



Australian Government
Productivity Commission

PRODUCTIVITY COMMISSION

NATIONAL WATER REFORM

DR J DOOLAN, Commissioner
MR J MADDEN, Associate Commissioner

TRANSCRIPT OF PROCEEDINGS

AT MELBOURNE
ON TUESDAY, 24 OCTOBER AT 9. 22AM

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COMMISSIONER DOOLAN: Good morning and welcome to what is the last public hearing for the Productivity Commission inquiry into National Water Reform. The hearings follow the release of the draft report which happened in September. My name is Jane Doolan and my fellow commissioner here is John Madden and I would like to begin by acknowledging the traditional custodians of the land on which we meet, the Wurundjeri people of the Kulin Nation. I would also like to 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 and to get comments and feedback on our draft report. We've had hearings in Canberra, Sydney and Adelaide, and today's in Melbourne is the last, and we will then be finishing the report, having considered all of evidence, the submissions that we've received, as well as the presentations that have been made at the public hearings.

Participants and anybody who has registered their interest in the inquiry, will be automatically advised when the final report is released by government, which may be up to 25 parliamentary sitting days after completion and we will be putting the report in to government prior to Christmas in December. So 25 sitting days could take us through somewhere – it could be up to June next year for people to be aware of.

We do like to conduct our hearings in a reasonably informal manner but I do remind participants that a full transcript is being taken and for this reason, I cannot take comments from the floor but at the end of the proceedings at the end of the day, we will provide an opportunity for any people wishing to make a brief individual presentation.

Participants are not required to take an oath but should be truthful in their remarks. They are able and welcome to comment on issues raised in other submissions during their remarks. The transcript will be made available to participants and will be available on the Commission's website following the hearings. Any submissions are also on the website.

For occupational health and safety purposes, I would like to advise you that in the unlikely event of an emergency requiring evacuation you should follow the exit signs to the nearest stairwell. Do not use the lifts. There will be floor wardens who will issue instructions and just follow their instructions walking down the stairs. If you can't walk down the stairs, please advise the wardens who will make alternative arrangements.

In how we conduct it, participants are invited to make some opening remarks and then will have an opportunity to actually ask questions and explore some of the points in greater detail. Okay. I would now like to welcome Shaun Cox from – now?

MR COX: Inxure.

COMMISSIONER DOOLAN: Inxure Strategy Group and for the record, could you introduce yourself Shaun as well.

MR COX: Certainly. My name is Shaun Cox. I'm the director of Inxure Strategy Group which is a small consulting firm. Small as in only me. That's been running for three years and prior to that, I had a history in the water industry having run a few different water authorities for 18 or so years.

COMMISSIONER DOOLAN: Would you like to start?

MR COX: Thanks Jane. I guess my opening remarks and observations are pretty simple and they really boil down to three key points, I suppose. One is that there's considerable pressure on urban water across the whole water cycle in our cities and that comes down to two real primary reasons. One is population growth. A lot of our cities are perhaps due to double over the next 40 to 50 years and there's significant climate change pressures as well, and if you look at the current levels of service with respect to the whole of the water cycle within our cities, it's inadequate and that's only going to get worse without some form of intervention.

So that's probably the driver in my view and then the second point is that I think considerable gains have been made in the water and sewerage element of the water cycle as a result of both the NCP and NWI reforms of the 80s and 90s, but I think there is some evidence that those gains are now being eroded. I think there's arguably a generation of folk that are not aware of the original drivers of those reforms and it's almost like we need to maybe arguably go back and redo our wedding vows with respect to those reforms and just re-acquaint ourselves with what we were trying to achieve there. So that's point two.

Point three is that arguably one of the points of reflection, I think, as a result of those reforms is that it's created an allocative efficiency across the water cycle and what I mean there is that there's been significant gains and optimisation of the water and sewerage part of the water cycle as a result of those reforms, both through commercialisation and corporatisation and economic regulation that goes with it. There's been a lot of optimisation for that part of the water cycle but there hasn't been the commensurate reform across the balance of the water cycle, and so this is leading to a lot of what I call allocative inefficiency and it's getting to the point now where significant investment is being made in the water and sewerage element of the water cycle for very little gain and if we were able to step back and plan holistically across the whole water cycle, we would get far greater gains for probably a lesser investment and there's some quite specific examples of that across the country.

So I might draw a line on it there, Jane and I'm happy to take any questions around that.

COMMISSIONER DOOLAN: No, actually, I'd like to explore it. So the gains being eroded, where are you actually seeing that happening? I mean, we have a sense of that also, but the more examples we can point to - - -

MR COX: I think the – there's a couple of areas. I mean, one is the sort of autonomy, if you like, and the corporatised model which allowed for standalone boards, albeit appointed by the shareholder. There's evidence right across the country, I think, of a lot of overreach by the shareholders over the top of those boards and those boards becoming increasingly disempowered and to the point where, I think, in some circumstances you'd nearly wonder whether it's worth even persisting with those boards because they're so – they're almost put in a position where they're so conflicted it's making it very hard for them to operate.

I think some other areas of evidence, I haven't been able to get to the bottom of it, but there's been a recent announcement by the South Australian government that it's an election commitment to what they call de-corporatise SA Water. I really do wonder whether they'd thought that through because they'd be poking themselves in the eye, I would have thought, in

terms of a loss of dividend and the loss of the economic regulatory model which takes away that independent discipline for price setting which I would have thought is a great ally of a shareholder.

I wonder too whether some of the economic regulation hasn't advanced perhaps in the way that it should have, so I think the Victorian model is probably a good model. There's been some great gains made there where the customer is being introduced into the economic regulatory model. This PREMO model that the ESC have developed and I can't recall what the acronym is for PREMO but it seems to be the underpinning of bringing the customer into the frame and for the utilities that engage actively with the customers there, they're probably been given a more favourable consideration with their economic regulation.

But you don't – I'm not seeing evidence of that same level of maturity across Australia in some of the other economic regulatory models and States like Queensland just appear not to have advanced at all, where they don't even actually have a deterministic economic regulatory model. I think the final point I'd make is, in some of the other parts of regulation, particularly around water health, I just wonder whether that's actually losing its way because it's becoming almost a risk elimination mindset that's been brought to the table as distinct from an outcomes-based approach.

So regulators seem to becoming very risk adverse and very fearful of reprisals from customers and shareholders and the like. So it does seem as though there needs to be a need to step back and as I said, perhaps reset the whole framework which I think is a very robust one and there's been significant gains made in the last 20 years under that framework.

COMMISSIONER DOOLAN: Sorry, that would be the drinking water quality where you - - -

MR COX: Correct, yes.

COMMISSIONER DOOLAN: Yes, okay.

MR COX: And also, I think Jane as it also then relates to alternative sources of water, like recycled water and stormwater. So it is – I'm seeing evidence of an almost a risk elimination mindset with drinking water, but it also then spills over into regulation recycled water and stormwater.

COMMISSIONER DOOLAN: So, I just want to also follow-up – John interrupt at any point. You also said some of the current levels of service are inadequate. Could you expand on that as well, areas where you feel that to be the case.

MR COX: It's really – in the metropolitan areas, it's really across other elements of the water cycle, so I think there'd be no question – and when I say "inadequate", I mean from what I would understand to be the perspective of the customer. I think that's ultimately got to be the test of levels of service. It's not – it shouldn't be an engineering test of level of service, it should be a customer test. But I think there's evidence that customers are not happy with levels of service around flooding, for example, and that's just been exacerbated by climate change and as cities grow and the impervious areas increase, the combination of climate change and those impervious areas is only going to exacerbate those flooding issues for example.

Those increase run-off issues are also then impacting on waterway health and it's clear that as we become – the cities become increasingly dense that we actually need to make sure that our open space is of a, what I call a 365 24/7 quality and so for our waterways and adjacent open space to be compromised like that, it's not where – we're not going to have vibrant and prosperous communities into the future is my view, and they're not where they are now and that's only going to get worse without intervention, particularly as I said, with respect to population growth and climate change.

I think it's perhaps not, sort of, understood but I think one of the worst enemies which Ben Furrage might talk about of waterway health and flooding for that matter, is the growth in impervious areas and that comes with population growth and no real, sort of, thought and consideration given to management of planning outcomes.

So I think they're a couple of, sort of, key areas and I made comment about the allocative inefficiency. There's been some really positive examples of where that's actually been addressed in Brisbane, Queensland Urban Utilities have done a pilot project where they've actually, instead of upgrading a sewerage treatment plant at Beaudesert, they've actually restored some riparian zones of the Logan River and that's actually led to far broader benefits, it's actually addressed the core issue of reducing nutrient sediment run-off, but it's actually also improved environmental outcomes and also adjoining social issues because I believe there was an adjoining horse stud that was going to wash into the Logan River if it wasn't addressed, and that was done at a cost that was far cheaper than upgrading the sewerage plant. So that's a, sort of, very specific example of standing back and trying to optimise across the whole of the water cycle, rather than optimising a component part of the water cycle, and that's where we can progressively overcome this allocative inefficiency that I talk about.

But that, as we could well imagine, I think we need to not just think about making sure we don't back-slide on the current regulatory arrangements but also making sure that we improve them. It shouldn't just be about holding but it should be about improving, and I think there are some positive signs. I believe the Queensland experience could ultimately lead to a nutrient offset scheme that's been coordinated between the EPA and if they did have an economic regulator, they'd have to be involved in that as well, I'd imagine, and as I said before, the ESC model where they're bringing the customer into the economic regulations is also a positive step.

So the nature of Australia where we're a federation of states, there's lots of little experiments and it's an opportunity through the National Water Initiative to try and bring those experiments to the fore and pick the eyes out of the best of them, I think.

COMMISSIONER MADDEN: Yes. We've heard a similar thing in Sydney about a potential offset scheme and concerns that somehow it won't, you know, come to fruition through various regulatory regimes and the like. I guess my view on these things, because they're somewhat experimental, they need a lot of testing to make sure they are worthwhile before actually progressing.

So I don't see regulatory regimes being incompatible with that type of process. It's who should be responsible and do we have people who will take responsibility to actually investigate these opportunities? I guess, the second question then is well, what are good processes around that to make sure it becomes business as usual as opposed to opportunities, as you say.

So I guess the first question is, is the responsibility of utilities? Is it a planning responsibility? Is it local government? How do we get collaboration if collaboration is needed? So if you can just comment on roles and accountabilities in this area.

MR COX: Sure.

COMMISSIONER MADDEN: And I guess, it's national wide because I realise it might be different, and then I guess secondly, what are the barriers at the moment in terms of processes. You've mentioned regulation but in terms of health and the like, that might be over-prescriptive. What really are the barriers?

MR COX: So I think to answer that question, John, I'd probably reflect on the process first. So regulation's kind of like step 3 and 4 in a process for resetting something, isn't it? So the first step is planning I think. There might be steps prior to that, but in my limited world and experience, it's planning.

Then that translates to policy and then it translates to regulation, and so I think a couple of observations. One is that we could do more collectively across Australia to try and facilitate integrated planning. I think the notion of a single agency that does that, is very simplistic and naïve. You can never – the world is very connected and you can never integrate enough things to actually drive that connectiveness. So there needs to be some vehicle through which you actually encourage that integrated planning.

I mean, there is an attempt at that being made in Victoria at the moment through the Victorian Water Plan I think they call it, and they're creating these integrated water management forums that are made up of the whole – all the stakeholders that you just mentioned, and the idea is that they come together and try and define a vision for a particular region, so they're catchment based, and then off the back of that vision they actually start to drill down into particular plans and projects and initiatives.

So to that example of nutrient offset schemes, that would be, in a logical manner, a good way of actually setting the overall goals and objectives, because I think if you start with nutrient offsets you can miss the objectives and it's very important to get that planning in place in the first place.

