's highly variable, I think it's an area that is a critical focus in order to drive the construct and the focus and investment of water service providers or water utilities.

I think the other point I perhaps make is around the National Water Initiative Mark II ensuring that there is as much as achievable bipartisan support and of course cross-jurisdictional support from federal to states and territories, and I think the success of the past two reforms of 1994 and 2004 have been because of that bipartisan support which has been underpinned by incentives in different ways, 94 competition policy payments, but the National Water Initiative came with almost a billion dollars in investment about half or two thirds from the federal government and the rest investment from states and territories.

So investment in the likes of understanding Groundwater National Centre for Groundwater Research and Training, or Centre for Desalination, or the Centre for Recycling Water. All were really important in terms of being able to advance policy work, but also the collaboration that was invested in under rising national standards, raising national standards by the National Water Commission were critical. Without a commitment for funding of implementation I think the ability to take that forward is very limited and that's what we're seeing at the moment while there's still an inter-jurisdictional water reform committee in place without resources we are seeing just the roll-out of unfinished work for the National Water Initiative is really slow to very much fit with the resources available.

I would like to perhaps turn to the second issue of alignment with international obligations. Australia is a signatory to the United Nations Sustainable Development Goals and Prime Minister Malcolm Turnbull is on the high level panel for support to implement those goals, and Australia is doing some wonderful work in contributing globally, particularly around hydroinformatics water data around water efficiency and taking from the very good work that we've done, particularly through the Bureau of Meteorology.

It all goes through our water efficient labelling scheme and other initiatives, and being able to provide support to the global progress against the sustainable development goals, we quite often hear that they're not for us in Australia, the same development goals for developing countries. Indeed, that is not so. It is for developed and developing countries and we've seen, you know, just recently commitments from Denmark and other countries in terms of doing a stock-take of where they sit against sustainable development goals.

If we look at sustainable development goal six and all the inter-linking connections with other sustainable development goals, I'm not aware that there's an assessment in place that says we're doing okay or there's a body of work that we need to address. I just perhaps put it on the table in the context of, in order for alignment of our policy agenda for the next ten years with sustainable development goals focussed on outcomes in 2030 I think we need to have an understanding of what our gap is and our policy needs to align to close that gap, in addition to the great work we are doing internationally in supporting other countries, but it's interesting if you go to many other countries' sustainable development goals the first thing they talk about around water. Here in Australia it's not the case.

I would also like, in terms of international obligations, to raise the issue of human rights access to water, safe water supply and sanitation, and the United Nations adopted a resolution in 2010 and clarified in 2015 of the rights to access to water and sanitation. It's not about free water. It is about affordable water, it's about the proximity to water. It's about water quality. It's about the dignity with sanitation.

And again, it's not an issue that's got a lot of traction here, and I think particularly evident in overcoming indigenous disadvantage. There is an absence of understanding of where we are at the meeting those obligations either with remote indigenous communities or informal townships, or even without water service providers.

So the Productivity Commission produces a not insubstantial piece of work each year of the key indicators for overcoming indigenous disadvantage of which access to water and sanitation isn't mentioned, although they are elements of the enabling measures within the overcoming indigenous disadvantage framework in the Prime Minister's annual report.

I mean, if you Google "water" you come up with a few references to cultural values of water in the indigenous context, and there's a couple of references of work that the Defence Force has done in supporting development of some water supplies, but there really is no visibility around where we sit, and it's not since 2006 where the Commonwealth funded what was called the CHINS survey, the infrastructure needs survey, that it actually sought to answer the questions of access to safe drinking water and sanitation.

Now, I think Australia is doing very well and it's made a lot of progress, and particularly, you know, praise the work in the Northern Territory that I have some knowledge of what they're doing with larger communities, but it's a gap that we don't know, and it's only I understand not included because the data wasn't available to the Productivity Commission when they set up their key performance indicators, but I believe since those indicators have been established, the United Nations' resolution on access to water and sanitation would make it imperative for Australia to actually be understanding of where they sit against those.

So I think the investment that has been made by the National Health and Medical Research Council have developed tools for community water planning to ascribing for providing safe drinking water, and the National Water Commission itself funded a field guide and training for a number of jurisdictions in order for the uptake that the effectiveness of that and where we currently sit.

There is no visibility, and the concerns that we raised in the report about smaller townships in New South Wales and Queensland, I think that the situation is somewhat magnified when you start looking at indigenous communities with the right skills and perhaps access to the necessary support in providing safe drinking water and sanitation, and indeed it's underpinning in the health and wellbeing, particularly gastro issues.

But I'd also perhaps raise there the importance of the investment in understanding the challenges of different qualities of groundwater. We often think of microbial contamination of drinking water when we think of concerns about remote communities and drinking water, but indeed in Australia we do have challenges that we still have questions around chemical contamination and the long-term health effects of that.

So there's a piece of work that needs to continue, and indeed NHMRC has done some good work in the past, but there is a continuing knowledge being developed in that these issues are very complex issues, but they're very significant issues, particularly in a lot of countries about over-exploited groundwater systems and we see high levels of nitrate and arsenic that are causing, and fluoride that are causing health issues, and in Australia we have a similar cocktail which new science come into play requires to be considered in terms of our context.

Probably is a segue of looking at research, knowledge and capacity development. I think that we all, you know, strength of Australia's journey has been in the CRC program that for the last 25-plus years has invested very heavily in water CRCs. It's not the case now.

At one time around the time of the 94 reform we had five water-related CRCs which paralleled the fact there was a network of water CRCs what would collaborate on their cross-CRC research. The capacity that built in terms of Ph.D. student, and particularly bringing together government policy, industry researchers and capacity development I think stood Australia in a very good position. When you go around the country now and you know a lot of the people that are involved in full leadership around water having come out of that background, and we don't have that pipeline of people for the next generation coming through without that investment in research, particularly research in policy, as really critical.

Of course, we had Land & Water Australia. About the same time we had the National Water Commission invest in the semblance of excellence of groundwater desal and recycling I

mentioned. It is a real gap where we're at at the moment, and we're certainly seeing both a lot of talent and expertise either leave the sector or leave Australia in some cases, but also the concern of where the leadership will be in ten years' time without that pipeline coming through of people that understand it is a very, very complex business enable to inform policy with evidence, and it's really critical that we do identify the underpinning need of continuity and our research, but also our capacity development with institutions.

We're seeing some real gaps across the country in water authorities able to undertake basically, for example, we don't have a School of Water basic plan to go to. In fact, we don't have a lot of consistency around the areas of regulation I talked about earlier. We don't have a consistency through not having a capacity development program around good regulation, and an ability for regulators to draw from a pool of experience.

So I just highlight that in order to implement the policy we need the investments in the research and evidence, not only for the purposes of being better informed, but also building up leadership and capacity over the next ten or 20 years building those next generations so they're going to take it forwards.

I might leave my comments there. Thank you.

COMMISSIONER DOOLAN: I suppose there's quite a lot that you put on the table. One area I am quite interested in is, we have had a number of people talk about the importance of the sustainable development goals to us, and I suppose from our perspective in terms of writing a report that makes recommendations to governments, it appears to us that it's important that those reforms or recommendations have direct benefits to the argument about aligning with sustainable development goals. We've seen a secondary, a consideration in terms of, you know, why should the recommendations, what's the benefit to the country overall. Could you elaborate a little bit more on why you think the alignment vestige is, what benefits it offers to the nation, because it helps us build the arguments, if you like.

MR DAY: Sure. I suppose one way of looking at a journey is, we need also to learn from other, and our connection to the sustainable development goals, and the actions and principles engages us with people that are looking at the challenges of those issues in the broader context that we can learn from. I think one of the things we do really well is innovative, and indeed, we've got a story to tell the world about our journey, but one of the things that we do less well is learn from others, and I think the connection for me to the sustainable development goals is being able to have a dialogue around innovations and being able to align our policy settings or to be able to look at implementation without reinventing the wheel in some of those areas.

