REPORT ON PROCEEDINGS BEFORE

GENERAL PURPOSE STANDING COMMITTEE NO. 5

WATER AUGMENTATION

CORRECTED

At Macquarie Room, Parliament House, Sydney on Monday, 7 November 2016

The Committee met at 9:30 am

PRESENT

The Hon. R. Brown (Chair)

The Hon. S. MacDonald
The Hon. M. Mason-Cox
The Hon. R. Colless
The Hon. M. Veitch
The Hon. P. Sharpe

The CHAIR: Good morning, everybody. Welcome to the second hearing of the General Purpose Standing Committee No. 5 Inquiry Into the Augmentation of Water Supply for Rural and Regional New South Wales. This inquiry will examine water demand and supply, the suitability of existing water storages, flood history and technologies to mitigate flood damage, and water management practices including for environmental water. The Committee visited Menindee Lakes recently and had a hearing in Broken Hill and will visit other regional areas next year. Before I commence, I acknowledge the Gadigal people who are the traditional custodians of this land. I also pay respects to the elders past and present of the Eora nation and extend that respect to other Aboriginals present. Today, we will hear from representatives of Local Government NSW, the NSW Farmers Association, and University of New South Wales Water Research Centre, and the Independent Pricing and Regulatory Tribunal [IPART] New South Wales. There were to be other witnesses from Government departments such as WaterNSW, Department of Primary Industries and the Commonwealth Environment Water Holder but we will have to reschedule those.

In accordance with the broadcasting guidelines, while members of the media may film or record Committee members and witnesses, people in the public gallery should not be the primary focus of any film or photography. I also remind media representatives that you must take responsibility for what you publish about the Committee's proceedings. I also urge witnesses to be careful about any comments they make to the media or to others after or before they give their evidence, as such comments would not be protected by parliamentary privilege if another person decided to take offence. The guidelines for the broadcast of proceedings are available from the secretariat at the side table. There may be some questions that a witness could only answer if they had more time or with certain documents to hand. In those circumstances, witnesses are advised they can take questions on notice and provide answers within 21 days of receiving those questions from the secretariat.

I remind everyone that Committee hearings are not intended to provide a forum for people to make adverse reflection about others under the protection of parliamentary privilege. I therefore request that witnesses focus on the issues raised by the inquiry's terms of reference and avoid naming individuals unnecessarily. Witnesses are advised that any messages they need should be delivered to Committee members through the Committee staff if you have advisers in the room. Could everybody turn their phones to silent for the duration of the hearing. I welcome our witnesses.

SHAUN CHRISTOPHER MCBRIDE, Senior Strategy Manager, Local Government NSW, affirmed and examined

SASCHA MOEGE, Senior Policy Officer, Local Government NSW, affirmed and examined

The CHAIR: Before we proceed with questions from the panel would either or both of you like to make a brief opening statement?

Mr McBRIDE: I will make a brief opening statement on behalf of our organisation. Local Government NSW thanks the Committee for the opportunity to comment on this subject. We are the peak body for local government in New South Wales and local government plays an important role in water management in the provision of water services to the community in regional New South Wales. There are 89 council-owned and operated water utilities providing water and sewerage services to 1.8 million people, so it is an important area of local government focus outside the metro areas. In consultation with our members, we have developed a number of core positions with respect to how water resources in New South Wales should be managed, including the need to consider all supply and demand management options, the need to guarantee security and quality of urban water suppliers in regional New South Wales and the need to address regional socio-economic impacts of water resource management.

The CHAIR: Before we proceed to questions by the Opposition, of the 89 sets of facilities that local government manage, can you give me a rough idea of how many of those would regularly or periodically be stressed in respect of the supply of water? For example, we visited Broken Hill and we have seen what has happened out there. We are talking about town supply now.

Mr MOEGE: I do not think we really have the information on it but there would be probably a few that occasionally struggle in respect of supply, but I probably should say that most of them under the Department of Primary Industries—Water [DPI] best practice and management framework have a drought management strategy in place, so they would have some strategic instrument that would help them deal with that situation. Broken Hill is probably an extreme example at the moment. There would not be that many that have that many problems, but I guess occasionally it happens, particularly in the millennium drought where a few storage facilities went down, so some of them actually had some increased risk in respect of water security at that point in time.

The CHAIR: During the millennium drought, would many of them have been stressed to the point where they had to import tanks and water?

Mr McBRIDE: I am not aware of any particular example.

Mr MOEGE: During the worst of that drought there were a number of communities within different local government areas where it was necessary to augment water supplies by tanking it in. It often was not the main town centre, but some of the smaller villages—often where bores and such had run dry.

The Hon. MICK VEITCH: Thank you for your submission and your attendance this morning. Can I ask you about the involvement of Local Government NSW in the development of water sharing plans: What is that?