I think as part of that planning, I do – I think you're making the suggestion and I would agree with the suggestion that it is important to pilot some of these things. I think to go from zero to full speed in one step, is naïve and to pilot these things in a way that QUE did in Queensland and it's a credit to QUE and the regulators that actually tried that. I think it's a very good initiative.

Perhaps what I'm not seeing though is a robust analysis of those pilots and learnings from those. So there's a number of these things happening. Newcastle are doing some as well, but we just don't seem to be good at learning from those and filtering them up and try to capture them, and whether that's because of the federations, our federation and having a gaggle of states and they're not talking to one another, I don't know, but it would be good if there was more discipline around learning from those pilots and then bringing them to the fore. Then,

I suppose, from those learnings, once you're confident enough to actually make some change, you can then move into the resetting of policy and then resetting of regulation.

Then the final point I'd make which is your point about roles and responsibilities, I think there has been some confusion and blurring of the lines between policy and regulation, you do see some regulatory bodies around Australia that are a mix of policy and regulation. I think New South Wales EPA is unashamedly that, and I just wonder whether that's the right model. I don't know that necessarily splitting them is the right solution but they need to be very clear that they wear two hats and understand when they're wearing both those hats, and I don't see that sometimes in the way that they actually operate.

So there is some confusion. So I think it's first of all breaking down the process and then making sure that there's clear responsibility across that value chain. And then finally quickly, to the role of the water utility, I think all parties should be at the start of that process. The water utilities don't have formal remit to plan but they have a lot of experience that they can bring to the table in the planning process, and sometimes they have the resources, so in Victoria they're actually being used to enable that planning process. You know, I wouldn't necessarily advocate that as a national approach but I think it's just got to suit the local circumstances and in Victoria it, kind of, suits to have the water utilities enabling that process because they've got the resources to bring to the table to help facilitate and make that happen.

But don't exclude that experience from the planning and policy setting would be my advice, and similarly don't exclude the planning and policy experience from the operational implementation phase either.

COMMISSIONER DOOLAN: The key area of the water cycle that we've heard is, sort of, generally managed outside of it, is stormwater management.

MR COX: Yes.

COMMISSIONER DOOLAN: Have you had anything in your experience that would suggest a way of bringing stormwater into the whole of water cycle management in a more effective way?

COMMISSIONER DOOLAN: It's difficult, I think, Jane, it would be very simplistic to say that the Melbourne model where Melbourne Water have responsibility for waterway health, not for stormwater but for waterway health which then gives them a foot into the door to stormwater management, is the right model. I don't like jumping to institutional arrangements as the answer. I think it's worth, sort of, standing back and reflecting on why that is the right model.

I think to that earlier point is the one thing that Melbourne Water do do is they've come very active in facilitating the planning around stormwater and waterway health more generally, so I think Melbourne Water are up to two or three iterations of a flood strategy at the moment, and the latest flood strategy was a terrific example of collaborative planning where they actually had an independent chair. They actually had the head of EMV, Emergency Management Victoria as the independent chair for the flood strategy. They had a very robust engagement process around it and so it's now actually a strategy that is genuinely community owned and

the councils who have a major contribution to it, 50-odd – 50 – maybe 36, I can't remember now – councils that are part of that strategy, have strong ownership of it.

So I think rather than so much the institution arrangements, perhaps the learning is in how they've gone about doing that planning and the collaborative approach that they've taken, and trying to institutionalise that collaborate approach as distinct from institutionalising its structure and that's no easy. I don't have a really snappy answer for that, but that's a good example.

Then similarly, Melbourne Water are doing similar things with the waterways strategies and stormwater strategies, but I can think of another capital city here it's completely – it's almost – the management of stormwater is almost dysfunctional where you've got several councils across a catchment and they're bickering with one another about what's the best investment to mitigate flooding across that whole catchment. So in this particular city, at the downstream end of it, there's an airport, their main airport, and upstream the people don't want any buy in a role in managing flooding across that catchment. So that's probably an example of where it is dysfunctional and there seems to be no intervention arguably to State level to try and actually bring that together. I won't say which capital city it is, but that's probably an example of not how to do it.

COMMISSIONER MADDEN: Can I just have a follow up on that flood area.

COMMISSIONER DOOLAN: Yes, sure.

COMMISSIONER MADDEN: I guess one of the comments I have, before when you talk about the process. The first question or the first issue, I think, is problem identification.

MR COX: Yes.

COMMISSIONER MADDEN: And objective setting.

MR COX: Yes.

COMMISSIONER MADDEN: I realise part of that may be part of the planning so. But in terms of – you know, with just issues about flooding and things like that. But is there good work done in terms of then what the potential impacts may be? That example in the unnamed city, you know, are people aware that – what the impacts actually might be of not actually managing that flooding? Or is it – I don't know – it's easy to dismiss something where you actually say flooding's a problem, as opposed to flooding can cause X.

Because it's the same even with benefits and some of the concern I have around the idea of customer consultation, unless it's very informed customer consultation about what the costs are of options you are putting up, and also what is the problem that you are solving. So it actually is a very information intensive process to be done well. So I guess I'm just trying to see, are we doing that part of the process well?

MR COX: It's variable and I'd say across Australia, and that's perhaps the consideration for a National Water Initiative, is there some capacity to make that more consistent across Australia

and somehow how we learn from others and actually don't become competitive and say "Well, we can do it better than the next State along", but can we somehow collectively learn from one another?

I think, you know, in some particular situations, the whole system is geared to wait until there's a disaster and then they respond and probably every city has actually experienced that. I mean, Melbourne, I think, is quite proactive now but if you go back through history it's been disasters and flood commission that have actually probably triggered them to get where they are today, and I can see that same scenario potentially going to play out in other capital cities as well.

To your point about 'ts resource intensive, yes, it's very resource intensive but it's far more resource intensive to mop up the mess because you haven't actually planned properly or to actually go and try and build something when you actually haven't done the planning properly. I mean, I've been involved in that situation as well where you're just getting beaten from pillar to post by the community because of a lack of planning at the front end.

So it will always cost more to do that collaborative approach but across the whole cycle it's going to cost less in my view, and I think the other point around understanding the problem better and again I'm not a fan of sort of jumping immediately to changing institutional instructions to solve something, but one thing that I do reflect on a lot is when you look at Melbourne Water they invest a lot of time and effort and resources and money into actually understanding the problem. So they've actually got a couple of major research programs at the moment, three major research programs, for instance on waterway health and associated stormwater impact.

One is the CRC for water sensitive cities. They've got two other programs with Melbourne University and their knowledge of waterway health and how that's informing decision-making is outstanding, and that's actually paying off for them because they're now making far more prudent investments as a result of that, so the money that they're investing in that planning, in that research and you'd have to talk to them about the exact numbers, but I know first-hand that it is actually paying off for them, that investment in knowledge is actually helping them make more prudent decisions down the track and delivering better value for their customers and for the outcome that they're trying to achieve.

COMMISSIONER DOOLAN: Much of the whole of the integrated water cycle is truly sort of meshing boundaries between the water sector and the statutory planning sector, the local governments, and certainly the collaborative forums are definitely a way of making those two sectors sort of talk together. The scales are different, imperatives are different, ministerial portfolios are different. Do you have any reflections on how to make that intersection, particularly for new development intensification, big (indistinct) sites are more effective? Currently it's been cobbled together and maybe that's the way we all have to start, but it does seem that those two sectors intersecting is the key to integrated whole cycle management.

MR COX: Yes, that's a really good question and I don't think I have any snappy answers to that. I have seen a number of different models when I headed up Gold Coast Water we were part of the then Gold Coast City Council and to be quite honest, that was probably the time where we actually got the strongest integration when the water and sewerage was part of the council, but there were other downsides to it being part of the council.

So there's always pros and cons to every model and I don't know that water and sewerage being part of the council is necessarily the solution, and it's actually back in the council now. It went out for a period of time and now it's back in, so there was strong interaction between those two disciplines, I suppose.

I think the collaborate forums in the absence of that collaborative forums are the best means of actually bringing that together, but as I said earlier knowledge is really critical. It's very difficult trying to convince, I think, planning agencies and development communities to invest more or change practices if they don't actually understand the consequences of the impact of their current – the way they're actually designing development or the impact of building more impervious areas, and I think we have probably been pretty lousy as an industry at really communicating that. We kind of understand it ourselves in very technical terms but then just simplistically saying "You know if you double that impervious area on that property, it's going to collectively have this impact in terms of flooding and waterway health and so forth". We just seem to have really struggled to communicate that to the broader community I suppose.

We talk well to ourselves as an industry, perhaps not to others and maybe the process that the ESC are taking us through collectively to engage the customers more is a good one. So the work that Yarra Valley have done recently on citizens (indistinct) has been a great example of getting informed customer feedback around a whole range of issues, not relating to waterway health, but as it relates to water and sewerage and that's perhaps a good model to use elsewhere maybe.

COMMISSIONER DOOLAN: Yes, because it is the water sector needing another sector to undertake their business differently to have water sector outcomes which is - - -

MR COX: But I think that other sector is quite rightly very influenced by an outside set of external stakeholders being the development community who in turn are arguably influenced by first home buyers who are wanting affordable properties and the like. So it's a complex web that I don't think we understand well.

COMMISSIONER DOOLAN: John, do you have any further questions?

COMMISSIONER MADDEN: I just wonder if you have any – I do apologise if you haven't covered in any of your statements – but just in terms of pricing and how you actually, I guess, then recover through customer consultation what people are willing to pay you for additional services, if you actually want the customers to set services. Have you any comment or have you seen any, kind of progression in different parts of Australia in terms of actually looking at – not just service levels but then what is the flow-on impact on pricing from that kind of discussion?

MR COX: Well, I think again, I've quoted it a couple of times, but this ESC PREMO model's probably one of the better ones that I've actually seen where they're – and I think there's a long way to go. I think both the industry itself and the ESC would recognise they're just putting their toe in the water but it's great credit to them that they're venturing down that path, but that does seem to be quite a good model for actually getting that two-way interaction on levels of service and price.

I think probably the next area of opportunity is to, I guess as you're both exploring, is to broaden it beyond water and sewerage and say, "Well, okay, we can make a decision here about a sewerage treatment plant" but if we stood back and looked at the broader water cycle, are there broader opportunities that we could actually consider there as well.

So as you said earlier, John, I think it's important not to sort of go from zero to full speed in one foul swoop and I think it's worth letting that PREMO model play out and support it, but maybe in the next one or two levels of – another one or two iterations and levels of maturity it might be that you can start to bring in the broader water cycle considerations so the community can actually start to understand that more as well, and as I said, lead to what I think is an optimisation across the whole of the water cycle because I think we are – we've got a lot of efficiency gains, I think out of the reforms of NCP and NWI to date, but I think we run the risk of flat lining, perhaps even going backwards, if we don't try and look to what lies across the whole of the water cycle and we are, I think, generating these allocative inefficiencies that I talked about.

As an aside, you perhaps read, Dieter Helm from the UK has written a bit about that as well and the UK experience. I am sure you've read some of that information too. It's worth considering, I suppose, as part of the mix of your considerations here.

COMMISSIONER DOOLAN: Given the shift that needs to happen towards integrated water cycle management, what do you think's appropriate for National policy? So much of that, it's owned by State cities that are owned by States. The solutions are worked out more at a local or regional level, so at the National level, what do you think would be the most effective, if you like, policy statements or elements, to bring into a National framework?