To me it provides a very comprehensive framework. It obviously went through a number of phases of negotiations to get agreement from members of the United Nations, but I think we've embedded within that, it is a very valuable framework for us to test our water policy against. I think that's valuable particularly the inter connectedness between sustainable development goal six and the other development goals when it comes to, for arguments, cities and the liveability of cities and the sustainability of cities.

So International Water Association has released a report on, or sorry, a guidance on principles for water sensitive cities of which Australia has had a big influence from the work that's been done out of Monash, the work that's been done out of the CRC for water sensitive cities. The contribution to those principles has been very strong, and I think somewhere that's been ahead of our thinking here in Australia, and I sort of find it, you know, unusual that we don't have as an adaptive policy framework to be able to take on board that broader thinking that's coming out of a lot of good research work that has been done here.

So if you take the issue of the urban environment settings, it is going beyond the customer, it's going to the community in terms of the value to the community, and one of our difficulties is always looking at the economics benefit, looking at the community benefit, looking at the ecological value of having a broader remit around water than what's in drinking water and sewerage, but how is a water utility able to put forward its investment in linkages with the urban development sector, linkages with stormwater and so forth which are really important for a utility to do because of the role they play in capacity that they've got, but it is often an unregulated area and they don't have the remit to invest in those so there's no one bridging that gap.

So I suppose I haven't answered your question directly, but I'm just trying to sort of draw analogies between going it alone without an eye on that framework versus what we can benefit from that framework, and also a focus of our future before being - having the insight of being engaged in that SDG [sustainable development goals] framework.

I would also perhaps would go - there is a value to Australia of actually being seen to be a leader in that space rather than not having it referenced, and I think what we're doing internationally with a high level panel of water is exemplary. The work that's going into that drawing from a lot of our experience, but also producing new tools and new resources is really a credit that's been recognised to Australia, but without that connection we've got a risk of going down a different path and I think a lesser path in terms of the community expectations.

COMMISSIONER DOOLAN: Just to follow up on that, obviously we're looking at the NWI in particular in terms of the assessment and also particularly recasting or refreshing the NWI because as we're a signatory I assume we already are integrated within the SDG framework and the like. The question really is, how would the, going forward, the NWI be different? So you mentioned words like reflect and things like that.

MR DAY: Yes.

COMMISSIONER MADDEN: What do you think of the objectives of the NWI as they currently stand? Is there some shortcoming there or, I mean, are you asking that the NWI should be recast including those goals or are you talking reporting frameworks, you know, going forward should take those into account? What do we actually mean by reflect and take into account?

MR DAY: I'd actually turn it back the other way and say, you know, the analysis needs to be done on where we're at compared to the SDGs. So if you look at our principles I think, you know, not too bad. They're pretty right. They're sort of 80, 90 per cent there. With a bit of

tweaking we might need to have a look at add a little bit more in or change a focus, but I'm not aware that we've actually done it at a national level.

There's a number of academic pieces that are emerging, but I'm not aware that we've actually done that gap analysis of where NWI currently sits with the sustainable development goals, and I think that would be important recommendation in terms of forming what is it we need to tweak. You know, if there's a gap, you know, and we believe it is not the right way for us to take a different path I think sort of without that analysis on the table it's hard to make that call.

COMMISSIONER MADDEN: Okay. I guess we're hearing about SDGs a few times and I'm yet to see that analysis that it's different than - a call for that analysis is a bit different to calling for action on, well, what does it mean for the NWI, where the objectives, where are the gaps, et cetera, which I guess is the nub of Jane's question. What actually - I can understand the point about the international, facing the international market, for want of a better word, but yes, it would be good if people who are discussing this actually at least give some pointers about what those gaps might be and what the difference would be in policies.

Now, you mention one in terms of remote communities and the like, so can I go on to there?

COMMISSIONER DOOLAN: Yes, absolutely.

COMMISSIONER MADDEN: Or do you want to make any comment?

MR DAY: I do. I think there's two issues. One is, where's the gap in our policy, its NWI, and where's the gap in our position against that policy. So we might have the policy but are we there yet, if there's alignment with NWIs, so I think there is that multi-dimension, you know, look at the position with sustainable development goals from both policy and achievement.

COMMISSIONER MADDEN: So I just have two areas that I'd like to talk about this implementation and what we can learn, particularly with your history going back so far. I think I only started in the water sector in 94 so I might have

COMMISSIONER DOOLAN: Just a baby.

COMMISSIONER MADDEN: Yes, exactly. So two areas. I'll start with economic regulation first and just think, and I guess some reflections on why some jurisdictions in economic regulation early adopters, long experience. We've seen others come along a lot later and some not move at all. So I'm just wondering, because there's always politics and all those kind of things but what do you think of some of the fundamental drivers of why there's been uptake in some policy areas than others? Is it demand driven? Is there enough work in terms of benefits. Is it an industry professional failing? I'm just wondering if you could reflect on that mixed uptake that you mentioned a number of times.

MR DAY: Well, I think the decisions have been very much at a state and territory level in their degree of comfort with having an independent economic regulator. So there's been movement to have an economic regulator that, or regulator that undertakes a number of

functions. A number of jurisdictions haven't given the full powers to determine tariffs and charges, so I think we've seen a bit of mixture around the country given on the political appetite, and you know, I think where it has truly been independent, it's moved about the issue of water pricing out of the political arena, not entirely, but I think certainly it's been very much a construct of the state and territory politics.

I don't think there's any logical reason for one over the other and certainly it's interesting around the world where I've been engaged in recently Malaysia for its priding itself on how far it's come on independent, economic regulation. For Manila and the Philippines, for example, they see that as they have a primary concessionary to impact for Manila, but they see that independent, economic regulator as being a critical tool and I think in Australia we've probably not had the moving platform, if you like, of, you know, where some jurisdictions haven't moved to independent, economic regulation, able to pull the levers at a political level or pricing in particular.

COMMISSIONER DOOLAN: Perhaps just one more. We'll have to move on.

COMMISSIONER MADDEN: Yes.

COMMISSIONER DOOLAN: You or me?

COMMISSIONER MADDEN: I've got a very short one which is about the remote communities and that reporting. I assume there is reporting into drinking water standards generally? It's not an area of my focus, so it'd be good for my edification anyway, just why - I know New South Wales has had a long-term program in their remote indigenous communities lifting - and it's a tailored program to lift standards involving local government, so I'm just wondering, other than we could ask for reporting through the NWI itself in that assessment process. Is there a - why is there a gap? Why is this not happening, given that I assume states report on - against their drinking water standards in general?

MR DAY: I'd perhaps just to, you know, give praise to what New South Wales has done. It's been, you know, a very well-considered approach and a long-term investment that's been made, and it's certainly made a lot of gains and they drew quite heavily from the work of the National Water Commission and the National Health and Medical Research Counsel in framing matters, whether it's, you know, looking at other solutions. There isn't reporting that's consistent and there are very significant gaps around both what is the water quality, but also the access to safe drinking water, and then sanitation has very little reporting about it at all outside of, you know, the main utilities.

Indeed, it was sort of reflecting back on the journey there was reporting that was put in place for the 94 guidelines that became - it's now picked up by the Bureau of Meteorology in terms of water services performance reporting on an annual basis. There was reporting that was then put in place for non-major urbans as it was called but that only went down to 10,000 people, and the reporting below that was seen as too problematic to gather the data.

So it's very - it's high credible around the country. Some do it by exception but it's, because it's not mandatory requirements, you know, it is where there's evidence (indistinct) failures, but in some cases throughout the Northern Territory I mentioned has, you know, robust

reporting around its major communities and a number of other jurisdictions do that quite well, but there's not consistency and there's big gaps.

COMMISSIONER DOOLAN: I think we probably should leave that now. Thank you very much, David. That's very helpful.

Our next presenter is Dan Croucher from the Water Industry Alliance.

MR CROUCHER: Thanks.