Mr MOEGE: Councils would be involved in water sharing plans as water users in particular water sharing areas. They run water utilities so they have a water utility access entitlement in that particular water sharing plan area. So they would be part of the consultation around that.

The Hon. MICK VEITCH: How does that work? In south-west New South Wales, say on the Lachlan River, the Belubula River or the Murrumbidgee River, in the development of water sharing plans, do you have a representative of local government NSW on the development committee for those water sharing plans?

Mr MOEGE: No, the councils in the area would have somebody come along and talk about that.

The Hon. MICK VEITCH: What I am trying to get to the bottom of is how local government gets input into the development of water sharing plans in New South Wales.

Mr MOEGE: The councils would have the opportunity to participate in the water sharing plans and the consultation around them in their catchment areas. From our perspective, Local Government New South Wales would look at the general policy principles that apply to how water sharing plans are being set up and managed. So, whenever we would get a comment from councils—for instance, that they are not particularly happy with certain things that happen—we would have a look at whether there are any policy changes that we might want to lobby for.

The Hon. MICK VEITCH: In the development of a water sharing plan there is a whole group of people—stakeholder groups, NSW Farmers et cetera—that get involved in the development of the water sharing plan. They feed back to their stakeholders what is happening with the development of a plan before the plan is put in place. With respect to Local Government NSW how do our councils get feed back about what is being put in those water sharing plans before the plan is put in place?

Mr MOEGE: As I said, I would think that local councils would be consulted in the process as is any other stakeholder that is affected by that water sharing plan.

The CHAIR: I might ask for clarification. Would you have much of an idea of the level of complaint that you get from local councils that they have not been given the appropriate opportunity to be consulted on water sharing plans?

Mr MOEGE: As far as I know, at the moment we do not have any specific complaints from councils as to the manner of consultation. For example, we had a motion recently at our conference that asked for councils to be involved in the consultation around water sharing plans in an appropriate manner but that is the extent of it at the moment.

The CHAIR: Did that resolution pass?

Mr MOEGE: It passed the conference, but because we went into specific committee mode, it still needs endorsement by the Local Government NSW board. It is a motion that has been carried by conference.

The CHAIR: Excuse me for eating into your time.

The Hon. MICK VEITCH: That is all right.

The CHAIR: If that motion is adopted by the board of Local Government NSW what process will now go forward to bring that resolution to the notice of the relevant Government Minister or Government departments, and how long do you think that would take?

Mr MOEGE: What normally happens, if a motion gets endorsed and becomes a proper resolution, is that we write to the responsible Minister asking him to—

The CHAIR: Consult with you?

Mr McBRIDE: Yes.

The CHAIR: With respect to the time frame, are we talking about six months, a year or two years before that resolution would be decided by the board? Do you have any rough time frames?

Mr McBRIDE: No, it would be decided at the board meeting in December. That is almost a procedural step. Then the actions arising from the resolution will take place almost immediately after.

The CHAIR: Does Local Government NSW, when you write to the Minister, have experts or people who advocate for what you want in local water plans to the Minister? Who would do that?

Mr McBRIDE: It would include ourselves. Then we would draw on the expertise of those in the local government water sector.

The CHAIR: Thank you.

Mr McBRIDE: There is a water directorate.

The CHAIR: There is?

Mr McBRIDE: The Local Government Water Directorate is, I think, made up of all the local government water utilities—or almost all of them. That directorate is run in partnership with Local Government NSW and provides a good basis of technical input.

The CHAIR: How is that directorate structured? Surely you do not have 89 representatives sitting around the table, do you?

Mr MOEGE: No, they do not. The Water Directorate has an executive committee. I am not aware of the exact number at the moment but they have various regions, and local water utilities, or council-owned local water utilities in that region, elect a representative for the Water Directorate executive committee.

The CHAIR: I apologise, because I have not read your submission. As Chair, I tend to try and stay out of it. If you have not provided that information in your submission, would you be able to take on notice to provide the committee with the make-up of your directorate, please.

Mr McBRIDE: We can do that.

The CHAIR: Thank you.

The Hon. MICK VEITCH: With regard to water sharing plans, does Local Government NSW have a view as to the effectiveness of water sharing plans for the management of the water resource in New South Wales?

Mr MOEGE: As a membership organisation I suppose we are dependent on what our members tell us in terms of what they want us to advocate for or look at. As I said previously, we do not have that many specific issues raised with us in relation to individual water sharing plans. So we do not have that information.

The Hon. MICK VEITCH: I will fess up, now. I am from south-west New South Wales and I have had, I reckon conservatively, probably 20 councils in the last 12 months tell me that they are unhappy with their respective water sharing plans, and they are unhappy with the way that they had involvement from Local Government NSW into the development of those plans. Is it possible for you to canvass your constituency and find out their views on the effectiveness of water sharing plans, and the issues that people may have?

Mr McBRIDE: Yes. We will take that on notice.