MR COX: I think initially there's COAG statements around cities and I think initially – well, first of all, making sure that urban water remains in the NWI but then tying that urban water component to other COAG statements about water, so you're not just managing water for the sake of managing water. You're managing water for the sake of creating more vibrant and prosperous communities or whatever the objectives that COAG set for urban centres around Australia. So that's probably one.

And those principles are really powerful. They sometimes seem a bit glib but I think they're really powerful to make sure that they're there and in there. I think, and this, sort of, gets a little bit hit and miss and wish list-y from here on, but I think trying to drive towards some best practice regulation across Australia. So not just consistency because consistency can lead to consistent mediocrity, but consistent best practice, so some principles in there around best practice regulation and again, there'd be some principles about actively involving the customer and actively encouraging planning which perhaps goes beyond the regulatory space but there might then be another principle around integrated planning and looking to try and optimise across the whole of the water cycle and to John's point, for a particular outcome. It's not just for the sake of doing it, but it's doing it to resolve a problem and achieve a particular outcome for a community which then in turn, ties back to that sort of high level principle around why is urban water in the NWI in the first place and what does it connect it which would be some broader COAG principle about water.

I think it's probably worth just nothing which is a bit off-piste here, but there's still a long ways to go with some of our rural communities as well, and that shouldn't be overlooked. I mean, the townships – I think we're really failing a lot of our rural townships across Australia and I'm sure that hasn't been overlooked in your analysis either.

COMMISSIONER DOOLAN: No, we are certainly aware of that.

COMMISSIONER MADDEN: Can I follow up on that?

COMMISSIONER DOOLAN: Okay.

COMMISSIONER MADDEN: Can we be more explicit in terms of failing?

MR COX: Particularly levels of service. I really worry about just basic stuff like drinking water quality, and it's drinking water quality in terms of both providing safe water but also providing water that's aesthetically pleasing to drink. I mean, there's strong evidence now that we're building a huge financial legacy for ourselves with these communities as they switch to sugary drinks and so forth. They have been doing that for ages but it's just becoming worse and worse and I heard a quote the other day to say that one of the states and territories, they anticipate that every one of their regional communities will have renal dialysis facilities within those communities. I mean, just think of the cost of that, and that stems from not having high quality water.

COMMISSIONER MADDEN: So a lot of this – the towns provided by bore water and things like that in the main, or just - - -

MR COX: It's primarily, my understanding is that – I mean, you've got to define what rural Australia is, but probably 80 to 90 per cent of it is bore water provided, but there are a number of schemes that rely on surface water and I think the challenges are largely the same then, which comes down to capability and capacity to be able to provide good quality drinking water. And again, not standing back and understanding the true cost of it. So sort of penny pinching and saying – it's not the facilities per se that are doing it, but society more broadly arguably penny pinches and says "We can't afford to provide better quality water". I don't understand how you can have two levels of service: if you live in Melbourne you get good water, and if you live somewhere else, you don't.

But that aside, there's a sort of lack of understanding of the cost of that as it will impose itself through other health interventions, particularly as it relates to kidney disease and the like.

COMMISSIONER MADDEN: So again a follow up?

COMMISSIONER DOOLAN: Yes.

COMMISSIONER MADDEN: Is there any kind of institutional issues that's driving that in different states? Is there different performance from your view across the states?

MR COX: Absolutely, and it's been well-documented. I don't think I need to add anything more. I would support what the Productivity Commission and others have already written on that. Yes. There's two states in particular that are really struggling. I mean, that said, the states

like Western Australia and South Australia that I think are doing a pretty good job of it, continuing to provide research and support in those areas, to understand how to service those remote communities well and effectively is important. They are doing a pretty good of it, but it's not – it's a journey, not a destination. There's still long ways to go, I would say.

COMMISSIONER DOOLAN: I just have one more question. Is there any game changers on the horizon? Say direct potable reuse for example? Is there anything that you see on the horizon, innovation technology, that might potentially be a game changer that we need to have on our radar?

MR COX: It's a good question. I'm not sure if direct potable reuse would be the game changer even if it did come to pass anyway. I mean, it still doesn't – direct potable reuse I'm not sure really helps resolve some of the issues across the water cycle. I think at the level – there are lots of innovations coming over the horizon, but I think at the national level that you're thinking about, I can't think of too many to be honest or any. I mean, I do wonder about things like Bitcoin and whether that could actually help drive some sort of competition in the retail end of water, but yeah, there's got to be people with bigger brains than mine that think that through. I don't - - -

COMMISSIONER DOOLAN: Maybe not the national scale either, but yes.

MR COX: Yes, yes, exactly.

COMMISSIONER DOOLAN: Yes, okay. All right. Well, that's it for me. Have you got any final comments?

MR COX: No, thanks for your time. I appreciate that.

COMMISSIONER DOOLAN: Thanks, very much, John.

MR COX: Thanks.

COMMISSIONER DOOLAN: It was good. Thank you. Can I invite Nathan Taylor from the University of Melbourne, and Nathan, if you would just introduce yourself and your organisation for the record?

MR TAYLOR: Thank you, Jane, and thank you for the opportunity to talk to your draft report. My name is Nathan Taylor, as you mentioned from the University of Melbourne. I'm a research fellow looking at quantifying the value of water reliability with Professor Andrew Western, John Langford and John Freebairn as well, working on this topic for an engaging project with the Department of Land Water and Planning Melbourne Water, the Yarra Valley Water, City West and blast, I can't remember the other retailer.

COMMISSIONER DOOLAN: South East.

MR TAYLOR: South East, thank you very much. Looking at Melbourne's water supply system and looking at what the issue of liability means for Melbourne itself. Just picking up a point that Shaun made earlier today. He mentioned when it came to drought issues that the water sector was very reactive and tried to learn from past issues.

What I find interesting is that, probably typical of a lot of areas in the water sector, in that when it comes to the water supply system itself almost inevitably the expansion to the water supply system occurred during periods of stress. Historically the decision to expand the water supply system was triggered, if you will, during a drought period, but because we were looking at – we were building gravity fed reservoirs, there was a substantial delay between when that decision was taken and the response in terms of the augmentation.

Now, during the Millennium Drought, we actually have the capacity to produce climate independent water supply sources and so as a consequence, when the augmentation decision was made, it was made in a period of stress and resulted in very substantial augmentations of the system. Now we're operating water supply systems that involve a very diverse supply of sources, both in terms of the nature of their variability, but also their marginal costs.

Now, I work in this space because I feel economists for a very long time have encouraged the use of marginal cost pricing in the water sector. In Australia we've managed to introduce that in the rural context with some absolutely fantastic results in terms of the flexibility and responsiveness of the rural communities to the available water resource, and that's partly, I would suggest, because we've privatised the risk of failure. So as a consequence, the individuals are motivated to actually manage their own risk of failure. In an urban context, it's still socialised, and the way its regulated is through level of service arrangements, but these are, if you will, intuitive assessments of the community's desire to allocate resources to mitigate risk of failure and they're not explicit at all, and in fact, they're very – sorry, it's not very clear as to how these service obligations actually fit with the level of risk that applied.

So the way we assess reliability in the Australian context, is it a long term (indistinct) capacity, like they'll use synthetic stream inflows of up to a thousand years to try and determine how reliable the water systems are. So service level obligations are set in that longer term context which is appropriate when you're looking at infrastructure that may last up to a hundred years, and you have hydraulic inflows which have extreme levels of variability which may be decadal or even longer, and so that's an adequate means of actually attributing the infrastructure to mitigate risk.

However, it's not – the long term perspective is important but it starts to fall down when we start looking at the short term risks in the water supply system which are critical for determining the marginal cost of water and that's the short term risk that the water supply system will be unable to meet key levels of service.

So I would suspect that – you made the observation in the interim that there's challenges around establishing appropriate roles and responsibilities for the water sector, particularly in periods of scarcity. I would suggest unless the cost associated for liability (indistinct) are actually made explicit, which we can do now, now that we have the capacity to manufacture water in a variety of context. Unless those costs are actually made explicit, inevitably there actually is an intuitive value judgment around how much the society is willing to bear.

As part of my studies I have had the good fortune of looking at some of the people – talking to some people responsible for making those decisions. Inevitably they were professional value judgment makers, politicians, and the way they describe the decision was like they couldn't bear the risk that Melbourne was going to run out of water. It was too high.

By making it explicit though, we can have actually the start of a real conversation around how much Australia's urban centres want to actually invest to avoid the risk of failure and then to actually have that conversation around where that risk of failure should actually be, and without that I feel like half attempts by some economists to try and capture the implications of reservoir failure, like Quentin Grafton's done some fantastic work in this space.

However, the use of an infinitely available high-marginal cost, zero capital cost, backstop technology which you could call a loss function, you know, with a fixed marginal cost, actually doesn't reflect the hydrological risks that the urban water sector actually is confronting and if adopted would exacerbate some of the challenges in the sector because it doesn't incorporate – truly reflect that risk of failure, and as the populations grow, the pressure on the water supply system is becoming even more pronounced and not to mention the implications of climate change.

That is all for my opening remarks.

COMMISSIONER MADDEN: I think I can agree with most of what you said. I'm just wondering then what's the next step from there in terms of implications of actual planning? And you've said you've (indistinct) planning. Have you actually talked about how people did planning during the drought or have you actually talked to people about where to from here now that they might have a desalination plant in their mix and how they actually then plan going forward to minimise costs and look at affordability versus security?

MR TAYLOR: On that point, I think one issue – a lot of the conversation occurs still on that realm of the intuitive if you will, where without making the costs explicit of different alternative, you're actually not very explicit around what the trade-offs really are involved, and a criticism I would have of some of the current regulatory frameworks we go and talk to consumers is unless you – and also a lot of the work looking at consumers' demand for water, we're actually looking at trying to value how much they want unrestricted water, but we're not actually asking them how much they value having water in the first place.

Unless you have that second part of the question, you don't know what the (indistinct) of having the first element actually is and what is the benefit of that? There is an approach adopted sensibly in a number of other industries and also in terms of flood mitigation called properly risk assessment. It was pioneered during the Second World War implemented as a nuclear power sector and adopted particularly rigorously by the Dutch because of their flooding and so following catastrophic floods in the 50s, they had a very extensive process of allocating how much infrastructure should be set aside to mitigate those floods in the future, and given that level of risk, how does it actually translate to other dimensions of society so that – you know, they don't worship, if you will, one form of risk when society – society has many forms of vulnerabilities, and so all of which require infrastructure to mitigate. So they had a very comprehensive approach of doing that and I suspect that's what's required in the urban context as well.

COMMISSIONER DOOLAN: So have you got a little bit more about – sorry, what that actually means? I mean, my observations during the drought were people did plan, they did plan for a risk of failure, I think as you said, they all understood it but the closer you got to that failure happening, the more tuned – you can't accept it. So it's okay for the long run, it's not

okay when you're getting close to it, and we've seen that in a number of areas. It's clear and stark in the drought. But it's elsewhere as well.

So this system that the Dutch have, is that dealing with - - -

MR TAYLOR: It's one way of looking at it. Another way to look at it as well, is to take those costs of actually – to meeting that level of long-term reliability you're looking for and applying that to the current level of storage, and my doing so what you're actually doing is, as you're in that situation, you actually never get at a higher level of risk because you're taking action. That becomes the issue that drives the action that mitigates it, and puts what I consider to be a valid marginal cost on scarcity.

And so the scarcities reflected in how close you are to triggering some of those decisions which are then reflected on the service level obligations which makes you ask, "Is this actually a valid level of risk a society wants to bear?" And by having it explicit at each stage of storage, you then have a – the marginal value of water in storage is revealed by how that changes as the level of water in storage changes.

COMMISSIONER MADDEN: So just a question on the definition of failure and also obviously the policy response, how long to wait in terms of bringing in restrictions earlier and the like or ramping up desalination production earlier which has happened in Sydney recently in terms of the policy response. How do you actually define failure in that discussion with people?