COMMISSIONER DOOLAN: Are you happy to - - -

MR CROUCHER: Happy to start, yes.

COMMISSIONER DOOLAN: Yes.

MR CROUCHER: So thanks for providing the Water Industry Alliance with the opportunity to provide a written submission and appear today. It's really helpful to put forward the views of a broad industry sector.

The Water Industry Alliance is a membership of around 120 industry bodies based in South Australia, although in some emerging interstate members, representing manufacturers, contractors, engineering services, tech companies, water utilities, professional services and research organisations, so a fairly broad spectrum of business across the water industry.

Having been around since 1998, the Water Industry Alliance has seen a number of changes in the landscape of South Australian and Australian water industry - water reform regulation policy and design. The submission that we've put to the draft report is really based around three key principles of the key themes. Support for a refreshed and rejuvenated national water initiative function with a peak body that's able to drive national leadership and I'll talk to these a little bit more in a second.

The need for investment in water industry growth beyond the reform and regulatory sector but also into the innovation and the growing knowledge base of – I guess, how we deliver research, development, commercialisation, imbed that in our industries for both export and learning from the ability to partner up and collaborate at the industry level.

And really the third thing is, around some touchpoints on what the industry's telling us around the water reform journey over a long period of time and the fatigue, particularly in Murray Darling Basin space where reform is never ending and it is heightened by the recent Murray Darling Basin plan impact whereby the fatigue and continual tiredness and not seeing enough time in the view to try and imbed the water reforms that are taking place into actual, I guess, bear the fruits.

So I might talk to that one first. So having gone through a great period of time, late 90s in South Australia, particularly with water restriction, water allocation planning processes, and before that at a national level through particularly Murray Darling Basin agreement negotiations, water users in particular have been hit with a number of different changes, both

to, not only the way they operate business, but the way they actually deliver irrigation outcomes to drive the economic development in the regions.

In short, the Basin plan and I know it's out of scope for the Productivity Commission because there is a parallel submission going along, but it's worth noting that the effect of subsequent and parallel water reform, both in policy practice strategy and investments in terms of behavioural change, regional change, have an effect on people's intellectual and business capacity to take change on board.

So whilst no industry is telling us that there is a need to keep developing, keep striving for best practice and better performance, how it's rolled out and the expectations placed upon industry need to be cognisant of all the other effects on industry so that the changes can be imbedded in a highly successful way. So I will probably leave that one there.

The importance of the National Water Intuitive has really played a key role in the industry understanding the game plan the governments have going forward and what the strategic positioning is, and the Water Industry Alliance feels that having the refreshed and almost a recommitment to the existing principles, teasing out the ones that are no longer relevant in the contemporary space, but designing new ones that can deliver us an ongoing process of continuous improvement, not only how we manage water but how we allocate, how we regulate and how we keep up with the technology changes that provide the tools to do that, and I draw on the example of the water market, again particularly in the Murray Darling Basin, we've got a very mature water market, but those water market principles being extended cross other zones whereby behavioural change around water market and water trade is changing from it being "Just in case I need an allocation or a trade", but just in time for me to have either – you know, a higher temperature or an extended period of frost.

And really it's around focus on water quality, water quantity, water reliability and water security in the settings of how they're at the framework of a new and refreshed National Water Initiative of some design, could come together.

The need for national leadership, I think, is important for the industry to harness the fact that if we understand where we are – the report that you guys have put together points out some significant challenges in climate change, population growth. Even a greater reliance on water as a commodity for us to grow and develop economic development against, I'm particularly thinking around agriculture and irrigated water culture and the drive towards exporting these products overseas particularly, is that as we go into that more constrained space against the population growth, the need for having national specific issue conversations outside of our, sort of, more diluted (indistinct) environment might be very beneficial and the reason for that is to actually provide a level of rigour and accountability to the reforms space. So there's a single point of authority that can touch base to make sure that some of the past practices and some of the past gaps in the National Water Initiative don't get replicated in a future initiative.

The broader kinder feeling of industry sector growth, I guess a greater acknowledgement and acceptance of the water industry is beyond government, and I think what the National Water Initiative did really well was support our regulatory policy change framework, but particularly with the absence of the National Water Commission as a peak oversight body, that the swelling of in-government in State and Territory government departments, at least, in

terms of dealing with the reform and implementation, it's really become a policy focused domain, rather than an implementation focused domain and so therefore it's around acknowledging that the water sector and the water industry that contribute to the success and the solution of continuous improvement, is more than just government. It is about the sector. It's about not only the rule makers. It's around rule implementers. It's around the investors and the industry bodies that actually bring those changes to fruition.

There are – and one thing that the draft report picks up on, I think in the first line of the overview chapter in the draft report, states that Australia's water sector is viewed internationally as a world leader in water management, and this is really the final point, I guess, in terms of what the Water Industry Alliance is experiencing at the moment, is that through various iterations of reform policy, implementation policy and programs through government initiatives particularly, the water industry both whether you think about the research and development side of it, the commercialisation or even the advisory, engineering and implementation construction type sectors of the water industry, have had a fairly easy time in terms of large sums of government money invested into the industry, invested into the sector.

That is clearly not something that is sustainable for government to continue to do, but what it can't leave behind is a vacuum. When a shrinking capability and a shrinking industry base to be able to deal with the reforms on the ground. So what we've noticed is that the public sector in the water space has internalised a lot of its work. It's internalised a lot of its science and monitoring and knowledge work. It's internalised a lot of its planning and even to the extent of developing export agendas and export strategies whereby in our view that should be the domain of the industry to work with government on how to do that but not grow government in that space.

It's almost a competing interest where you might have industry to industry networks and collaborations across the country and internationally that can deliver water solutions for many different issues, but the ability of actually us having that capability within the county is shrinking as we have mature firms and companies that are downsizing or heading into retirement years and little succession planning because there's a merger or acquisition kind of mentality.

So the challenge for us going forward as we see it, is that any new funding models or any new principles and policy drivers that come out of a refreshed NWI and build on the good work that's been done today, need to extend an investment portfolio that drives innovation, new technology, but also collaboration and partnership across the sector, both within particular jurisdictions within Australia, but also enable the international business to grow.

I guess what we don't want it to be and one of the sort of almost – I don't know whether it's an hidden principle or unsaid principle or something that you just inferred out of it, is that Australia could be a net exporter of water based knowledge, whether it's manufacturing, technology, policy planning regulations, science research, but we are in real danger of becoming the importer.

COMMISSIONER MADDEN: I guess the question that comes to me in this space and think about the five CRCs that were mentioned earlier about then what's the long-term

sustainable structure to support the water industry and the obvious next question from an economist is who should pay? So I can see that CRCs play a valuable role, but that's up and down with the issue of the day, so have you any comments on that level of ongoing funding, what the key drivers are, and more importantly how do you get alliances across the industry that are long term rather than project based which is CRC really is, and leading from what, and who should pay, because there is a revenue base in agriculture in the other States. There are options with RDCs and the like. I'm just wondering if there's any kind of thought or document that actually outlines some of these kind of strategic issues for the water industry.

MR CROUCHER: So I guess going to the first part of it is – so if we consider water as an enabler of many different industries, economic activities, then obviously a market failure on water space, in water knowledge, management is unacceptable for Australia to be able to deal with it. The risks around it are, you know, regional communities, the (indistinct) citizens, so thinking about where the next market failure comes from is obviously a government – is something the government and industry could partner well together to think about what that might look like.

The second part of that is that any initiative needs to develop more public value it provides in the context of more than the numbers and more than the costs benefits of providing the service. So in terms of how the water sector is viewed as a public value as an asset in and of itself but also how we utilise all the spin off and flow ons from that, is really important in sustaining capability and it's about sustaining capability, not just for ourselves, in States and territories but we have rights challenges to face, and climate change and access to water in regional communities has been touched on a lot, as has constrained and impaired water resources and by constrained and impaired, that also means ones of low quality that need – that need treatment and then potentially using waste water as sustainable practices now.