The Hon. MICK VEITCH: Thank you.

The Hon. PENNY SHARPE: Thank you for coming in today. I notice in your submission that you talk about work that was done between 2009 and 2011 trying to look at the predicted impacts of climate change and reduced water. Has there been any work done, that you are aware of, since 2011 to update that initial reporting?

Mr MOEGE: I am not aware of it. I think there are two things I should probably mention. I do not think there has been any update to the pilot study that we mentioned in our submission, but it was an initial pilot study to inform the development of those guidelines that we referred to in the submission. So the pilot study, with the number of local water utilities that they looked at, has not been replicated. However, there is also general modelling from the New South Wales Government around climate change and water security. I am not privy to all the things that they do in that area, and whether or not they have updated the general database and the modelling on that. That is probably a better question for the Government.

The Hon. PENNY SHARPE: Your submission says that you think more work is required in this area. So my question is whether you would be asking the Government to update the work that they did previously, at the very least.

Mr McBRIDE: Yes, definitely.

The Hon. PENNY SHARPE: I am interested in what work your organisation has done, or what discussion there has been, around the impact of council amalgamations on the water assets and the ability to deliver water into those communities. Has there been much discussion about that?

Mr McBRIDE: Prior to the amalgamations taking place there were a lot of concerns about how a lot of council operations were going to be integrated, as happens in any amalgamation process. There were particular concerns prior to that in relation to water and sewerage.

The Hon. PENNY SHARPE: What would they be?

Mr McBRIDE: I think there were concerns about the practicalities—the physical difficulties of integrating the utilities. Some might not have necessarily shared the same catchments and there may have been complications arising from that. There were broader concerns about management of the transition, but that was not unique to water and sewerage.

The Hon. PENNY SHARPE: No; I know.

Mr McBRIDE: It is a big challenge. It is an ongoing challenge for all those councils that have been subject to amalgamations. They are making progress but it is not without difficulty. That would apply to the water and sewerage operations as well.

The Hon. MICK VEITCH: What about governance models? I saw recently that Hilltops Council had to appoint a co-administrator because it apparently forgot that Harden and Young had a representative elected to what was Goldenfields Water County Council.

Mr MOEGE: I might just add to that: In terms of the current amalgamation reform process in water utilities there were various issues. First of all, Shaun mentioned already that there is an issue around looking at

the hydrological catchments and how you can best manage the water supply and the sewage provision on a hydrological catchment basis. In that context—

The Hon. PENNY SHARPE: Which would seem to make some sense.

Mr MOEGE: Yes. In that context, as you probably know, many of the water utilities work together. A few actually have formalised those arrangements and formed regional alliances. That is the Lower Macquarie Water Utility Alliance around Dubbo. The Central West New South Wales councils regional organisation has formed a water utility alliance as well with various councils in the area. I do not know, but often amalgamation processes do not necessarily take that into consideration to a degree that might be desirable for those water utilities, in particular around the boundaries. I guess that applies to a few water county councils, as well as what is mentioned. Some of them do not quite fit the boundaries. Part of those supply services are part of the amalgamated councils but not any other in those kinds of arrangements.

Mr McBRIDE: This may be further complicated by the creation of joint organisations whose boundaries may or may not coincide, and I suspect in many cases will not coincide, with the types of alliances that Sascha has mentioned.

The CHAIR: For clarification, would you be able to supply the Committee with a list of those water alliances?

Mr MOEGE: Yes, definitely.

The Hon. PENNY SHARPE: There are very particular issues around the water utilities. What work is being undertaken through the amalgamation process through your directorate, or does that need attention?

Mr MOEGE: I think what we said before more generally is that we would probably like, from the view of water utilities, the process to take that into account in a more specific way, looking at particular arrangements that are already in place, acknowledging them and making sure that those are taken into account.

The Hon. PENNY SHARPE: Your submission makes a call on the need for good demand-side management of water, something that we are all interested in. I know that local government has done a huge amount of work, and some very innovative projects are in place. Can you provide to the Committee some of the specific examples of demand-side management that have been undertaken by local government utilities, what you consider to be working well and what might be applicable elsewhere? I am happy for you to take that on notice.

Mr MOEGE: That is probably more a resourcing issue, because, as we said, there were 89 or more that all have a comprehensive demand management strategies. Most of them have a relatively comprehensive demand management strategy and they would do various things, ranging from Gosford City Council and its demand management strategies to smaller councils in rural and regional areas that face different issues. There is a variety of issues but we could probably pick a few and give a few examples.

The Hon. PENNY SHARPE: Yes, I do not want a list of all of them. That is not what I am asking for. You have a helicopter view of what is happening across all of these areas. There are clearly places that would have done some work that people think is noteworthy and that I think that would be of interest to this Committee.

Mr McBRIDE: Certainly one that attracted a lot of attention was in Orange.