MR TAYLOR: That's a very good point. It's interesting. If you look at Melbourne's water supply system as an example, it's one I'm familiar with. The four stages of restrictions are – in total those four stages of restrictions are probably – I think the Melbourne water plan suggests that they might save up to ten, maybe 12 per cent of the current consumption, but there's no – the other 90 per cent of consumption is what I would consider to be the relevant failure, if that makes sense. The indoor use of water, the water utilities do not try and minimise and I would suggest that's probably a point to consider as like the minimum level of service you want to provide.

I mean, there are some academic estimates as to what, at a universal level, are essential for life. Water consumption is in industrialised countries. They tend to be a little bit lower than the Australian experience during the Millennium Drought and that's partly because of our more arid climate probably. But you might say the indoor water use, a large element of that reflects that catastrophic failure, and so I would describe it as catastrophic failure because once that starts to get impeding the capacity of supply, we have to start adopting very different mechanisms to be able to supply water in the urban context.

And so those different mechanisms would be highly costly, partly politically, I'm sure they're very costly but also they would be very disruptive for society.

COMMISSIONER DOOLAN: So taking the Melbourne system, and taking your point that you could trigger the augmentation on storage levels, so the storage levels are very much, to some extent, dependent on how you run the system as well.

MR TAYLOR: Yes.

COMMISSIONER DOOLAN: How hard you run that system and how you bring the desal plant (indistinct) pipe and various local supplies. So there's a system optimisation there which would – well, there's a system management that would impact on storage levels and those mechanisms of system management would all have different costs. So how are you, if you like, suggesting that we pull this together in the system's planning way that provides the best case for long term interests of customers?

MR TAYLOR: In the current project undertaking for that group of stakeholders, we're looking at what is the current cost of their existing operating rules, and so what does that existing operating rules actually imply and that's involved determining what the trigger points are for each of these stages, particularly for augmentations, and subsequent augmentations that may be required, and examining what the costs of delivering that implicit level of reliability is, under different hydrological expectations.

That's what I would say is the first step of (indistinct) processed optimising the system. Making the current operating rules explicit about what that means to deliver reliable water over a planning period, is a big step forward I suspect in terms of actually saying, "Okay, is this appropriate for the water supply system? Does it reflect the level of risk that we want to bear and does it actually reflect the value of delivering water with this given level of reliability.

COMMISSIONER MADDEN: Maybe one last question to try to crystallise impacts.

COMMISSIONER DOOLAN: Yes.

COMMISSIONER MADDEN: If we had a time machine and went back pre-drought, say go back to 2000 say, a different approach – what would actually you have done differently, just in the Melbourne context, given it's obviously what you know. I mean, this approach when you look at the planning done at the time and I know that the planning had trigger levels in it that were set and they were around reliability and supply and there were options, from Thomson was it?

COMMISSIONER DOOLAN: Yes, there we options.

COMMISSIONER MADDEN: Yes, so options all outlined within that planning framework and then it was torpedoed because the hydrology didn't imagine the three worst years ever.

COMMISSIONER DOOLAN: Spring of 2006, a nightmare.

COMMISSIONER MADDEN: So I'm just wondering what, you know, what other lessons from your work, putting back into that context – and interesting when we don't have a desal plant as well because there's places like Canberra et cetera which obviously a desal plant isn't an easy option.

MR TAYLOR: But they do have climate independent water supply options such as recycling which are, more or less – maybe there's community issues but I imagine those community issues are less than those - - -

COMMISSIONER MADDEN: Well, they're probably trading water from the Murrumbidgee would be the first. But anyway, I'm just wondering again what are the key lessons out of your work in terms of putting it into that past process?

MR TAYLOR: Well, I think that's one of the challenges is what are those extreme risks and how do you incorporate them in decision making today? I think the outcome would be to actually saying, "Okay, now that we can cost what value would actually look like" and value wouldn't, I suspect, look like us not having water, you would ask augmenting water system predictably, that's what I'd suspect a reasonable level of failure would be in the urban context.

You can actually bring those costs into the present decision and so what is the value of water at the moment or what is the value of taking alternative decisions? So one of the points you made is yes, they had all those trigger points and what have you laid out, but unless – with the hydrological risk not being explicitly costed, I think that makes it very difficult to make some of those decisions. So one of the advantages of actually making the reliability issue explicit, is that then you can look at questions like what is the planning timeframe required to build an augmentation, and so if it hadn't been four or five years, the size of the desal plant would have been substantially different, and so by bringing the timing forward by buying the option associated with augmentations, you can actually reduce the overall level of cost in the system for a given level of reliability.

COMMISSIONER DOOLAN: How do you approach situations like climate change and in particular Perth, where the external climate is changing so rapidly that it's actually very difficult to make any meaningful estimates of reliability?

MR TAYLOR: I think that's a big challenge and not one that my work is able to answer. I think it's a critical issue for the sector. What my work is saying is based on your current expectations, what is you're actually – how do you manage a system more efficiently so - - -

COMMISSIONER DOOLAN: So under current circumstances, how are we doing?

MR TAYLOR: And the most informed decision you can possibly make today, how do you manage that? And so there is an issue of like the world – the future is quantifiable, absolutely. That is challenge. We should possibly be sacrificing more goats to volcanoes.

COMMISSIONER DOOLAN: Well, it's more about how to do that with a reasonable level of uncertainty.

COMMISSIONER MADDEN: I'm just wondering with your work and how that then informs processes undertaken within the utilities and their planning and then the comments earlier about customer consultation, are there any early thoughts on your work being published first, but more importantly again in that process and customer consultations later once utilities have this part of their planning process, how often should it be updated? What kind of communication is each regulatory period that you would go through this process and actually quantify options? Is it something utilities do or again, is an overall planning for the city?

So I am just wondering, are there any kind of lessons that you can learn about modelling that system and your options and how often it has to be updated and communicated?

MR TAYLOR: Well, I think one of the advantages of actually looking at the whole system and its overall reliability, you should then make explicit the costs associated with existing options. So, for example, restrictions around accessing say the north-south pipeline in Victoria, you can actually say, "What is the overall impact to the entire system of that decision right today?" So this would be a way of actually improving the community's engagement and awareness of what the costs are of such a decision.

So to make that explicit, if you have access to the north-south pipeline today, rather than under extreme scenarios, how much that would reduce the overall costs associated with level of reliability, in terms of where should that responsibility sit, I'm not familiar enough with the jurisdictional differences to be able to give you a definitive answer. However, if you are setting a level of service obligations, surely that would be the point to actually say what they mean. You know, if you are going to have them, what does it actually mean for the community? Why do you chose that number? Is it pulled out of thin air or does it actually have some robust decision making behind them?

COMMISSIONER DOOLAN: Any further remarks you might like to make?

MR TAYLOR: No, not particularly.

COMMISSIONER DOOLAN: Okay. Thank you very much. So we might take early morning tea, and we come back with Australian WaterSecure Innovations and if Lucia is not here, perhaps given that you are here Ben, we could swap those. So why don't we take – Rick is it okay if we slightly depart from the agenda. Take 15 minutes now. Have morning tea and then come back and perhaps have Ben afterwards. Thank you.

ADJOURNED

[10.23 am]

RESUMED

[10.50 am]

COMMISSIONER DOOLAN: All right, so we'll reconvene, and I would like to introduce Ben Furmage from the Cooperative Research Centre for Water Sensitive Cities. Ben would you mind introducing yourself again for the benefit of the tape?

MR FURMAGE: Sure. My name is Ben Furmage. I'm the Acting CEO of the Cooperative Research Centre for Water Sensitive Cities. Happy for me to launch in to a couple of opening comments?

COMMISSIONER DOOLAN: Please.

MR FURMAGE: Okay, great. So thank you for the opportunity to appear before the hearing today. This is a really important process not only for the CRC but more generally for the country. The CRC strongly supports many of the recommendations including in the draft recommendations. In particular, we do strongly support the idea of renewed national agenda for water reform, particularly in the urban sector and there have been some significant gains made in the past through a national approach and it's really important that those gains are locked in and built upon.

As I noted, many of the recommendations from an urban perspective are important and valid. We think, though, that as well as locking in a suite of reforms that had their origins in the mid-90s, I think it's also important to build on those reforms to create a platform for the next wave of reform.

In particular, in thinking about the urban sector, I think it'll be really important to not lose focus on water quality. It will be important to take a water cycle approach rather than just thinking about linear water and sewerage services. As well as responding to drought, it will be important to respond to all the impacts of climate change, including flooding and extreme temperatures, and the water sector has a key role to play in both of those two things, for example.

Also it will be really important that the next wave of reform recognises the critical role of good science and effective community engagement in creating a need for reform, and to make sure that all options are on the table and in sustaining reform efforts because, as the Commission knows, reform often involves costs that are concentrated and upfront and the benefits can be diffuse and longer term. So that effective engagement is going to be very important, and certainly the next wave of reform should continue to remove the barriers to integrated water management.

I would like to just touch on each of those briefly, but first a little bit of background on the CRC and why we would like to contribute to this process. The CRC for Water Sensitive Cities was created in 2012 recognising the critical role that water plays in ensuring that our cities are productive, resilient, efficient and sustainable, and in particular that the challenges that we've got going ahead around issues like growing populations, the changing climate, affordability concerns, how do we sort of make sure that we respond to those challenges that also maintain the amenity and liveability and productivity of our cities.

The CRC represents 84 different organisations across the country and around the world, including state, local and Federal government, water agencies and universities, and private sector entities as well. The timing of the PC's review is great. We're just finishing our first tranche of research, which has seen \$34m invested over five years, involving over 300 researchers from across 20 different disciplines looking at four basic areas of reform: the role of community in reform for water sensitive cities; the role of the environment in water sensitive cities; the role of technology in water sensitive cities; and how do you bring all of that together in effective reform transition pathways.

So we have learnt a lot through that first tranche of reform, including some things that are going well and some things that could be improved, and we're just about to kick or we've kicked off our second wave, and that built on an 18-month engagement process, asking our members, "What are the key issues for you in driving reform?", and they came back with a relatively short list.

In particular, they were looking for continued support for making that practical transition, putting the knowledge into practice. They were saying that an economic evaluation framework was a really important enabler of better investment decisions that bring in a fuller suite of costs and benefits. They were saying that it's important to make sure that not only does a water sensitive city work at one level of planning, but it needs to work at all levels at different scales,

and also too in field development was an area requiring greater attention, as was groundwater developments in areas of higher ground water which was particularly an issue in WA.

So we've just kicked off that second wave of reform or second wave of research, sorry, but there's a lot of overlap in the things that are coming up in the draft decision or draft recommendation. In particular, though, just to highlight our support of a couple of things: continued expansion and carriage of economic regulations, really important to lock that in; better integration of urban and water planning is really supported; as is an outcome-based approach to environmental regulation; removing policy barriers; and keeping all options on the table when we're balancing supply and demand.

And also too, we also support the balanced consideration of centralised and decentralised options which is talked about in Chapter 6 of the draft report, and continuing to move prices that sort of fall within that band of, that band of efficient level of cost recovery.

So that being said, so there's a lot to recommend in the draft. There are a couple of areas that we would suggest could require some further focus. In particular, a greater recognition of the critical role that public health and water quality have in the urban sector. It was a fundamental reason for the creation of the urban water sector and needs - and we lessen that focus at our peril, and in that - the challenges associated with water quality will increase as the climate changes and our cities become more densely populated. So it's really important that we keep that focus on good quality water, as well as maintaining the quantity of water through good supply and demand balances.