It's around harnessing the knowledge of industry and government together and research corporations together, and that's really where – there are models around the world where large collaborations, large associations and alliances in many different disciplines in the water sector, play a role without government investment over time, and so I guess the key part of it is, is around what's the start-up look like? If you're funding small start-up initiatives through industry to grow knowledge, grow capability, grow succession planning, that's where the greater public value is in my view, and that's where there's an emerging industry that if we don't develop could develop a market failing when we have that net input of knowledge which would be sad for us to lose that global positioning that we've got, just from a purely industry perspective.

In terms of the question of who pays, if there's public value to be determined and there's collaboration and partnerships to be developed, then it's both industry, private sector investment as well as government investment, the idea of how that can keep escalating and keep growing and become self-sustainable without government investment ongoing, and I think that's where we've come to this view, as the industry that over probably 25 years, large government programs have sustained the industry and that's not sustainable going forward, but what is sustainable is a short term injection of both leadership, structured planning policy and principles around where we want to get to and working out the defined roles and responsibilities about how industry can play a better role than they have previously.

COMMISSIONER DOOLAN: Are there examples where that has worked either here or overseas that you can point to for us?

MR CROUCHER: So there's, in terms of sort of a broader association, there's an association in Milwaukee that has a large range of different water industry members and they pay a role, not only in providing growth for industry players, but also supporting university and school education facilities to have more appreciation of water and how to manage it, but also some community service style obligations that provide them the ability to offer services at lower charge and you know, as a commercial entity most of them have lost leaders at the start. But they develop long-term partnerships where the investment train goes both ways.

There are a number of others, especially in the US. There's also any trade missions that people go on, the Dutch and the Danish always seem to be there that people will notice, so there are examples where it works. They take a lot of time, a lot of effort and sometimes a lot of upfront investment to get going, but it's a sustainable model that leads to fill the gap where government can play a broader oversight role and industry can play the solver, a solutions focused role that enables a two-way pollination, facilitation of exchange so that the initiation comes to the fore and you use it effectively.

COMMISSIONER DOOLAN: I suppose I was just interested in your contrast, if you like, of it is important to your members that there is a NWI and that governments do recommit to it, seem to recommit to it, but that also there is reform fatigue. So how do we actually, sort of, tread the balance to actually get governments to acknowledge there is a need and to create a dynamic for a third wave of reform whilst balancing the question of an instability, time to adapt? So how do we inspire governments and yet not over point it?

MR CROUCHER: Yes. Amongst the key question of, you know, I guess public policy reform in how it rolls out and it's really around the implementation, so the first thing is, from an industry perspective is what's in it for industry and how can industry inform what is done, and I'm not just talking around manufacturers and (indistinct) makers but the people that have businesses that have long-standing capability and intelligence build-up over many years of involvement in water, but also how we imbed the research and commercialise the – at least make research available so that people can make better business decisions on the basis of it.

And so, it's not one thing or another. It's probably around design prioritisation. It's acknowledging that there's a broader church of water industry that goes beyond government and beyond regulation and acknowledging that some regulations as well are inhibiting to growth and which ones then, through that reform process, can you actually remove the – you know, we like the term remove red tape, is how do you remove the red tape so that the barriers are reduced and the opportunities are maximised?

I don't see it as a silver bullet, but I do see it as a conversation that needs to evolve around specific targets, around specific fundamentals of prioritisation and around inclusion.

COMMISSIONER MADDEN: The National Water Commission has been mentioned a few times and again, just trying to get this idea of what the roles of accountabilities are. Did they play a role really in this space? Like is there something that we've lost that was working or

are we looking at something entirely new given going forward into the future that we haven't done before?

MR CROUCHER: Yes, I think - - -

COMMISSIONER MADDEN: Again, not to say we must do that. But just what are the elements, what are you really trying to articulate in terms of going forward?

MR CROUCHER: So the National Water Commission as a body or as an entity as a function gave a perception, whether it was real or inferred, that there was senior high-level leadership that had specific yield of decision-makers at the highest level and captured the attention and the consideration of those sitting around the COAG table but with a specific focus on water and the water issues that faced Australia.

Whether there's a Commission like a council, like a board like function, but having those brought back to a single point of focus, would provide some clarity.

COMMISSIONER MADDEN: And just on that, we're talking about the R&D space here in particular as opposed to particular policies. So was there papers put out in terms of that cross-State? I assume given your focus on South Australia, what's happening in other States and kind of, how you elevate this to a national level, that's, I guess, what we're talking about, whereas the NWI's very much what is each State doing at least in assessment processes? I mean, are you talking about getting that cross State association? I'm just again, trying to actually – where do we want to be in five, ten years?

MR CROUCHER: In terms of the conversations around the National Water Peak Body Association representation, that conversation will evolve over time with a number of different associations that have either water as a very core focus or a very secondary focus of what they do.

In terms of the growth or the potential of an alliance and association type body, to take on a (indistinct words) given the complexity of water space, I don't see it as being one overarching association representative body from that perspective. However, what there clearly is, is that on a project-by-project, -program-by-program, even policy and strategy roll-out of design perspective, is that cross-jurisdictional collaboration and co-operation is going to be very important.

You know, coincidentally I just spent some time in Western Australia last week and I don't have an in-depth view or understanding of WA's water industry at all, but they're certainly going through some transitions out of mining water reuse, and there was some learnings from Queensland and New South Wales that could particularly brought into bear to assist, what there's got to be is a behaviour change and culture change to be able to work across at government level. I think industry does it pretty well where there's opportunity to do it in tendering and contracting, but at the government's government level there's certainly very sovereign boundary that exists and that actually does have an impact of impairing some industries to work together because the opportunities are not there.

COMMISSIONER DOOLAN: (Indistinct words).

MR CROUCHER: No, I think - it is just that the industry of water sector in Australia has, in our view, an opportunity to grow. There's demand in an international space for services, manufacturing, technology, a whole different gamut of industries in this space. Demand does not necessarily equal opportunity and the one thing we can't do is go and sell a shop with no stock in it.

COMMISSIONER DOOLAN: Sure. All right, thank you. Thank you, Dan.

MR CROUCHER: Thank you.

COMMISSIONER DOOLAN: So we will have a quick 15 minute break and then we will reconvene with the Goyder Institute. Thank you. So back at 11.30.

ADJOURNED [11.13 am]

RESUMED [11.27 am]

COMMISSIONER DOOLAN: I would like to welcome the Goyder Institute and Kane Aldridge.

DR ALDRIDGE: Thank you, Commissioners, and thanks for the opportunity to provide import to this important process. Firstly, I'd just like to open with some general comments and I will get into some more specifics, but I would just firstly like to welcome the Productivity Commission's enormous efforts in undertaking the inquiry into the progress towards achieving the objectives of the National Water Initiative.

I view this inquiry as a really component of the broad adaptive management of the water sector and the management of our water resources and national water reform. Just for background, the Goyder Institute for Water Research is a partnership between the South Australian government, CSIRO Flinders University, University of Adelaide, University of South Australia and the International Centre of Excellence in Water Resource Management.

In many ways the Goyder Institute for Water Research has spawned out of the water reform and the national water reform agenda. In this time the institute has established itself as a leading independent expert science advisor undertaking critical research for priority State and National water policy and so in doing so, we've been an important component of the National water reform agenda.

Into the details of the report itself, we view this as a really comprehensive and balanced assessment of progress in achieving the objectives of the National Water Initiative and we support the general conclusions of the draft report that good progress has been made but there's further work required.

The importance of water to our society, the economy, the environment and our society more generally cannot be underestimated and we have enormous challenges ahead including increased population growth, not just of Australia, but worldwide, but also the enormous challenge of dealing with climate change and more variable climate.

These challenges are substantial and will require ongoing water reform, and given this, I think it would be appropriate for the report to assess how well current management practices are placed to deal with these future challenges. The draft report does note that water planning is required to regularly assess the impacts of climate change, but it's not clear at this point what is best practice in dealing with climate change and how we address to deal with that.