Mr MOEGE: Yes, the stormwater harvesting scheme in Orange. It is probably well known. Blackman's Swamp, I think.

Mr McBRIDE: Yes.

Mr MOEGE: Orange has installed a stormwater harvesting scheme which takes the urban run-off, the run-off in the city area, treats it to a reasonable degree and then puts the water into its water storage, Suma Park Dam, which then adds to the water that is already in there. That is an example that is now a few years old but that we could provide, if that is what is sought.

The Hon. PENNY SHARPE: Yes, that is the kind of thing. As I said, I do not want you to give me every single thing that is going on, but you are in a good position to look at what is happening across the State and provide things that you think—

The CHAIR: Some examples.

The Hon. PENNY SHARPE: —are some good examples that are getting some good results.

Mr McBRIDE: We would add that all of the council utilities—I mean, everybody is highly attuned to demand management these days—have in place rigorous demand management policies. Also, another key factor in helping achieve demand management outcomes is pricing policy. These days, given that all the water utilities have moved to full cost recovery, as per DPI best practice guidelines, the pricing itself is probably one of the major demand management influences. When water was relatively cheap in Australia, in Sydney and in areas like the Central Coast, people used to use it flagrantly. These days people consider the price and realise that it will cost them if they waste it. That is part of the helicopter view of demand management.

The Hon. RICK COLLESS: The Chair asked whether you could supply a list of the regional water alliances that exist in regional New South Wales or in New South Wales generally. Can you give us an idea of how many of those alliances there are?

Mr MOEGE: Those alliances are set up in various ways and often are not legal entities as such. Most of them are formed under the Local Government Act under section 355, I believe, as a committee. Others just operate on a memorandum of understanding between the two, three or whatever number of councils. Obviously, in terms of the list, it depends on how we look at it, but advanced alliances at the moment, as far as I am aware, are the Lower Macquarie Water Utility Alliance around Dubbo and CENTROC Water Utilities Alliance around the Central West councils. Also coming to mind are, for example, Coffs Harbour and Clarence Valley, which work together. They have a joint strategy and jointly run one of the dams. There are various other water utilities that work together to various degrees that are not necessarily formalised all the time.

The Hon. RICK COLLESS: Is it possible that the formalised ones could continue to operate independently of the local government amalgamations?

Mr MOEGE: I would think so. They could theoretically, yes. It would just mean that the amalgamated council rejoins as the new council or there would need to be some boundary readjustments.

Mr McBRIDE: Or the capacity to work across boundaries, JO or otherwise, for the purpose of certain functions which the Government generally seems to agree to, but we are yet to see how the JO model fully rolls out.

The Hon. RICK COLLESS: In your submission, you talk about the median water use charge of 226 cents per kilolitre. Can you give us an indication of what the range is?

Mr MOEGE: I cannot do that off the top of my head. We can take that on notice or it might be better to refer to the performance report produced by DPI Water each year. There is an annual best practice performance report which sets out a range of indicators and information on all local water utilities including pricing levels. You could easily look it up in that one as well.

The Hon. RICK COLLESS: Most of those alliances would operate multiple water treatment works. Is that correct, or do they have a central treatment works and then distribute the water?

Mr MOEGE: Each council in the alliance would still be responsible for operating their system. That system and that particular council could include various water treatment plants depending on how the network was set up, how many villages and towns it had, and how the hydrology works in the particular circumstances.

The Hon. RICK COLLESS: So it would give them flexibility if they were a legal entity, as you described it, distributing water from a particular water treatment plant, which is outside what the original local government body would have been able to distribute.

Mr MOEGE: They could come to those arrangements. As you might be aware, various network improvements are being made in Centroc to connect various water sources.

The Hon. RICK COLLESS: Are you saying that it gives them much better flexibility?

Mr MOEGE: In the Centroc example, the basis of that was a water security study undertaken just before 2010, I think. It identified that it would be beneficial to have some sort of connection to the network, and that is what they are aiming for.

The Hon. RICK COLLESS: Is there a financial benefit to be gained from that as well as the obvious distribution benefits? How do the costs of regional water alliance operators compare to standalone local government operators?

Mr MOEGE: I cannot answer that question. Again, it would depend on the circumstances. However, if through those connections you have a better level of water security, it could result in avoiding augmentation of individual systems. I do not have knowledge about that specifically.

Mr McBRIDE: The benefits from some of the alliances are hard to measure. For example, with the Macquarie region alliance, larger councils like Dubbo Regional Council, which have greater depth of staff and higher level staff, are able to provide assistance to some of the smaller councils with engineering and design and so on that they would not be able to afford individually. Some of the benefits accrue in that away through cooperative arrangements and sharing of expertise by stronger councils.

The Hon. MATTHEW MASON-COX: I refer to the socioeconomic impacts. I note that your submission states that you believe it is "critical that the process of identifying and addressing these impacts is strengthened". What about the current system of dealing with those impacts is inadequate, and what should we do to improve the situation?