Also, too, it's important to recognise that water contribution that the water sector plays in public health in our cities, so making sure that our cities are healthy and safe both when there's too much water in flooding and when there's not enough in drought, and recognising the critical role that water plays in maintaining productive green, open spaces and healthy waterways, and the important contribution that those two things have to our cities. They are not only liveable, but they're healthy.

I have touched on this briefly as well. Another important focus is that the current report focuses rightly on the potential impact of drought and being ready for when there's not enough water. It is also important that the water sector works just as well when there's too much, so when - so, you know, we have a balanced consideration, flooding, which I think the insurance sectors shows is the most expensive natural hazard that we're dealing with, and that will only increase as climate changes, and those costs will go up as the population density increases, and similarly with extreme heat. There is evidence to suggest that that's our most deadly hazard going forward, and as climate changes and those heat days become more intense, water has a really important role in making sure that our cities are liveable and that we manage issues like the urban heat island effect.

Another point would be that it is mentioned, but I'd just like to emphasise that a future reform agenda really needs to have a strong focus on community engagement and good science so that our regulatory frameworks are based on both those things, good science and effective community engagement.

We support the focus that's taken on outcome-based environmental regulation and we'd suggest that that's a really good principle to apply to our other forms of regulation in terms of the health and the economic, and there's examples of that, sort of, starting to play out.

And finally, in terms of prices, certainly support getting to levels of cost recovery. I would also note that the structure of prices has a really important role to play, as do things like the way that they're billed; the extra information that consumers get to support good, efficient responses to good price signals, but that good price signals also need to go hand in hand with improved customer choice and effective support for customers that are vulnerable or in crisis.

And the last point that I will make is that in coming back to the support that we have provided for a national agenda, I think the draft notes that there are strong merits in terms of having a consistent approach across the country, particularly when you're dealing with issues that don't respect state borders, and that there's benefit in having a reform program that is inclusive that its objectives are clear and measurable that provides flexibility to respond to tailored solutions to the individual jurisdictional circumstances and promotes collaboration when reforms can be quite challenging.

The CRC would also suggest that those same principles that imply the benefits of a national approach also would apply to an international approach in dealing with global issues like climate change and population growth, and would point to the Sustainable Development Goals [SDGs] as providing, which Australia has signed up to, and is providing a great mechanism for, and a cross-check, I guess, for a future reform program to make sure that that program addresses all the relevant considerations.

And with those remarks, I'm happy to take any questions.

COMMISSIONER MADDEN: I guess I'll start with one, and which is around the economic evaluation framework. So we mentioned flooding and extreme temperatures and the like, and other benefits. Having done work in those in the past there are economic frameworks that deal very well with those benefits of flood control and effects on extreme heat and deaths and, you know, again, early work and all the climate change work with CSIRO that started those.

I just wonder, why is it so difficult to actually apply an economic framework to a project that purports to have those benefits, and what actually needs to change and be established to enable those other consideration of benefits?

MR FURMAGE: So if there's a range of things that need to change, including, and I guess you can take a step all the way back to clarity around policy objectives, so what problem are you trying to solve here, and therefore what - and then having an open discussion about what are the suite of options that need to be the response to that problem.

And then once you start to move into, well, what are the costs and benefits associated with different options, in the past it has been difficult because either the underlying understanding of the physical processes or the ability to turn those processes into a dollar value has been challenging and there are methods that are available to do that, but quite often we've seen traditional cost benefit assessments supplemented with multi-criteria analyses and those sorts of things.

And when that's been put in front of the decision-maker, be it a treasury and economic regulator, sometimes the veracity of that analysis hasn't been accepted, and I think the work that the CRC has done, where pulled together a review of those different methods, not only for quantifying some of these broader benefits that you talked about like the amenity value of healthy waterways, like the health impacts of extreme heat and the urban heat island effect, what data is out there, and then how do you turn that into a useful tool that can be consistently applied across different jurisdictions in a way that is acceptable to the decision-maker.

So I think that there are examples of where different approaches have been successfully applied. It is not mainstream, and certainly to be able to get a vision of a water sensitive city realised, I think the tools that the CRC are working on, together with the engagement that we're doing with treasuries, with regulators and with water authorities and local governments, will help not only build the technical capacity, but the trust in the process that we go through to be able to see maybe different choices made around investment in the future.

COMMISSIONER DOOLAN: So just following that up, I mean, it's good to have those perhaps more quantitative or semi-quantitative estimates of the benefits of any identification of those, you still end up having to identify the beneficiaries and who should pay, so it's one thing to have that laid out which makes it clearer what the benefits are, and maybe how comparable they might be, but then you've still got to allocate the benefits, and then what follows the allocation of benefits is the cross-sharing as well, and that's still going to be slightly problematic, isn't it? I mean, there's no magic formula.

The health benefits of green space presumably get targeted to the Health Department, Health Minister, who then have to move into a whole preventative - you know, it's a - for them, that raises probably slightly difficult internal debates about where their money's best spent, but I mean, you can't avoid that discussion, and it still might be the government going, "Oh, well, for the broader public benefits, you know, we have a role or we don't".

So the tools that you're developing still provide greater clarity and perhaps comparability, but some of those, because once again this is between boundaries of portfolios and disciplines, it doesn't take away, does it, some of the conversations that still have to occur about who pays?

MR FURMAGE: Yeah, absolutely, and part of - part of the issue is where does the conversation start, and if it starts with, "Who pays?", or arguing - taking a positional approach about particular solutions, then it's, you know, you get what you get basically, but other research that the CRC has done has shown that if you bring those parties together and try and get some alignment about, "Where are you now?", "Where do you want to be?", and get that sort of shared vision, the work that we did in Program A and that will be done through our integrated research program, our first integrated research program, is taking real life examples of Perth and Bendigo and Sydney and in Queensland around, how do you bring those different parties together.

We have developed an indexing tool that sort of shows where your particular city is at relative to other cities to identify how you're travelling and where the gaps are, and then, you know, you - and it's - - -

COMMISSIONER MADDEN: Sorry, against what?

MR FURMAGE: Against what? A liveable, what a water sensitive city might look like. So across a range of - across a range of criteria, so I guess the important thing - - -

COMMISSIONER MADDEN: So levels of green space and things like this?

MR FURMAGE: Yes.

COMMISSIONER MADDEN: What are some of the indicators that you're talking about?

MR FURMAGE: Yes, indeed, I mean, it's quite comprehensive, but it does look at everything from open space to water consumption to how your sewerage system works to how effectively are you looking after your waterways, and it gives you a picture on whether or not - where you sit on a spectrum of, are you just providing safe water, or just safe water and sewerage, or just safe water and sewerage and drainage, or are you moving into thinking about your waterways as well, or are you doing all of that in the context of thinking about how the cities manage so you're getting better integration with your roads; better integration with your energy networks, your hardware solutions. So it will map where you sit, where you are; get a shared understanding across those different stakeholders that you were talking about; get some prioritisation of the high level issues and then you can start working through what are the full suite of options.

Use a good process for getting those benefits and costs identified, and then once you've agreed - you've got alignment of purpose and collaborative planning. Then you get into accountability for delivery. So coming out of this needs to be an action plan with some jobs for people, and then you can have a conversation about, well, where does the money come from, because quite often the most efficient way of raising the money may not be with the people that are doing work.

And so you might use, for example, a water authority may use its revenue collecting, existing revenue collecting capacity, but it may - the service may actually be delivered by a local government, so, yeah.

COMMISSIONER DOOLAN: Just, you reminded us of the critical role of public health and water quality, and you feel that currently we've probably taken that for granted in the report?

MR FURMAGE: M'hmm.

COMMISSIONER DOOLAN: That we should give a greater emphasis to it in the backsliding, sort of, don't backslide on this as well?

MR FURMAGE: Yes, I think, that's right. I mean, there was a question of an earlier speaker around what are the game changers, and I think there are some great positive game changers, but equally if the industry drops the ball on water quality then that will take any reform endeavours back significantly.

COMMISSIONER DOOLAN: Yes, okay.

MR FURMAGE: So, yes, I think it's really important.

COMMISSIONER DOOLAN: Okay.

COMMISSIONER MADDEN: So I'll just have a bit of a follow-up then. What water quality threats do we have? Are we talking particularly in run-off in waterways or are you talking threats to drinking water in certain recycled systems? I'm just trying to get a bit more of a handle on the actual threats that are emerging on water quality.

MR FURMAGE: Yes, great, and I guess my point was that there are a range of threats that are emerging and that we need to keep a focus on that in thinking about a good regulatory framework that is well integrated with both environment and the pricing side of things.

So one suggestion would be making sure that when we're thinking about things like recycled water, is it a public health issue; is it an environmental issue; and how does that all play out with the economic regulator.

But looking forward, you can see that with extreme events coming as a result of climate change; managing our catchments in more highly urbanised areas with more industry or more impervious area. For example, the last time Melbourne had a boil water notice it was up in the Yarra townships in 2007 and that was a result of 2006 which was mentioned earlier, and a storm coming through and washing - impacting the turbidity of the water.

So, you know, these sorts of events can happen, and that we need to make sure that we not only take care of what we know, but we're also doing good research and making sure that that science is identifying emerging issues, chemicals finding their way into our drinking water so that we're managing those risks proactively.

And in terms of an outcome based approach, I think there is a trend in - and I don't profess to be an expert, but I think there is a trend in work quality like we see in an environment and thinking more about the outcome that we're managing, public health, and less about compliance with an individual standard.

So moving from continuing E. coli to thinking about what water quality outcome that we want for the community and what's the public health outcome, and having not only reactive regulatory managers, but a stronger suite of proactive measures that help, you know, that provide that more balanced approach to managing the risk.

COMMISSIONER DOOLAN: So despite the, let's be really clear, a failure in water quality would set the industry back significantly, you know, so, we can't fail. Do you still think there is scope for a more outcomes based approach to drinking water quality or to health standards?

MR FURMAGE: Yes. Yes, definitely. Yes, and - but also too, not just in terms of the quality of the drinking water, but also thinking about the impact that the broader, important role that, what the water sector plays in things like maintaining public open space and recognising the importance of that open space in maintaining the health of a more densely populated, highly urbanised city.

COMMISSIONER DOOLAN: Okay, and currently that would not be in any of our health regulations?

MR FURMAGE: I - yes, it varies, as you know, around the country, and I think what's there is probably more enabling rather than directive.

COMMISSIONER DOOLAN: Yes, okay. All right.

MR FURMAGE: And, sorry, just to follow up on that one, Jane.

COMMISSIONER DOOLAN: Yes, sure.

MR FURMAGE: And when you don't have that clear expectation set out in policy and regulation, because you need both, you know, open regulation needs some clarity around policy objectives, it makes it hard for economic regulators to come in and assess whether or not the expenditure that's been proposed and the impact that it's going to have on customers is actually a reasonable thing. So there are ripple effects associated with that.

COMMISSIONER DOOLAN: In some of the systems that you've seen, particularly work overseas, I mean, you will have heard the earlier discussion around integrated water cycle management and planning suburbs, its interaction with local government and statutory planning system and making that all work. Have you seen anything where actually some of those outcomes are set at the outset by a city shaping authority so that they're, if you like, set at the outset, a number of those aspects that you've talked about which has then flowed down to the detailed, or the more detailed planning by the sectors?

MR FURMAGE: You mean internationally?

COMMISSIONER DOOLAN: Or anywhere really.

MR FURMAGE: Yes. Yes, so there are examples of places like Singapore, for example, and there's some places in Europe but I think the key thing with those - those sorts of situations is when you've got that clarity of good engagement at local and - sorry, start again. When that works well, it works well at different scales, so you need to have good engagement at the local level, so for example the concept of liveability is locally defined.