Given the importance of water to Australia that I have outlined and the significant future challenges, we support the recommendations outlined in the draft report that the National Water Initiative be maintained and enhanced. This provides Australia with the opportunity, not only to deal with our own water resources but also to train, educate and participate internationally in water reform.

Because of the focus of the Goyder Institute, my specific comments relate to the knowledge and capability building component of the draft report and my comments are mostly practical and relatively simple comments because I think broadly the importance of knowledge and capability has been captured. So we do welcome the general sentiment of the draft report regarding the importance of knowledge and capability building towards water reform and consistent with this, we support the recommendations of the draft report that are a recommendation 8.1A and 8.1B. My specific comments relate to really strengthening some of those comments and bringing out some of the importance of water research.

So my first recommendation relates to Australia needing to provide greater investment into water research. I think the draft report appropriately acknowledges the recent decreases investment into water research and the importance of research to water reform. In recent years there has been a significant reduction in water related research with the closure of a number of key research initiatives, and given the importance of water reform, we feel it is appropriate to include a recommendation along these lines.

I should say, some of these recommendations could be brought together but I've separated them just for clarity. The second one is that Australia needs greater investment into the transfer and application of water research into policy management and innovation. Recently the Office of Innovation of Science Australia released a review of the Australian innovation sector. It concluded that Australia does well in knowledge creation but performs poorly in knowledge transfer and knowledge application.

Ultimately this means the industry impact of research is far less than its potential. My personal observations is that this can be attributed to neither managers or scientists or policy makers having the capacity to undertake these roles. While the Goyder Institute and others have made significance advances in this area, there's still further work to do and there are many good examples around the world of such knowledge, transfer and applications.

For example, in the United Kingdom, the UK Government of Office for Science fulfil this role and the EU Joint Research Centre also fulfil this role, largely through horizon scanning and determining future challenges, but also through the development of production of synthesis and better analyses techniques and they are often independent of government.

The next point is that Australia needs greater investment into research that's primarily focused on informing water policy and also industry development. There's likely to be a number of

different models that have been established throughout Australia but the Goyner Institute for Water Research is one of these examples where the research is very much focused on informing critical areas of water policy. The sciences remained independent of government, but the information is made readily available to get its informing policy.

My next point relates to some discussions within the draft report, could include information on the assessment of mechanisms that have been successfully implemented and particularly this relates to 8.1B which is develop mechanisms through the jurisdictions that can work cooperatively to share knowledge and build overall capacity.

Again, I feel the Goyder Institute, and I am sure there are many throughout Australia have been important in fostering and sharing information between researchers and policy makers and researchers and other researchers that otherwise would not have occurred.

Another South Australian example is the establishment of joint positions between State government departments and research organisations and I am sure a similar could occur with industry. These positions have been viewed as being extremely successful in facilitating the scoping of research projects and also importantly, the uptake of research outputs that meet government needs, and I will leave it there.

COMMISSIONER DOOLAN: I suppose a key question is we do see as value that research has provided to the water policy journey that we've been on and that definitely there was a peak of research over the drought, it's dropped, it's dropped to levels that were lower than perhaps that we saw 10, 15 years ago. The real question is how much and who pays and how do we get to that in an efficient way?

DR ALDRIDGE: It is a very good question and I guess our view is that it's a shared responsibility of government and also industry. I think also we need to think about the water industry perhaps more broadly in that almost all industries are water dependent, so there may not be water utilities, but I think there's certainly – I think we could explore models where there's joint funding of government and industry into water research, and part of that is probably being about more efficient in how we coordinate and allocate research and investigation type money. I think there is a substantial amount of money that is spent on small research projects, but if we could bring those research projects together and build bigger research projects or programs, then we could mostly likely have research that has greater impact than a series of small projects, if that makes sense.

COMMISSIONER DOOLAN: The CRCs, people have spoken about the CRCs today in submissions as well as, I suppose, being the combination of researchers and industries that created the relationships being longer term, providing future capability. Is that a model that we would want to go back to or is there perhaps a more successful – obviously there were success with those – but something that would be more successful that you're aware of or would want to push?

DR ALDRIDGE: I mean, the CRCs that I've been involved with have been extremely successful. I think there's something - I think there's a general desire to push CRCs towards industry funded models, which is okay for those components of research that have a direct uptake by industry. In other circumstances there's research which doesn't necessarily directly

inform industry but more maybe public good type research. And so we need to be careful that we're not pushing all of that public good type research into industry funding when there's going to be no potential for the industry to fund that type of research. But I think the CRCs, from my experience, have been extremely successful and I think that's a suitable model.

COMMISSIONER MADDEN: I guess part of the discussion we had was refreshing the NWI and then the capability and knowledge being generated from new areas. Not things that we've focused on for the last ten years. So what are the new challenges? So we have urban environmental water use and climate planning, just the three examples?

DR ALDRIDGE: Yes.

COMMISSIONER MADDEN: Where is the assessment, or do you have knowledge of any process that actually assesses where, not just jobs, but activity and focus is at the moment; and given those three areas do you think the industry, and I mean by that the water research industry, is actually responsive enough and that - kind of a head of a kerbing place in future challenges? I'm just wondering, I know it's a broad sweep, but where is most of the action and activity and focus at the moment, and is it well placed then to meet those future challenges that we've identified, and are there any others that maybe we should identify in this area?

DR ALDRIDGE: I'll have a start and then maybe come back to me in case I've missed bits, but - - -

COMMISSIONER MADDEN: Unfortunately we don't have a glass of red wine. It's a kind of a bit of that discussion. However, I think it is important that - - -

DR ALDRIDGE: Yeah. Yep.

COMMISSIONER MADDEN: How do you transition to meet new policies?

DR ALDRIDGE: Yeah. So as the draft report outlines and I attempted to outline earlier, I think some of the big challenges where research needs to play an important role is around population growth and climate change. I think we haven't yet connected perhaps some of the climate change work in more detail - not more detail but specific water research. We haven't quite made that link in lots of areas. I think there - from my discussions with the partners of the Goyder Institute one of the big areas of need relates to the intensification of agricultural practices. That will come from the need to keep economies going through agricultural development within Australia, but also to feed the world essentially. And that, or a large part, can only occur through intensification of agriculture, which presents some challenges but also opportunity in terms of reusing water over and over again until we've scraped every possible element out of that, and so there's no discharge of waste also.

I think one of the other areas where we can work more is in multidisciplinary research and I think there's been an ongoing shift towards multidisciplinary work, but I think there's still further opportunities to make the most of in that area. The climate change seems to be the big area.

COMMISSIONER DOOLAN: So you did mention climate change early on and talked about what is best practice with climate change. I suppose I'd like to throw that question back at you. What have you seen amongst the research or your institute seen as what you consider to be best practice? Adaptation or - that's appropriate for national policy?

DR ALDRIDGE: I guess what I - my observation is that climate change in water planning has been dealt through by I guess considering it on five year cycles appropriate with the water planning cycle, but not taking a longer term view on what's the - what are some potential future scenarios that we might face within certain areas and what's the risk associated with them. And then - and then back from that, mapping out a way forward so that the water sector more broadly can deal with those challenges. And so we're making smart decisions now, investing into areas that will be able to adapt to climate change. That's my general observation, is that we tend to still take fairly short views of climate change because it's limited to that five year cycle.

COMMISSIONER DOOLAN: I've got one further question, if that's okay. As a research organisation, coming up with the sort of nationally agreed research priorities has always been problematic. And one attempt was the national platform for water knowledge priorities, I think - it was called something like that. It took I think at least two years to develop, possibly longer, and has just recently been suspended, so not seen to be terribly effective. So once again from a research perspective, what would you consider to be appropriate for a national framework that would work? Have we seen anything past or elsewhere that actually would be effective?