Mr MOEGE: That is a difficult question to answer because it is difficult to know what the socioeconomic impacts are and whether they are based on a reliable study. Our policy position—particularly in relation to the establishment of the Murray-Darling Basin Plan—has always been that the socioeconomic impacts are taken into account and addressed. We do not have the resources to do socioeconomic impact analyses. We hope that government and other players would undertake a proper socioeconomic impact analysis of any water resource management initiatives. For instance, that would apply to the Murray-Darling Basin Plan and any other entitlements buy-backs or changes in the arrangements in individual catchments and water sharing areas. They should ensure they are being done properly so that they are understood and can be addressed.

The Hon. MATTHEW MASON-COX: Have you had an opportunity to review the work done on the northern basin and any socioeconomic impacts of the water sharing plans in that area?

Mr MOEGE: We had a brief look at that. We are aware that various towns have been identified as having significant socioeconomic impacts, for example, Warren. We would hope that that would form the basis for governments to look into those impacts and to find a way to address them.

The Hon. MATTHEW MASON-COX: Do you have any view about the adequacy of the review itself? Are you happy with the analysis and the basis upon which that review was conducted?

Mr MOEGE: As I said, that is difficult for us because we do not have the resources to go through the comprehensive socioeconomic impact analyses that are being done. There are many of them, particularly if an issue becomes critical, and it is difficult to address them all. Because it has been done by the Murray-Darling Basin Authority, we would hope that a proper process has been followed.

Mr SCOT MacDONALD: I have a question that you might prefer to answer on notice. Your submission states:

> LGNSW is also concerned about how environmental water management affects urban water supplies and local water utilities' ability to plan and provide for the potable water needs of their communities.

Can you provide some examples of the challenges?

Mr MOEGE: Yes.

Mr SCOT MacDONALD: I draw your attention to water pricing. Consumption has reduced by 50 per cent over the past 24 years. Most of us receive our water bills retrospectively. There is not the same disruption we have seen in the electricity market. Do you have opportunities to provide more real-time information about personal or industrial consumption with smart metering and so on? Is that being raised with Local Government NSW?

Mr MOEGE: A few things come up as policy issues. You mentioned smart meter reading, which is an option for water as well, particularly in relation to the scarcity of water. If water is scarce, the pricing can be changed and by doing so you send a message directly to the customer. These kinds of things come up. Other disruptions that we might see relate more to tapping into other supply sources. Water recycling has been mentioned, and will probably be mentioned again, but we have been keen at least to look into or to have people talk about potable reuse, indirect or direct. That is a contemporary issue, and looking to the future it might become even more relevant. We try to look at other things that can be done when issues are raised by members.

Mr SCOT MacDONALD: Are you hearing of demand from residential or industrial users for more power? At the moment they are price-takers, and the information is late, retrospective and so on.

Mr MOEGE: We do not have that information from local water utilities on this issue. A few water utilities are advanced in how they do their pricing. I should point out that the Local Government Act restricts the way that councils can charge, particularly in relation to annual changes, which are linked to rates. It is difficult for them to provide real-time information.

Mr SCOT MacDONALD: That is an important point. Perhaps the Committee should consider whether there should be more flexibility. Is it too restrictive?

Mr MOEGE: We have stated in submissions that we would like the Local Government Act to be reviewed and that more flexibility be introduced in how water utilities are comprised in a more contemporary way.

Mr SCOT MacDONALD: That would go to demand and to how people consume. If there are peaks or if water is scarce and so on, you could send a price signal.

Mr MOEGE: As Mr McBride said, there is already a strong pricing signal. There are high proportional usage charges, or a high proportion of the total price is usage charges. People already get a strong signal in terms of usage from local water utilities.

Mr SCOT MacDONALD: But the Act is still restrictive in your view?

Mr MOEGE: The restrictions in the Act would relate more to the way a bill can be sent, what periods can be priced and so on.

Mr SCOT MacDONALD: Is creating a bill and getting it out to the customer restricted?

Mr MOEGE: The annual charges need to be aligned with the quarterly charging periods. You cannot go and read a meter and send an annual charge at any times. There needs to be some sort of alignment with quarterly charging periods.

The CHAIR: Just before I move back to the Opposition, we have got another seven minutes or so. Does the Local Government Association of New South Wales take a leadership role in looking for technology or looking for helicopter solutions? An example might be: Has Local Government New South Wales conducted any research or do you have the capacity to conduct any research or any consultation, for example, with local government areas or local government associations in other States? I am thinking here, in South Australia in the local government area of Salisbury, they use stormwater re-injection into aquifers. Does your organisation have the capacity to do much work in that area on behalf of your client councils or do you leave it to the client councils themselves?