So what's - what creates liveability in the west of Melbourne where there's a rain shadow and arguably there's not enough water is different to what - to the south-east where there's too much because they have - they have flooding issues. So you need that good local application of knowledge, and with local governments you get engagement around, better engagement around drainage and roads and hard waste management and those sorts of things, and open space.

But equally there also needs to be a stewarded catchment that makes sure that what decisions that are made upstream, for example, don't have negative downstream impacts. So when - so that top down approach that you alluded to is important, but it also needs to be married effectively with bottom up process.

The IWN forums that have been proposed, Melbourne is - for Victoria is an example of an attempt that that, and you know, the early signs are good, so, yes, so I think it can be possible but it needs to be a top down and bottom up.

COMMISSIONER DOOLAN: Okay. I might just do one more question if that's okay.

MR FURMAGE: Sure.

COMMISSIONER MADDEN: I have one more as well.

COMMISSIONER DOOLAN: You have one more too?

COMMISSIONER MADDEN: It's short, so.

COMMISSIONER DOOLAN: You referred to the Sustainable Development Goals. I suppose from our perspective, alignment with those goals makes perfect sense, but the governments that are signing, or we're making recommendations to governments about, recommendations to do things better or recommendations to collaboratively act together to have a new NWI.

So when they try to make it clear the costs and benefits to those governments, of those, meeting those recommendations, so governments in themselves, it's a tricky one. The alignment to an international sense takes away some of the accountability for governments. How do you see playing that international space sit alongside the state governments' accountabilities to their jurisdictions and their communities under the Constitution effectively?

MR FURMAGE: I guess for me, reform is uncomfortable and involves costs and so how do you get the maximum impact as a result of that reform initiative? So I would - yes, so I think part of the solution of that is to talk to the communities and make sure that they see that line of sight between the change that's happening local, how that, you know, thinking local and acting global and how they have, sort of, impacts more - more broadly, and the Commission's terms of reference talks about thinking about not only the water sector but the interface with other sectors like energy, et cetera, and so do the SDGs.

So, you know, it provides a useful way of thinking about how do you provide a holistic response to some pretty complicated issues that don't respect local national and, you know, in the international boundaries. So I think it's a - you know, it will be up to the Commission to adopt it as they see fit, but just in terms of a useful framework for thinking about how do you provide an effective response to key challenges mentioned in the draft report like population growth, climate change and doing all of that in a way that maintains affordability for households and businesses, it provides a useful cross-check, I guess.

COMMISSIONER DOOLAN: Okay, John?

COMMISSIONER MADDEN: Mine was in this area and it's maybe about the mechanics of the process, is there a reporting on behalf of the Australian Government as part of this signing up to the goals? Do they report back against the goals - - -

MR FURMAGE: Yes, well, I think there's reporting - - -

COMMISSIONER MADDEN: - - - and their progress and I think, is it SDG6?

COMMISSIONER DOOLAN: Yes.

COMMISSIONER MADDEN: I mean, how are we tracking, do you know? Has anyone actually assessed - - -

MR FURMAGE: Yes, great question, and so progress, it's a UN initiative so it's being tracked through the UN. I flagged earlier that we'd come up with an indexing tool that tracked progress on that spectrum towards a water sensitive city. We've currently got a project going that will also track progress against the Sustainable Development Goals, and you know, Australia - - -

COMMISSIONER MADDEN: Sorry, as a nation, or of cities?

MR FURMAGE: Both.

COMMISSIONER MADDEN: Both.

MR FURMAGE: And as a local area potentially as well, and I mean, it depends on where you draw the boundary, I guess. There's examples, like any reform initiative there's bell curve and there are some areas where different jurisdictions are really pushing ahead but there are other areas where there are laggards, and so, and that's a point that's made in the draft report, and I think we need a process going forward that helps encourage the laggards to finish off the reform program started in the mid-90s, but also authorises and enables those that are already embarking on the next wave of reforms that will set us up as a - to be successful as a community, not only now but you know, 2030 and beyond.

COMMISSIONER MADDEN: Sorry, just to clarify, is that call part of an official reporting process against these goals from the government or is that something that you're looking at to use locally?

MR FURMAGE: Yes, so it's still being developed. It's available to all the participants in the CRC and they include, you know, state and Commonwealth governments, but - and also too, I think it'll be important that whatever - however we track progress going forward, there needs to be ongoing advocacy around reform. Periodic assessments of how we're going are important, but how do you maintain the momentum, day to day, week to week, and how do you make sure that the learnings from reforms initiatives, because there was a comment made earlier that good things are happening but they're a bit patchy and they're pilots. Well, how do we mainstream this? I think there's an important process for a body to be able to continue to advocate for that change and to foster knowledge development and translation.

COMMISSIONER MADDEN: Thank you.

COMMISSIONER DOOLAN: Okay, all right.

MR FURMAGE: Great. Okay.

COMMISSIONER DOOLAN: Thanks, Ben.

MR FURMAGE: Thanks.

COMMISSIONER DOOLAN: I would now like to welcome Lucia Cade from the Australian WaterSecure Innovations. Lucia, would you mind just introducing yourself for the transcript.

MS CADE: My name is Lucia Cade. I am the Chair of Australian WaterSecure Innovations. I haven't put in a written submission yet, so if, in terms of process I thought what I would do is just talk through. It's really a story that I want to tell you about national collaboration that has happened over the last six and a half years to align regulatory requirements on water treatment technology, and how that has been achieved and what the benefits have been in the process and what has contributed to the success of it.

So in terms of you know, a bit of background on me so that you understand the context of my input, I've worked nationally and internationally across the water sector in - nationally in Australia for about the last 15 years as President and Director of the Australian Water Association, and in working - and for the last, since 2005 on Victorian Government water boards, and have worked in the private sector as an advisor. So I've seen the industry from a lot of sides, and part of the story that I want to say is the benefits that having a nationally consistent approach to this particular regulation provides to the whole value chain of the sector. I figure the easiest way to do it is to, sort of, tell you a story.

Now, Australian WaterSecure Innovations was established as an independent, not-for-profit, industry-owned and supported entity out of the former Centre of Excellence that was Commonwealth funded, the Australian Water Recycling Centre of Excellence, and they created a number of programs that they - there was no ready home for them in Australia that provided national - that provided, you know, a sort of a nationally relevant home that allowed these programs that had had so much money invested in them and were agreed to be so successful, there was nowhere for them to sit.

So Australian WaterSecure Innovations was established for that, and our job was to finish the development of the programs, and we've spent 18 months doing that, and one of them is the WaterVal, which is validation framework that the industry felt there was a need for having technology validated and approved the same way around the country, and Suzie Sarkis is in the audience and she's been heavily involved from the regulator side in how that happened.

So the situation was that there were different regulations across every jurisdiction in Australia, and so any supplier of technology had to demonstrate the efficacy of that technology in a different way in different places around the country. That had a two-fold impact on cost. It had an impact on the upfront establishment costs, and it had an impact on, you know, the ongoing, proving that the system was still valid. So they had to maintain different systems in different parts of the country for the same, what was effectively the same technology doing the same thing.

The improvement was also then in having all of the state regulators agreeing on a single proof mechanism was that it, you know, it reduced the time to validate, and this impacted on the time taken for whole new schemes, and that was of benefit to both the utilities receiving them; the communities because they got their schemes earlier; the regulator's reduced risk; and suppliers themselves. It reduced costs which were then translated so it was a whole red-tape alignment, if you like.

So overall the benefits have been that we've got now streamlined national regulation for validation of water and wastewater treatment technology that leads to reduced costs for suppliers to the industry, for regulators, and you know, therefore for utilities and communities

who ultimately foot the bill. You know, we've got the body of Australian water quality regulators who, you know, together guide what the protocols are. You know, it is sourced from them, and it reduces the risk for utilities in the uptake of technology because the risk of adopting something new is reduced because everybody has agreed, already pre-agreed how that effectiveness will be measured.

Internationally the World Health Organisation is adopting this approach to validation globally, and in the United States there's an approving an adoption of this approach in California with the 48 schemes that they have in planning, and they recognise that it helps them get through the regulation and validation of the 48 schemes they've got to combat their drought.

So overall the benefits were there to meet an industry identified need, and the Water Recycling Centre of Excellence and then WaterSecure Innovations was able to coordinate the industry to meet that need, and I guess the point of my story is to demonstrate the value to all the different players of having that nationally coordinated approach, and to also point out that that just doesn't happen, and the fact that there was no entity in Australia who could house or be the home of this validation and certification approach means that, you know, without having some entity to drive that coordination and deliver the value it's just not going to happen. It needed the goodwill of everyone, and some fund entity to then turn that goodwill into action, and that's, you know, really that's my main point.

So I think that the last thing I want to finish with is what I think are the most important keys to the success of that alignment of regulation, and that was that it was voluntary but coordinated, and a focus on coordinating and accommodating every state and territory need in arriving at the outcome.

So if you like it was a carrot, not a stick approach to the coordination, and it follows that that principle that, you know, let's see how far we can get with coordination and collaboration, and then regulate and legislate for, you know, the bits that can't happen together so, and importantly you need some kind of nationally coordinated or nationally home entity to do it and it has to be funded.

So that's my story.

COMMISSIONER MADDEN: Thank you.

COMMISSIONER DOOLAN: Yes.

COMMISSIONER MADDEN: Just for my sake, how many recycling systems do we have across Australia that are providing drinking water? So in terms of this system - - -

MS CADE: Yes, sorry, it's not - the Water Recycling Centre of Excellence started, you know, trying to address the yuk factor of indirect potable recycling in Australia, and that is just - that is no one's policy position in Australia except WA, and so the most important transition was broadening that validation to water treatment processes, so wastewater for any purpose in the east coast other than drinking - - -

COMMISSIONER MADDEN: So the validation covers all those?

MS CADE: Yes.

COMMISSIONER MADDEN: Yes, that's fine. I'm just trying to get some more knowledge of it for myself.

MS CADE: And so it works for, the protocols, there are five technologies. Some are wastewater and then there's ozone and chlorination, and so they're technologies that are used in the water treatment process on the water supply side and the wastewater treatment side.

COMMISSIONER MADDEN: Yes, so you can bring new technologies into this framework?

MS CADE: Yes.

COMMISSIONER MADDEN: As they come on. Yes.

MS CADE: Yes, and that group of health regulators guides which of the new technologies they want to run through the next stage of protocols.

COMMISSIONER MADDEN: Yes. So I guess there are a couple of circumstances like this. I assume the drinking water quality standards themselves have that national approach.

MS CADE: Yes.

COMMISSIONER MADDEN: Are there a range of other outstanding issues that have the same problem in terms of the differing standards between states?

MS CADE: Yes, I think they're - I don't have the list of them.

COMMISSIONER MADDEN: Let's focus on recycling, I guess, yes.

MS CADE: Yes, I was just - really, I just wanted to share this story of the benefit in this area of the coordination and what it takes for it to happen, and how you can set it up for success and the benefits that different players in the industry have seen from the red tape reduction, the reduction in risk and speed.

COMMISSIONER MADDEN: Yes. I'm only trying to raise that because we've seen how much scope there is for other issues, and also how people come together around identified need. Now, obviously this one came out of previous research and work and then evolved into WaterSecure Innovations, taking a role with the states. I guess looking at it and what's effective, is it something like that that pulls the states together? Can the states do this themselves in other areas? I'm just wondering, kind of, institutionally in - from how people work together, and I'm even thinking of economic regulation because we're talking about that in other areas of how you get not necessarily consistency but best practice in areas and how states work. Is there anything that you can generalise, I guess, out of what you've seen?

MS CADE: Yes, so let me just add one more specific and then I will generalise a little bit.