DR ALDRIDGE: Yeah, it's another good question. That's something we've also noticed, where we've seen governments also develop national - water research priorities or strategies or plans and almost by the time they're written things are out of date and people have moved on to the next priority. So, I don't - - -

COMMISSIONER DOOLAN: It's more thinking about the - should we be successful in getting a new NWI, the architecture that you would try to set up underneath it.

DR ALDRIDGE: Yeah. I think my feel is that to certainly consult broadly with government and industry and understand what - and through some probably horizon scanning type initiatives, understanding what the future - real future challenges are, and only to go down to a certain amount of detail in relating it to themes rather than specific research questions. And then through whatever process, to look for, through a competitive bid process, look for applications within those themes and see what the research and industry sectors could come up with, like really from the more specific questions.

COMMISSIONER MADDEN: Just one last question for me, which is around knowledge transfer. Just, have you any examples of where you see opportunities missed, and why? I know when I worked at CSRIO we talked about knowledge transfer ad nauseam. Some worked, some didn't, it was hard to know why, but I just wonder what we do. Missed opportunities. Do you have any examples over the last five years where you actually see missed opportunities and what should we do differently?

DR ALDRIDGE: I would probably prefer not to single out any specifics but - - -

COMMISSIONER MADDEN: I mean even part of a sector.

DR ALDRIDGE: Yeah, I mean just generally I think there are missed opportunities all the time because researchers have very strict performance measures and that is really focused on undertaking the research. And policy makers and managers are generally very focused on that role, and so there's no one filling - or very few groups or organisations within that area in the middle that are able to take multiple bits of research and pull that together into a format whereby policy makers can pick it up and form a policy or a decision. And so there is a large amount of research that is undertaken that doesn't make its way to policy. I'll just leave it at that.

COMMISSIONER MADDEN: Okay.

COMMISSIONER DOOLAN: Well, I think we're done. So any further remarks Kane?

DR ALDRIDGE: No, that's it, thanks for your time.

COMMISSIONER DOOLAN: Thank you very much. Okay. So we've got one more presenter scheduled but she's not here, so we'll just find out whether she's actually coming or not.

Okay, so thank you Katherine for making it up the stairs. We'd like to welcome Katherine - oh, sorry, Karen.

MS ROUSE: Karen, yes.

COMMISSIONER DOOLAN: Karen Rouse from Water Research Australia.

MS ROUSE: Okay, well thank you for this opportunity to appear before the Productivity Commission's hearing today. Water RA, or Water Research Australia hasn't previously made a submission during this process of the review of the NWI progress. So today what I'd like to do is to run through our draft submission that we're planning to make, with a view to identifying points we might elaborate as we finalise it. But I'd like to begin by telling you a bit about Water Research Australia to establish our credentials to speak on some of these matters. So I'll just draw breath and have a drink.

Okay, so Water Research Australia is an industry-funded not for profit member based company, that over its 22 year history has been shaped and reshaped by developments and reform initiatives within the water sector. We began life as a CRC for water quality and treatment, which was formed in 1995 under the Commonwealth Government's Cooperative Research Centre's program. As a CRC we had two seven year funding terms up until June 2008, and then transitioned into a not for profit company limited by guarantee, known at the time as Water Quality Research Australia, which had a similar scope but not scale of operations to the preceding CRC.

Two years ago a name change to Water Research Australia signified the expansion of our research scope to encompass all areas of water sector need. A change that was necessitated

partly by the rapid depletion of urban water research capability that occurred around this time, particularly with the cessation of centres of excellence and desalination and water recycling. As well as CSIRO's decision to disband its urban water research theme. It's worth noting that of the 89 CRCs that have existed in the past, only 14 have successfully transitioned into ongoing entities, with Water RA being one of this group. Water RA's genesis and ongoing viability is considered a testament to the water sector's recognition that a sustained research and broader capability building effort is fundamental to the sector's success. And that's a fundamental premise that I'll explore further.

While Water RA is headquartered in Adelaide, our 59 member organisations are based all over Australia and comprise roughly half industry organisations such as water utilities, government departments, regulators and consultants. The other half being research organisations, mainly universities. The particular combination of our members is an essential part of our value proposition as it facilitates a path to impact the new knowledge we generate. We work closely with the Water Services Association of Australia to understand the urban water industry's research priorities and wherever possible we endeavour to leverage Australian investment in research through our international collaborations. And that's who we are.

So the general comments we have on the key points that were made. We acknowledge those points and generally support them. We feel that the points highlight that the focus of the NWI to date has been on improved management for water resources from a quantity perspective, with evidence of success particularly in the rural environmental spheres, but they do recognise the need for further work by government. In both determining the scope of this further work and ensuring its successful delivery Water RA rated the importance of giving early consideration to the types of evidence and new knowledge required and the capability needed for its generation. This is because adequate capability and capacity cannot be assumed to be readily available within the sector, given a decline in focus and funding of water research over recent years. Furthermore, ignoring this aspect could increase the risk of re-emergence of bad policy habits, such as the lack of an underpinning evidence base.

Several of the reform priorities relating specifically to national policy settings Water RA draws attention to the fact that success will require greater understanding and consideration of water quality, community preference and public health aspects of water management and their integration with frameworks designed primarily for water allocation or use of water from a particular source, which I'll go into a bit further. The main body of our comments focus on Element 7 of the National Water Initiative, knowledge and capacity building, not surprisingly. The NWI along with subsequent COAG work programs and water noted and built on significant national investments and knowledge and capability building in water, including through the CRC programs, CSIRO, Water for a Healthy Country Flagship and Land and Water Australia, estate agencies, local government and higher education institutions. It rightly recognised that scientific, technical and social aspects of water management are multidisciplinary and extend beyond the capacity of any single research institution. Working closely with the Water Services Association of Australia, Water RA through its precursors, the CRC and WQRA, contributed strongly to the delivery of science to underpin the guideline development policy changes and other reforms that occurred during this period. Other multidisciplinary research groups active at that time also contributed, such

as the centres of excellence and desalination recycling and CSIRO's urban water theme, however many of these no longer exist.

So while Water RA strongly agrees with the Commission's draft finding that ongoing research and capacity building will be central to Australia's ability to deliver sustainable management of water in the face of challenges from climate change, population growth and increasing community expectations, we raise concerns that the sector's capability and capacity will require strengthening to achieve this. In particular we urge that any new water agreement include mechanisms to ensure that the same suspected inefficiencies and infrastructure response to the millennium drought do not also characterise the knowledge sector. Ideally this would mean that funding is assured for both the sustained effort required to solve the increasingly complex challenges facing the water sector and maintenance of the capability that underpins this effort.

It is generally agreed that research investment can only be efficient and effective if value is realised. Sustained research and industry collaborations improve the likelihood of achieving business impacts but impact remains difficult to achieve and often harder to measure. While good practice is for knowledge transfer from research to be embedded during product delivery, there are integrated aspects of many programs that can only be transferred at their end. This can be problematic when the research entity is time-bound and can lead to diminished value realisation, whereas enduring collaborations have a greater chance of success. This is another supporting factor for a national approach that fosters long-lived or enduring collaborative ventures between research providers and water sector adopters, be they government departments, utilities or regulators. Such ventures have the additional benefit of being able to deliver to all horizons of research, including Horizon 3 where sustained research around a complex subject or more fundamental transformational research is sought. Such research takes longer to conceive and is often delivered as a multi-phase research program over many years.

Another factor contributing to the efficiency with which research and capability building will be delivered comprises the availability of national strategies and frameworks to ensure the research undertaken is targeted, relevant, synergistic and timely. The NWI subsequent COAG action list required identification of the key knowledge and capacity building priorities necessary to support national water reform and the actions required to more effectively coordinate the national water knowledge effort. Significant progress has subsequently been made in this regard through the 2015 collaborative development of the national urban water research strategy under the leadership of WSAA. Water RA has been an active participant in this process and the subsequently established focus areas to underpin the priority research themes set out in the WSAA-led strategy. While this strategy may not fully encompass the COAG objective of establishing a national water knowledge and research plan, it does establish priority research themes for the urban water sector and Water RA is working with other organisations in the sector to ensure a coordinated research effort and optimise return to investment.