Mr McBRIDE: As we mentioned earlier, there is the water directorate, which brings the professional management side of the water facilities together with our policy side and they are certainly always looking at new developments, the new technologies, new approaches that have been taken, both within Australia and overseas and ourselves, we are also, through our national association, share information with each of the other States about water supply and sewerage practices in those States.

The CHAIR: Do you know if any of the other States have a water directorate like you do?

Mr MOEGE: Yes, there is one more State that has a water directorate that is similar to the water directorate that exists in New South Wales. I should say, the water directorate is an independent organisation to us. It is Water Directorate Incorporated, which councils are members of, so it is not our directorate. There is a similar organisation in Queensland. In all the other States local government is not that involved in water supply and sewerage, it is only in Queensland and New South Wales where there are still council owned water utilities that provide those services. In other States, Victoria has State-owned corporations that provide those services in regional areas, Tasmania just moved to a council owned corporation that covers the whole State and in the other States local government is generally not involved in those service provisions.

The CHAIR: To save the Secretariat from having to try and do this cold research, would you be able to provide us with a list of contacts that you have or know of for the directorate in New South Wales and the directorates and/or similar organisations in other States?

Mr MOEGE: Yes, that is fine. We can do that. The other thing I probably should mention just quickly, is that we have an annual water conference, because you were referring to research that could be undertaken by us or we could look into technological change or other changes.

The CHAIR: New South Wales has an annual water conference or nationally?

Mr MOEGE: Our organisation organises the New South Wales conference, which is mainly for the local water utilities in regional areas. This is where we try to have that conversation about what is happening, what is the new research and we invite people to come along to present those new ideas.

The CHAIR: Annually?

Mr MOEGE: That is annually, yes.

The CHAIR: When is the next one likely to be, next year or this year?

Mr MOEGE: The next one is going to be held in September in Dubbo.

The CHAIR: September 2017 in Dubbo.

Mr MOEGE: Yes, 2017. We just had one at the end of August in Broken Hill.

The Hon. MICK VEITCH: Just following on from the Chair's questions about aquifer recharge, are there any councils in New South Wales that you are aware of currently doing any work on aquifer recharge?

Mr MOEGE: Not that I am aware of specifically. There would be probably a few that would look into that as one of the options in their strategies.

The Hon. MICK VEITCH: I think Orange might be one.

Mr MOEGE: It might be, yes.

The Hon. MICK VEITCH: Aquifer mapping is quite a big issue. Do you think there has been enough work or there should be more work done on aquifer mapping in New South Wales?

Mr MOEGE: I do not think we have the knowledge to answer that question. I am not sure.

Mr McBRIDE: That question may be a better one to put to Department of Primary Industries.

Mr MOEGE: Yes.

The CHAIR: I will call a halt to proceedings there; it is now 10.13. Mr McBride and Mr Moege, thank you very much for agreeing to come before us today. There were a number of questions that you agreed to take on notice. Hansard will provide the Secretariat with the questions, so they will be sent to you. Once you receive them, if you could try and get the answers back to us within 21 days, we would very much appreciate it.

Mr MOEGE: Yes.

(The witnesses withdrew)

The CHAIR: Our next group of witnesses is representing the Independent Pricing and Regulatory Tribunal; a very mysterious body to most of us.

ROBERT ANTHONY O'NEILL, General Manager, Licensing and Compliance, and

HUGO NEIL ARNOLD HARMSTORF, Chief Executive Officer, Independent Pricing and Regulatory Tribunal, affirmed and examined:

MATTHEW AARON EDGERTON, Executive Director, Water Pricing, Independent Pricing and Regulatory Tribunal, sworn and examined:

The CHAIR: Thank you for agreeing to appear. We should get a lot out of this session. Before we begin with questions from the panel, would you like to make an opening statement, any one of you or all three of your—fairly brief, hopefully.

Mr HARMSTORF: We are here at the invitation of the Committee, so rather than make a lengthy opening statement, I am happy to be guided by the Committee's questions.

In brief, we have two roles in relation to water in New South Wales, namely licensing and pricing. We do our best not to be mysterious. We put everything on the internet. When we hold public hearings, public forums, they are transcribed and the transcriptions are available on the internet. But I do understand that it is a somewhat esoteric field. We look forward to helping the Committee today.

The CHAIR: Before we do move on, can I just ask, the people who make these deliberations and considerations, generally speaking what are the discipline bases of your employees? Are they economists or generally speaking, engineers, or what are they?

Mr HARMSTORF: You have actually asked two questions there. The people who make the decisions are the tribunal members and they are appointed based on their expertise and at the moment the background is one of them is an eminent economist, one of them is an economist and lawyer and the third is an engineer. That broadly mirrors IPART's make up. We have 150 individuals, about 130 full time employees, of which probably around half would be economists, half the remainder would be engineers, maybe half the subsequent remainder would be lawyers and then some support staff in various other disciplines.