COMMISSIONER MADDEN: As far as you can.

MS CADE: A little. In terms of how the ongoing coordinated regulation in health themselves are looking now at trying to raise some money to do a piece of investigative work on how the validation protocols leading to a, you know, certification might be, you know, what are the options for, you know, further policy development to embed this process. So it's still very much at the early - at the early stage, but they definitely, you know, see the value in trying to systematise it in a policy sense to get it embedded so it's not lost.

COMMISSIONER MADDEN: Yes.

MS CADE: So this is, it's come from the Centre of Excellence, it's been continued with the seed funding for WaterSecure Innovations, and now how do we make sure that it continues down that useful path and doesn't, you know, fade away due to lack of focus, money and coordination.

COMMISSIONER DOOLAN: It seems other - - -

MS CADE: Yes, sorry. And then, sorry, generalising on the other areas, you know, you'd have to think of, in, you know, the environmental regulation that the water industry faces, a lot of that is, you know, different in different states, and the value of coordination for utilities comes from, you know, sharing knowledge, so you've then got - if regulation is done in a similar way or in an aligned way across the states and territories, then they can share that knowledge and so there's efficiencies in that, and in the private sector that provides the services they get, you know, they have to jump through the same hoops.

COMMISSIONER MADDEN: Yes. Yes.

MS CADE: And so it levels, it levels the value to the environment and how we, you know, how we protect it around the place.

COMMISSIONER MADDEN: Yes.

MS CADE: So that's another one where regulation is different. Clearly economic regulation is different around the country, but that has - that has quite - that has quite different characteristics to health and environment.

COMMISSIONER DOOLAN: So really you've pointed out, in jurisdictions there's the health and environment regulators and the policy department in the industry, and the industry can often go to the policy department to integrate with the regulators who can go there directly, but once you're in the national sphere there's nowhere to coalesce this. The industry, even if it itself is sort of speaking with one voice, it finds it hard to actually sort of either get policy department operating or to coalesce the regulators that they need, and so this has been one model that has worked.

MS CADE: Yes.

COMMISSIONER DOOLAN: But your point is, there's opportunities for this there's benefits to it, and it's really hard to do in the absence of some arrangement.

MS CADE: Yes.

COMMISSIONER DOOLAN: And in this case it was industry led?

MS CADE: In this case it was centre - yes, it was - well, it was Centre of Excellence led in response to an industry need.

COMMISSIONER DOOLAN: Yes.

MS CADE: And it was the fact that we had a Commonwealth funded Centre of Excellence that had five years and funding.

COMMISSIONER DOOLAN: So a significant amount of money to actually take the next step and do something with it.

MS CADE: Yes.

COMMISSIONER DOOLAN: Okay.

MS CADE: And the expertise.

COMMISSIONER DOOLAN: Yes, okay, and they did not find it difficult to get the health regulators - - -

MS CADE: It took five years.

COMMISSIONER DOOLAN: Okay.

MS CADE: Six years.

COMMISSIONER DOOLAN: Okay, to sort of get enough interest.

MS CADE: It's new.

COMMISSIONER DOOLAN: Yes.

MS CADE: And it was coming to an agreement, and it's not that - it's not that the regulators, it's not the whole scheme, it's the elements of it, so that, you know, the way that a log reduction for bugs is demonstrated, is proved. You know, it's alignment of the, we will all do the, prove it for this little bit in the same way, and so you don't have to, you know, prove it with protocol 8.2 in Victoria and protocol, you know, B.6 in Queensland, and keep 8.2 and B.6 both running.

COMMISSIONER DOOLAN: Yes.

COMMISSIONER MADDEN: Yes.

MS CADE: Yes, with the - - -

COMMISSIONER DOOLAN: Yes, okay.

MS CADE: Yes, but it does take, you know, an entity that's got the focus, the time to identify the need to, you know, get everybody to collaborate the process of agreeing, you know, coming

up with the right, you know, the right framework, and you know, and then working through the examples and testing them and so it really does need expertise, focus, money and some - something central to coordinate it.

COMMISSIONER DOOLAN: But the benefits are significant reduced costs - - -

MS CADE: Yes.

COMMISSIONER DOOLAN: - - - to developers or to - - -

MS CADE: To proponents.

COMMISSIONER DOOLAN: To proponents which pass on to the community.

MS CADE: So just suppliers and to utilities.

COMMISSIONER DOOLAN: And to utilities. Reduced approval times for everything, access to better technology. So overall this can quantify or at least identify, and certainly quantify the benefits of the consistent approach to regulation in this case.

MS CADE: Yes.

COMMISSIONER DOOLAN: Okay. We may follow up - - -

MS CADE: The story, okay.

COMMISSIONER DOOLAN: Good. Well, thank you, Lucia.

MS CADE: Thank you.

COMMISSIONER DOOLAN: Our next speaker actually will arrive at noon, so we'll have another cup of tea. Okay, thank you.

ADJOURNED [11.38 am]

RESUMED [12.20 pm]

COMMISSIONER DOOLAN: I'd like to welcome Alistair Watson. Alistair, could you introduce yourself for the transcript.

MR WATSON: My name is Alistair Watson. I'm a freelance economist based in Melbourne.

COMMISSIONER DOOLAN: Okay. Can we hear your initial thoughts, - - -

MR WATSON: Yes.

COMMISSIONER DOOLAN: And then we'll have a discussion.

MR WATSON: Thank you for the opportunity to contribute to this public hearing that follows release of the draft report. I will make a few brief remarks by way of introduction and try to answer any questions that arise from the notes that I've already forwarded.

Firstly, the history of irrigation in Australia is unfortunate. Although irrigation and water per se cannot be considered independently of other factors like settlement policy, commodity markets and technology. I think until recently urban water should have been considered a success story. Recovering from the consequences of the chequered history of irrigation is not straightforward. The economics of water and the economics of the environment are conceptually difficult and controversial because they involve vexed questions surrounding the way time, uncertainty and capital should be handled. The politics of water are also difficult with several sources of conflict creating serious challenges in public administration. The politics are not only difficult, they're presently poisonous and they are becoming more so.

COMMISSIONER DOOLAN: Okay. Specifically, can you take us into places where you feel national policy has been successful and where it's, if you like, either not warranted or has been a failure.

MR WATSON: Well, I think for many years there was a degree of successful cooperation between the states within the Murray-Darling Basin, but I think in recent years it hasn't been as successful because I think the dead hand of planning, the belief that a prescriptive plan was required has resulted in an approach which hasn't been particularly fruitful. And in particular, as I think is highlighted in the draft report, I think the Commonwealth and the State Government to a large extent, their expenditure on irrigation infrastructure has been misplaced, both in public finance terms and also in terms of the problem that it was supposed to solve.

COMMISSIONER MADDEN: What do you mean by the second part of that?

MR WATSON: I am actually very deaf and I didn't actually catch that.

COMMISSIONER MADDEN: Sorry. What do you mean by the second part of that?

MR WATSON: The?

COMMISSIONER MADDEN: The second part of the statement, in terms of not achieving their goal.

MR WATSON: The second part of the statement that I gave you?

COMMISSIONER MADDEN: No, just your response - no, just your response then. You said irrigation - investment in irrigation infrastructure has not been warranted. I can understand the issues and the Productivity Commission have made statements around that previously, as opposed to using the market.

MR WATSON: Yeah.

COMMISSIONER MADDEN: I just want to explore your comment then about - I assume the water that's been sourced from those investments and then its use, is that what you're commenting on?

MR WATSON: Well, I mean they're things to do with - of economic efficiency and equity surrounding infrastructure investments, and it's clearly inequitable to treat one part of the agricultural community completely differently to the - to dryland farming with respect to their capital equipment. It's also the case that - the water saving case is extremely weak. I think that's pretty well settled in the professional literature on the topic. Also I think because there are no clear criteria, especially for selecting between on-farm investments, I think the policy leads inevitably to unreasonable treatment of some regions vis a vis other regions. So it's just - readily descends into politicisation of decision making and very large sums of money are involved.

COMMISSIONER DOOLAN: So just on that, I mean you mentioned the word "public administration" and if you look back over the history, this kind of poor investment has been going on for a long, long time. The NWI I see as an attempt to bring rigour to these processes. Now, how successful that's been, you know, is an open question.

MR WATSON: Yeah.

COMMISSIONER MADDEN: What other vehicles have you seen in your career that actually could either aid and abet the NWI, or actually assist there?

MR WATSON: I think there was a brief period from the 1970s and 1980s, I guess at the time when water scarcity really emerged, when it seemed to be recognised widely that the so-called mature water economy and that changes needed to be made. And changes to pricing were made. Changes to institutional arrangements were made, in different ways in different states but there was the separation of the operational activities and irrigation from the policy aspect. But I think that basically that was sort of caught out by a combination of factors. Probably mainly the drought which, you know, produced a sort of degree of panic in many areas, and also I guess the - a - well, what I regard as a sort of change in the sort of philosophical approach within government agencies away from treating long period - long-term problems as long-term problems and attempting to find long-term solutions to those problems too.

The year of the stunt and the - I think (indistinct) within the space of ten years, COAG water reforms, the NWI, the Murray-Darling Plan, and the notion seems to be that you can solve really difficult problems through rejigging bureaucracies in various sorts of ways; so moving away from discipline-based approaches to problems to what I regard as flimflam and stunts.

COMMISSIONER DOOLAN: Would you say that the COAG and NWI, which NWI did continue many of the directions of COAG and extend them, would you agree that that perhaps provided the long-term roadmap - and I see the Basin Plan is a more immediate solution thrown in on the top. Would you view it that way, or how would you see where the long-term solutions were articulated?

MR WATSON: No one can accuse me of being an optimist.

COMMISSIONER DOOLAN: No, that - I know that to be true Alistair but nevertheless, reflecting back, would you say any of those policy directions have been useful?

MR WATSON: Oh yeah, look they have. That's right, yeah. Lots of parts of them have been successful. That's not to say a lot of those things were in train and it's - there is a sense in (indistinct), I point out in the fuller version of the notes, that having agreements between jurisdictions does help a single jurisdiction solve an intractable internal problem, and that's the case in multi-lateral trade, and that is - you know, can lead to really positive outcomes. But it - I think we'd have to agree that the record's pretty mixed.

COMMISSIONER DOOLAN: Okay. So do you think there's a case for continuing with some form of NWI?

MR WATSON: I don't think there's a particularly strong case. I've never thought, and I've written about this previously, I've never thought that urban water ever should've been included in the National Water Agreement because the differences between the states are so gross. And also there was not much evidence that the situation was being handled all that badly anyway. There might have been a fair degree of cost padding in the water authorities and - but, you know, I've been in plenty of places where you can't drink the water and it's been a great thing about living here is you can. So we have a safe water supply, augmented as required, so I - and presumably that just wasn't the water authorities themselves. There must have been degrees of supervision through government departments, health authorities, the central agencies. I think actually I would argue that to some extent having a national agreement when you don't want one allows - well, it discourages the central agencies from taking much interest anyway because they're virtually marginalised by the Commonwealth-imposed bureaucracy and - so I think that - I don't think then urban water should have been part of it, so I hardly think it should be part of anything that's ongoing.

COMMISSIONER DOOLAN: And you don't feel - well, I mean with population growth and particularly in the cities, that the cities become in the national interest, and how a city is functioning is in the national interest?

MR WATSON: Well, not all Australian cities are growing at the same rate.

COMMISSIONER DOOLAN: True.

MR WATSON: And it's a - I guess there's obviously a lot of internal migration within Australia which determines the rates, but often the decisions about how fast the city grows and decisions of the city are the state itself, so - and I think by and large they should deal with the consequences. I don't really think that the citizens of one part of the country or one capital city ought to be contributing to solving the problems of other capital cities.