For regional, rural and remote parts of Australia, however, there is currently no tailored national research strategy, despite the significant contribution it could make to the performance of regional water utilities and economies of scale could be realised. This year

Water RA has started working collaboratively with its members and stakeholders to address this gap but will be challenged by prioritisation and implementation without the strategic guidance or support that a national water agency would provide. Additionally, without an effective water research strategy for regional and remote areas, Australia may struggle to meet its international obligations relating to the sustained water development goals, given water's pivotal role in enabling health and wellbeing for regional and remote communities, which is Goal No.6 in particular.

I would now like to reflect on Elements 4 and 6 of the National Water Initiative and illustrating some of those earlier points. Making urban water management more robust and responsive is presented as one of three key priorities for a future national water reform agenda. This builds particularly on Element 4 of the NWI which relates to integrated management of water for environmental and other public outcomes, and Element 6 which addresses urban water reform. Water RA supports renewed focus and long-term commitment to these areas, as we consider a lack of sustained investment and capability building, knowledge and skills, insufficient national leadership and fragmented policy frameworks and guidelines have all contributed to slow progress. For example, the ability to be able to consider all options for water supply augmentation requires both adequate knowledge, scientific, technical, social, environmental and economic, and the corresponding social licence. While significant progress was made through the centres of excellence and desalination water recycling, this investment was drought-driven and curtailed once infrastructure solutions to the immediate crisis had been implemented.

Today Water RA is working with its members to identify knowledge gaps relating to alternative water sources that were either not able to be addressed during the life of these time-limited organisations, or there isn't subsequently as a result of change drivers for supply diversification. This latter point provides a good illustration of the pitfalls of short-term crisis-driven investment, versus a considered and planned approach with a long term perspective. To date, both in Australia and the eastern states of US, the need to consider all supply options, especially the palatable reuse of wastewater, is significantly driven by population growth and the high costs associated with discharging treated wastewater into waterways. While this change in drivers may not alter the scope of technical research required, it does necessitate the adaptation of existing or development of new approaches to achieving social licence where supply pressures are not as visible or shared by customers and communities as they are in times of drought.

With the regard of allocation of environment water or integrated palatable reuse as part of the water resource mix, research has shown the criticality of community confidence and the objectivity of the decision making body and transparency of decisions. A key foundation for achieving this benchmark comprises an appropriate evidence base from a trusted source, most likely to be an independent enduring research institution such as CSIRO or Water RA either directly or through research commissioned by a body such as the NH and MRC. It is therefore important that there are trusted research institutions with the capability and capacity to meet this need. However, even if suitable evidence and consultation approaches are available, without national and state-based policy and regulatory frameworks supportive of integrated water management, water supply planners will remain challenged to include centralised and decentralised palatable reused storm water in the need to supply augmentation

options they can transparently include in their planning and discuss with their communities. Furthermore, it may not be sufficient to get all options on the table if there is inconsistency within and between the regulatory frameworks that will govern the successful implementation. For example, it would be important to ensure that water quality is also considered when incorporating alternative water sources into allocation frameworks or regulation of (indistinct words).

So in conclusion, Water RA concurs with the Productivity Commission's overall finding that further water reform is needed to fully address the goals of the NWI and that ongoing research and capacity building will be central to Australia's ability to deliver the sustainable management of water resources in the face of future challenges. From our perspective, to be successful the new reform initiative will need to be characterised by clarity of objectives, an ongoing national leadership by an agency also charged with monitoring and reporting progress and identifying knowledge needs and priorities. It will need greater focus on water quality aspects of water resource management and their interrelationship with water quantity and recognition that these lie at the heart of many current barriers to progress of integrated urban water management, especially the consideration of all options. It will require the inclusion of mechanisms or incentives for efficient and reliably sufficient funding of research that addresses emerging challenges and opportunities, fills knowledge gaps, generates the evidence base that ensures rigor of new policies and regulatory frameworks, and supports the sustained focus and effort often necessary to solve complex issues facing the water sector, particularly where they're long-standing and historically intractable. And finally, it will also need the inclusion of mechanisms or incentives for development and retention of the capability and capacity within research bodies to ensure relevant research can be delivered in a timely manner and within the broader water sector to ensure the anticipated value is realised from research investment.

Thank you for listening to our submission.

COMMISSIONER DOOLAN: Thank you. I'd like to follow up, and so will John, I'm sure. Water Research Australia seems to be one of the few, as you've mentioned, areas where the industry has supported it; it has an ongoing future for all the reasons you outlined. So, to maintain capability, to provide the knowledge to deal with future challenges. So the industry have acted on its own, rather than lose that capability.

MS ROUSE: M'hmm.

COMMISSIONER DOOLAN: Having done that, what's the argument to governments to come back into the equation, when clearly it's been successful? Your organisation shows that.

MS ROUSE: M'mm, m'mm.

COMMISSIONER DOOLAN: So what is the argument back to governments?

MS ROUSE: I think partly whilst we, you know, expanded our focus and we continue to the scale at which we can operate is, you know, substantially diminished, if you consider the breadth of the research effort that was underway when we had the various other collaborative

centres in existence, so at the current level of resourcing it's a struggle I guess to maintain the capability. We're very conscious. A good example is the centre of excellence in water recycling and that came to an end. They generated various products and materials to support the industry and the sector, but circumstances have changed. We've now got a hiatus of sort of a couple of years between when their research completed and the external environment doesn't stay still. So the materials that they produced are a good starting point but still need additional augmentation and tailoring and maybe there's, you know, some new materials and new research that's required to address our current challenges. So I guess we feel like we're doing the best we can with the resources we have, but are cognisant that water is such a significant underpinning of the Australian economy and productivity that, yeah, in the past government has seen fit to provide greater support and benefits could be achieved and value - more value delivered from the research with greater investment.

COMMISSIONER MADDEN: I guess a little bit of a follow-up on that, and in terms of comment on collaboration between your members. The level of that, or is it very much state-based? It would be just good to get some oversight from - you're ideally placed, I assume?

MS ROUSE: Yes, yes.

COMMISSIONER MADDEN: To actually talk about collaborative models that may work. I guess for clarification, do you have any kind of joint research program, or is it very much an agenda setting of items?

MS ROUSE: No, we have a research program but we respond to the needs of the sector. So we're guided, I guess, from the top down by the research - the urban water research strategy that's in place, but also from the bottom up in terms of our members' needs, and I guess our model is such that our members will come to us with issues. We will work across our membership to see whether they're common problems shared, and then look to build collaborative teams and - both for the funding and the delivery of - you know, to meet those knowledge needs.

COMMISSIONER DOOLAN: So can we just - - -

COMMISSIONER MADDEN: Yeah, so then come back because it would be good to kind of get an idea of the types of collaboration you see, either within your (indistinct), or I guess, you know, are there joint programs that you see happening to the side of your organisation? It would be just good to get some overview.

MS ROUSE: M'hmm. I guess in terms - - -

COMMISSIONER MADDEN: Particularly in urban.

MS ROUSE: Yeah, who's doing collaborative research in urban.

COMMISSIONER MADDEN: Just to constrain it a little bit, that's all.

MS ROUSE: Yeah, yeah. So, I guess we would be a significant player in what's being delivered in collaborative research in the urban space. We have the ten focus areas that pick

up on the urban water research strategy that was led by WSAA, you know the development was led by WSAA. We have a strength in our portfolio around, I guess, our historic roots. So a lot of water quality, both for drinking water, catchment management, alternate water sources increasingly, also climate change and customer perceptions. They're the sort of areas where we've developed strongly. But we're conscious of working collaboratively alongside other organisations, so I guess the CRC for water sensitive cities, and also the Water Services Association. Both are key players in delivery of collaborative research; WSAA particularly around the asset space and infrastructure and the CRC around integrated and the management. So we're mindful of those strengths and existing organisations and certainly not seeking to, you know, to duplicate in any way. It's all about getting the sector's needs met by the most appropriate body to coordinate that research and lead it.