The CHAIR: Has the requirement for the Independent Pricing and Regulatory Tribunal [IPART] to determine increased over the years and do you believe that IPART's personal infrastructure is keeping pace with the demand on the requirement for you to make deliberations?

Mr HARMSTORF: Are you talking about water specifically, or in general?

The CHAIR: We will say general first, then we will come back to water.

Mr HARMSTORF: Generally, yes, we were recently given a new role in relation to becoming the safety and reliability regulator for the energy networks, and that is a new function. We also a couple of years ago were given a new function in relation to local government. So, yes our functions have grown as the Government has seen fit to give additional functions, generally they have been funded.

The CHAIR: In relation to water specifically, are you finding that your resources are keeping pace with the demand for you to make determinations in that area?

Mr HARMSTORF: Broadly, yes. We have a role in relation to licencing of private water utilities created under the Water Industry Competition Act. As the number of private utilities has grown they first have an application process and then we monitor their compliance with their licences. So as the number of private water utilities increases that workload has been growing but it has been a workload that so far we have been able to fund from internal reprioritisation.

The CHAIR: Of course, you are probably not able or we would not require you to comment on government policy but do you feel that IPART's role moving across to licencing and compliance areas is compatible with your previous corporate experience? Do you feel it is a good fit or not?

Mr HARMSTORF: Yes, certainly.

The CHAIR: We see the same sort of thing, of course, with Environmental Planning and Assessment [EPA], licencing and compliance. In your area also added to that is pricing.

Mr HARMSTORF: Yes.

The Hon. MICK VEITCH: Thank you for your attendance. We have just come back from a trip to Broken Hill to have a look at the Menindee Lakes system but also a public hearing day where we heard testimony from a number of people about the proposed Murray to Broken Hill pipeline. In a broad context could you advise the committee what will be the process you follow to determine the price for water at Broken Hill for the new pipeline? I do not want to talk about what you think it will be, I want to be very clear about the process you are going to follow.

Mr HARMSTORF: It is very hard to answer that because there is still so much uncertainty around that pipeline. We only know what we have read in the public domain about that pipeline, and indeed I learned some reading the transcript of your Broken Hill hearings.

The Hon. MICK VEITCH: In a broad context how would you do it?

Mr HARMSTORF: Typically our approach is where a water utility has proposed a forward capital works program we would engage expert consultants who would assist us in assessing the prudency and the efficiency of that capital works program and to the extent that it was prudent and efficient and also that it ought to be funded by user charges we would then allow the utility to earn a return on and off capital. What that means is that we would set prices such that the utility could not only recover the depreciation on the asset but also it could cover the interest payments on any money borrowed to fund it.

The CHAIR: And the operating costs?

Mr HARMSTORF: And the operating costs as well.

The CHAIR: So would I IPART be brought into that whole process before it was decided to actually build the facility? In other words, are you asked as a consultant or the eventual licencing and or price regulatory authority to examine capital costs, for example, to examine proposed operating costs prior to the project getting locked in stone? How early in the process do you get involved?

Mr HARMSTORF: When we set prices our pricing review typically takes a year, so we would start in July for setting prices the following July, and we would look at the utility's proposed capital works program for the subsequent, let us say five years, if it were to be a five-year price determination. And we would look at the prudency and efficiency of their proposed capital works investments. In relation to that particular pipeline the last time that we looked at Essential Water's prices was during the year from July 2013 through to set prices from 1 July 2014 and during the course of that price review the pipeline was not proposed by any stakeholder, so we did not look at it.

The CHAIR: In the case of the new proposed pipeline, how would IPART see the process rolling out? Would the Government first do their business case studies, et cetera, they would need some input from IPART, I would suggest, but then when we get to the stage before the pipeline is built, is it normal that a licensee or a short list of licensees would be proposed and would the licensee be licensed by you to run said pipeline prior to the pipeline being built? Or would it be like the case of the Government builds a pipeline, selects a licensee and then IPART is required to licence that licensee? How does that work?

Mr HARMSTORF: It is difficult to talk about the pipeline specifically because we simply have not looked at it, at all. But I can talk to you about our general process. Under the Water NSW Act, the establishing Act for Water NSW, there is a section 56 that requires them to be licensed and brings in IPART's role. As part of that role in determining prices we, as I have said, look at the capital works for the prudency and efficiency. I have talked about the prospective looking at it. If any capital asset were to be built other than consistent with the proposed capital works program we would then retrospectively look at the money that they had spent over the previous price determination period, so the five-year period, and we would assess that for its prudency and efficiency.

The CHAIR: Obviously it is not IPART's role to be a public advocate or to try and, shall we say, calm people's' fears into the future, you are there as a very efficient functionary of determining what the price should be. I think what the deputy chairman was suggesting was that the feedback from the broad community, every witness pretty much said the same thing, they are frightened, they are worried that there will not be equity or fairness in the process. Your process, does it take account of social impacts, equity fairness? How does that work?