COMMISSIONER DOOLAN: Sure, sure.

MR WATSON: And I certainly don't think that the Commonwealth public service actually brings any technical expertise to the question. Whether they have the engineers, the microbiologists, the professionals to make much difference. I think all they could ever do is make things slightly worse, which they have.

COMMISSIONER DOOLAN: Okay.

COMMISSIONER MADDEN: Just in terms of where - I think you acknowledge we've got cross-boundary issues in terms of the Basin and the like.

MR WATSON: Yes, sure.

COMMISSIONER MADDEN: And environmental water. Do you have any comments on the future management of environmental water in those cross-boundary circumstances, and I guess in knowledge of the past with the Murray-Darling Basin Commission and - - -

MR WATSON: Well, I mean I'm not a great fan of having a Murray-Darling Basin Plan as such, and I think I'm on the record, I've written extensively on that topic. But, of course, we do have a Murray-Darling Basin Plan so I guess the question really applies to what should happen now. I think the complexity of the environmental issues; space, time, the engineering, technical, all sorts of different dimensions and the overriding uncertainty situation that's been dealt with, don't lend themselves to a prescriptive plan. But I mean I think the phrase that Tim Cummings and I used in the work we did, which is published in the Quiggin edited book, we framed a resource strategy of messy gradualism in working towards tangible environmental targets. That sort of happened in the past. So I - - -

COMMISSIONER MADDEN: I think that might be where we ended up anyway.

MR WATSON: Well certainly messy, (indistinct).

COMMISSIONER MADDEN: I mean you, in a sense, are describing adaptive management.

MR WATSON: Yeah, yeah, yeah, but - - -

COMMISSIONER MADDEN: Particularly on things like the infrastructure, et cetera which is coming along a lot later than - - -

MR WATSON: Like a lot of things in the professional domain and, you know, if we sat down we could think of things where the underlying idea makes sense. But I mean the boundary between adaptive management and opportunism was extremely narrow. It's, you know, a bit like the precautionary principle, it can lean, whatever you like. I mean (indistinct) has the same survey as me and he's written extensively on the corruption of words and the bureaucracy, and probably nowhere is it truer than in the fine level of work of Leonard (indistinct).

COMMISSIONER DOOLAN: In terms of some of those reforms that were put in place in the 80s and the 90s, are there any that you are concerned about that governments are starting to potentially backslide, put at risk some of that; particularly as we're seeing generational change in the bureaucrats, the communities, the regional leaders. Are you seeing anything that is of a concern that we should be aware of?

MR WATSON: Well, I think it's - I think it's point - yeah, it's in point 18 of the notes that I sent yesterday.

COMMISSIONER DOOLAN: Yes.

MR WATSON: Unabated as it is to read it, it says, "The underlying dilemma for local management of environmental problems, is that there is a big distance in space and time between the large number of people remote from the action who derive very small benefits from successful policies and programmes, and the small number of locals who are adversely and substantially affected". And I conclude by saying, "Over time it's likely that local interests will prevail", because they're constantly on the case and other people are seldom on the case, as it were.

So I think there's some memorable words of Professor Jack Lawson writing about the Australian dairy industry. I mean only in a very enlightened democracy will the interests of the many prevail against vested interests over a very long period. It's just not of the nature of the case. And I think the thing now is greatly complicated by the fact that there's a new political player, the non-empirical - this non-empirical environmental slogan-based environmentalism which is a further frustration and actually a - well, it almost sort of vindicates some of the negative attitudes that are in the irrigation community. But it also will fail to deliver really - results in the long run because it's not really sort of grounded on anything coherent.

I mean you can't turn an intrinsically complicated problem into slogans. It doesn't matter whether you're sort of managing complicated economic problems, complicated environmental problems, it just - in the long run that will have negative consequences and people will have to re-learn that - the simple minded steps that were taken, you know, when (indistinct) sort of - famous expression about the management of business cycles of commodity (indistinct) - what is it? This time is different. So it's a way different but largely it's people are not - it's, you know, people fatigue eventually, so it sets in and not many - not many people are sort of prepared to put in the years and years of hard work that it actually requires to achieve good results in these sorts of complicated areas. And the expansion phase, it's simple but, you know, stable states and to contract something is always a very tricky exercise.

COMMISSIONER DOOLAN: What would you like to see governments do to achieve, if you like, a sustainable high value irrigation sector? What would be the advice or the policy settings that you think would be important?

MR WATSON: Well I think one of the first things you'd need to realise is that it's productive irrigation sectors, not just about water. It's connected to developments in commodity markets based on, you know, the settlement history of the areas and if you - I mean there are lots of unforeseen consequences, say arising out of a policy which - on the job and support for buybacks for environmental purposes, but if as the previous Chief Economist of the Productivity Commission pointed out, Jonathan Pincus, who has written extensively on it, if as has happened buyback is practised randomly in a spatial sense, it will lead to additional costs and real serious sort of problems, and I think is an extent to which that's happened, so that the risky - profile of riskiness as between industries and regions and states have sort of been changed by those policies. And, you know, we never know exactly what's going to happen because we don't know the time path in the weather or in the markets, but you could easily anticipate some - or envisage, you know, some very difficult situations emerging basically because the fact that it was politically too difficult to do what's implied by reducing the amount of irrigation in favour of buying better flows. I mean it's implied that there will be less irrigation

but it's obviously going to be politically more difficult to close down the marginal irrigation areas. So if it's done at random, and this has generated another set of problems though, I think people who've got long experience in dealing with these sorts of problems have sensible ideas about how you perceive it. But in the short run, I mean I can't see much good coming out of the way the Murray-Darling Basin Plan is now structured. But it's a hard won political compromise and in that sense certain aspects of it are worth sticking with. But there's other parts that - like not having a really coherent regime of selection of environmental projects and putting them into practice, I mean it's - they're so - that's so poorly developed, it's - you know, I'm just not all that optimistic.

COMMISSIONER MADDEN: No more from me.

COMMISSIONER DOOLAN: Okay. So, you don't - - -

COMMISSIONER MADDEN: On that optimistic note.

COMMISSIONER DOOLAN: If there were any - it is what it is. So again, if you had thoughts about what should be either prioritised or changed, you know if you were in charge?

MR WATSON: That is scarcely likely, yeah.

COMMISSIONER DOOLAN: No, but if you were, are there any priorities that you would see should have significant attention paid?

MR WATSON: Well I think - I mean buy back has gone far enough, in a sense. There's no particular point in pursuing that. I think there are plenty of measures being taken at the end with respect to environmental objectives and presumably they can be pursued. I think - I mean it's pretty clear that issues to do with compliance and stuff need to be sorted out, otherwise it'll exacerbate interstate conflicts if that's required. But since, you know, the time path of water availability and the time path of the relative prospects of various irrigation-based industries is also - is just as problematic. I mean we've seen the dairy industry in the Victorian Goulburn Valley go into, you know, close to death style, and - for commodity-related reasons and also very bad management decisions made by people, exacerbated to a large extent by pretty ignorant government agricultural policies which have not properly thought through issues to do with further processing, which, I mean at a professional - another profession won't need agricultural economics, it's been going on since the 1980s but it seems that the - many of the commercial problems of Murray Goulburn related to very bad decisions about their product mix which irrigated dairy farms and (indistinct).

I guess I don't - and these sorts of considerations, what you might call sort of the macroeconomics of water, which have been in the agricultural economics literature, you know, as long as I've been involved in this subject, which is a very long time, so far as the water-related debate, the thing is that - is the non-issue. In fact I've extended my working life by being able to point out some of the more obvious facts about irrigation in Australia.

COMMISSIONER DOOLAN: Okay. No more from you?

COMMISSIONER MADDEN: Well, I'm tempted to comment on some of those agriculture issues, and we see positive changes in terms of southern New South Wales and see the ability of an industry to respond, and farmers to respond more importantly, as opposed to an industry, to different opportunities, such as cotton and almonds and the like. To be able to use their assets efficiently. But one thing I do want to talk about is this messy gradualism that you talked about, which is a little bit different to the concept of a structured kind of prioritisation process and framework, and I know the two can fit together. But I just wonder with that performance framework and then time and gradually getting there, I mean is that the missing piece in the plan from your point of view in terms of those, I guess, targets? Or is it too nebulous in terms of the objective?

MR WATSON: Well, - - -

COMMISSIONER MADDEN: Again I'm looking for areas for improvement, as opposed to ending on a pessimistic note, Alistair.

MR WATSON: Well I think the people involved in making the decisions have got to be fully aware of the complexity of what it is they're trying to do. So they're not basing their strategies on things like environmental flows, for example, average environmental flows. They would be seeking much more sophisticated targets than that and realising that multiple - there are multiple solutions to the problem, and there's lots of discontinuities that the problem has. You know, lots of corner solutions. Just as an economy can have an enormous number of configurations, so could irrigation. And environmental water management in the Murray-Darling Basin has got a massive number of, you know, different configurations which would have met certain objectives with respect to objectives, and the stability characteristics of the system, if you like. I supervised students in my time who could cope with a lot of the complicated mathematics involved in reaching that sort of - and applying that sort of approach, but unfortunately it's that long ago that I've forgotten what they taught me.

COMMISSIONER DOOLAN: Okay. Have you got any further messages for us that you would like us to take note of?

MR WATSON: No, no, but if I think of anything I've not communicated, - - -

COMMISSIONER DOOLAN: Of course.

MR WATSON: And I might send off a selection of things that I've written over the years.

COMMISSIONER DOOLAN: And, of course, we're looking at the implementation - the effectiveness of the implementation of the Basin Plan next year.

MR WATSON: That's a purely - from pure personal curiosity, what I would like someone to do would be to check the underlying statistics and the conceptual veracity of the idea of sustainable diversion limits. Because it's all a bit unbelievable to me. But any rate, as I'm saying, my professional knowledge of statistics is not sufficient but I would like someone to have a really fresh, independent look about what it actually means to say (indistinct) these sorts of - and then when - what you were taught a long time ago was that the variability of rainfall and runoff in Australia is so extreme that many of the concepts of hydrology developed in other

parts of the world are non-applicable. And yet we have this prescriptive plan and it's supposed to have regional sustainable diversion limits. Well, you know, I'd like normal views of able statisticians on exactly how that was determined. And (indistinct) spent may well have been driven by an aggregate flow target feeding into what regions had to generate, rather than a sort of forward looking conceptual view of one of the potential layers of that. I mean following on from the sort of the very early paper of John Quiggin, when he discusses various economic concepts that you can apply in thinking about the economics of different notions. You know, sustainability rules, property rights, approaches and various other Quiggin-type approaches. I just think that - well, I suspect, rather than think, that the policy process was path-dependent, just like the economic processes have been sort of path-dependent as well. But any rate, that's something I'm only speculating about, but I think it's worth thinking about.

COMMISSIONER DOOLAN: Okay.

MR WATSON: And it may well - sorry to keep going, but it may well have actually exacerbated the political problem as well, by going down that sort of short - what I regard as a shortcut-based root to the problem, because clearly lots of people can now see things that are wrong with what's been tried to be done and it confirms their sort of worst fears and feeds their objections. But anyway, I'll stop at that point.

COMMISSIONER DOOLAN: Okay, well thank you. And thank you for your submission. Thank you for that.

So, this actually then concludes today's scheduled proceedings. I don't think there's anybody here to add any additional thoughts. So, I suppose for the record, is there anyone else who would like to appear? If not, I adjourn the proceedings and this concludes the Commission's public hearings for the National Water Reform Inquiry for today and for the Inquiry. So thank you. Thank you all.

MATTER ADJOURNED

[1.01 pm]