COMMISSIONER DOOLAN: What do you say with the funding model that you have. It's precarious; do you have to argue it frequently; is it something - or is it well supported by the organisation?

MS ROUSE: We've recently surveyed our members and they are generally supportive of our membership model and our fees. That said, you know, we run fairly lean and, you know, precarious insofar as with our current model if a large member was to leave that would cause - cause us to make changes to what we're delivering. It wouldn't threaten our, you know, viability but it's certainly something that we keep a close eye on and are always looking for opportunities to increase the value that we deliver to our members for the fees they pay.

COMMISSIONER DOOLAN: Yes, because just - then they have to argue for every dollar with the regulator, so.

MS ROUSE: That's right. Yes, yeah.

COMMISSIONER DOOLAN: Just following up one of your key points, which I think is a good one. The investment, all options on the table, therefore the transition to alternative water sources. Is that an area that - I know a lot of work has been done, but is that an area where there is still further work to do if the water sector did want to have all options on the table, you know, in a very even-handed way. How far are we away from the knowledge base that would support that community position?

MS ROUSE: That's a very good question, and one that we're currently working with our members to address. So we have what we call a community of interest around alternative water sources and establishing the state of the knowledge now and what gaps may remain. Particularly recognising the point that I raised, that it's now being - needing to be factored into planning when the drivers - its drivers are less obvious and clear to communities, which may necessitate the development of new approaches, which may build on what was done before but may need to be quite different. It's an issue that we've been discussing with our parallel organisations in the US who are facing - you know a lot of work's been done on the west coast in California. Their drought is famous but as you move to the eastern states their drivers are more around not being able to discharge wastewater into key environment - environmentally significant areas, such as Chesapeake Bay, and also a growing population which is sort of similar to some of the challenges we have in Australia, where the cost or the environmental requirements to discharge into waterways make the use of wastewater for

drinking and the treatment that you would need to undertake to do that far more viable, and if you were just looking at how cost-effective then represents a very viable option.

So our members are struggling, I suppose - so we're identifying what those knowledge gaps might be, or capability needs, because it's not just around knowledge, it may be about building capability as well. But at the moment they can't even transparently in some cases participate in what we're doing or, you know, say that they are, which is - that's, you know, trying to get - it's very difficult, it's hobbling progress, m'mm.

COMMISSIONER MADDEN: Just on that, and maybe it's through your submissions, but if you could comment. It's around that water quality stuff. We've had some examples, including Western Australia in terms of those quality issues; you talk about using an aquifer. Then we can see straight away issues around water quality. I'm just wondering, what other kind of hotspots or issues are on that kind of five, ten year horizon that actually - your membership might be aware of that we're not aware of, that actually kind of articulates a problem for people?

MS ROUSE: There's a number of, you know, emerging contaminants, and I don't know if they're five or ten years out, they seem to be approaching us at a, you know, a rapid rate, which will potentially necessitate some changes in how we approach those water quality risk assessments, for example. I'm thinking particularly some of the things we're looking at you have heard of in the media, so they're the ones that communities are concerned about but we're looking into the scientific basis of that concern. So certainly the PFAS [poly-fluoroalkyl substances that are found in some firefighting foams] and the antibiotic resistance, and the micro-plastics and engineered nanomaterials. There's, you know, a whole suite of emerging contaminants that perhaps behave in ways different to the contaminants that we've looked at in the past. Particularly in the case of antibiotic resistance where even the methodology for undertaking the risk assessment will need to be adapted to enable it to be, I guess, compared by the sector in terms of where does its risk lie, you know, to get a metric you can compare these different risks with. It will be a challenge and it's something else that we're working on.

I think that bringing the environmental regulation and the water resource management frameworks together and picking up perhaps on the aquifer recharge issues, certainly within my experience in South Australia, you know you have - some metrics are required by the environment protection agencies, others by the water allocation agencies and without bringing them together potentially I guess from a risk basis it adds to the work and the cost of, you know, exploring these options and also the level of certainty you might have in being able to bring an option to delivery.

COMMISSIONER MADDEN: Thank you.

COMMISSIONER DOOLAN: So just again, given what you've seen, what you've seen work, if we were successful, in that governments did sign on to a new NWI with a research (indistinct), what do you - have you any thoughts on what might be the architecture that might sit underneath it, to be most efficient and effective, if you like?

MS ROUSE: I would be consulting with my members around that. We haven't done that.

COMMISSIONER DOOLAN: Sure.

MS ROUSE: And I think it would obviously be linked to a set of principles of what was required of the research that was delivered, so if you - and may vary, I suppose, according to the type of research or knowledge needs that they are. So some kind of funding around ensuring that those problems that needed the long, sustained effort, that that funding was assured for the time - not necessarily for the same entity or whatever, I'm talking more around thematic areas or particular needs, so that we don't end up with the, you know, erratic investment or potential loss of capability and attractiveness of the sector for, you know, new graduates and academics. So that, you know, it's still seen as a viable career pathway because we need that capability, both within the utilities to commission research but also in the research sector to deliver it. And the water sector would like to be able to attract the brightest and best, but with uncertainty then there's drift out of the - out of the sector.

COMMISSIONER DOOLAN: Do we have any hard facts on that drift, or loss of capability as the research funding has declined in recent years? If there were any numbers that would be - I mean we talk about it, but if there were any sort of numbers, in any area in its base.

MS ROUSE: Yeah.

COMMISSIONER DOOLAN: To help illustrate that point, that would be helpful.

MS ROUSE: I think that's something that can be collected. I guess we've tended to look at it in terms of the dollar investment and what that equates to, and knowing, you know, how many people that might've, you know, sustained. But I think that the numbers, that's something that I can - yeah, no I think that that's entirely - - -

COMMISSIONER DOOLAN: If there was something you could add it to the submission.

MS ROUSE: Yes.

COMMISSIONER DOOLAN: That would be very helpful.

MS ROUSE: M'hmm.

COMMISSIONER DOOLAN: John, have you got anything more?

COMMISSIONER MADDEN: No. Thank you.

COMMISSIONER DOOLAN: I haven't either, Karen. Is there any further remark?

MS ROUSE: No. Just again to thank you for the opportunity to present. I look forward to seeing the final result.

COMMISSIONER DOOLAN: Thank you. Well, that brings us to the end of our current list of presenters. There is an opportunity for anybody in the audience, if they wish to make a further comment to do so. Darryl?

MR DAY: So just listening to some of the questions about research. I think one of the important issues is that much of the research that WRA and (indistinct) Goyder undertakes for the public good, therefore, there is not the same return that you get from investment in research, doesn't mean that all water research is necessarily in the public good. There's many examples where particularly some of the CRCs early on that we talked about were able to commercialise the research, but the return is very much supporting public policy and outcomes that the community is acceding. So when you're trying to elicit support from a whole lot of donors for research, it's very, very hard of the value back to the individual where that research is up there for the public good or domain.

Perhaps the other reflection is one area of investment we haven't talked about is bioregional assessments for coal seam gas. And the artificial gas argument involves a company to order research is probably an example where the Commonwealth has seen a knowledge gap associated with water quality and - in particular, and then invested quite heavily. That program has now come to an end I understand at the end of the last financial year but that's just perhaps an example where government has still recognised the need to invest in research for the public good, to give confidence to a sector. In this case it's a sector related to order water at (indistinct) water and energy.

COMMISSIONER DOOLAN: Thank you. All right, well ladies and gentlemen, that concludes our scheduled proceedings. So I adjourn these proceedings and the Commission will resume its public hearings tomorrow in Melbourne. But thank you all for your attendance and participation.

MATTER ADJOURNED[12.28 pm]