Mr HARMSTORF: It does. If I can just correct something you said earlier though. We would typically not be involved in any of the decisions leading up to the investment. Our role is to come in afterwards and pass on the appropriate amount of costs through to end users through our process.

The CHAIR: So you do not advise at a proposal stage, you do not have any input to say we believe this would be too expensive?

Mr HARMSTORF: No, the tribunal has no role there. You asked about social impacts; there is a section in the IPART Act, section 15, which requires IPART to have regard to a number of matters and the first one is protecting consumers from unreasonable price increases or inefficient practices. So that is where the social impacts, as you referred to them, are called up.

Mr SCOT MacDONALD: Are there two sides to that point?

The CHAIR: There are. At the point when you are going to determine a price, do you develop that input to the social part of the equation by consultation or public hearings, or how do you do it?

Mr HARMSTORF: Yes, both. A typical process is to prepare an issues paper and we call for public submissions from anyone who is interested. You do not need to have any particular status in order to engage with an IPART inquiry; it is open to everybody. We will then take submissions on the issues paper. We may hold a public hearing at that stage. We have right now a live review of prices for WaterNSW. We held a public hearing last week in Moree. We did have another public forum scheduled for today, but this Committee has otherwise engaged many of our stakeholders so we will be holding that tomorrow in Sydney. Next week we will be holding another public forum in Coleambally. We put ads in the newspapers. We do our best to engage with all stakeholders through that process. The transcripts are available on the internet. Then we put out a draft report and that has the tribunal's best answers that they have available to them at that time, and we seek feedback on that draft report. We see that as an important part of making sure that the right answer turns out to be the right answer. We would take submissions on that draft report and possibly even hold another public hearing. Then, finally, the final report comes out and prices typically take effect from 1 July the following year.

The CHAIR: That process, for example, for a new infrastructure deal like this proposed pipeline would start 12 months before you are going to hit the button on pricing?

Mr HARMSTORF: That is right

The CHAIR: At least 12 months?

Mr HARMSTORF: Typically 12 months.

The CHAIR: Around 12 months.

Mr HARMSTORF: Twelve months gives us a good run-up. We have plenty of other work we need to be doing in the meantime.

The Hon. MICK VEITCH: Correct me if I am wrong, but the Government does not have to accept your recommendations on pricing, does it?

Mr HARMSTORF: For water, they do. It is not a recommendation, it is a determination. For some functions of IPART, we have a statutory role; that means that we hold the pen and determine the prices. For others, typically those one-off requests made of us under section 9 of the Independent Pricing and Regulatory Tribunal Act, we make recommendations to the Government which they can choose to accept or otherwise.

The Hon. MICK VEITCH: You made a comment that a part of your consideration is the protection from inefficient practices. I am keen to explore how you determine that. There are some people at Broken Hill, with all due respect to the Government members, who would suggest that the pipeline is an inefficient proposal.

Mr HARMSTORF: That would come under the prudency and efficiency test. The question the tribunal would consider is, is that particular investment prudent and is it efficient?

The Hon. RICK COLLESS: Does that include security of supply?

Mr HARMSTORF: Maybe I should answer that a different way. The tribunal's approach is that the impacter pays, which means that the person or entity that acted in a way to trigger the requirement should be the first port of call for looking to who should fund it. Failing that, then the next entity that should be paying is the beneficiary. For whatever reason, if the impacter is not available or cannot be forced to pay, then we look at the beneficiary. Failing that, we then look to the taxpayer, but in a pricing review where there is already an established user charges regime, it is rare that we get that far.

The Hon. PENNY SHARPE: In the water pricing inquiries that you have done already, could you take us through what you look at in relation to demand management strategies versus hard infrastructure? I am really talking about recycling and stormwater, for example, versus dam building, and how you have worked through that?

Mr HARMSTORF: I am starting to get a bit dry. I might refer to the executive director of water pricing at this point.

The CHAIR: The water jugs are full.

The Hon. MICK VEITCH: Water can be a very dry debate.

The CHAIR: Strike the pun.

Mr EDGERTON: Water recycling and demand management can potentially come into play in our determinations by two main means. First of all, if there is an identified need to augment water supply, our starting point is to look at what is the most efficient means of—

The Hon. PENNY SHARPE: What is the trigger for identified need? Does the Government ask you?

The Hon. RICK COLLESS: Running out of water.

The Hon. PENNY SHARPE: At what point?

Mr EDGERTON: It could be that the utility proposes a need to augment water supply, or it could be that the Government, through its various resource planning bodies, identifies the need. An example of that is a previous Sydney Water determination when the Government identified a need to build a desalination plant. There is a provision under section 16A of our Act that says in conducting a price determination the Government can issue us with a direction under section 16A, which basically says that we are to pass through the prudent and efficient costs of a utility complying with a direction from Government. Government identified the need to augment Sydney's water supplies. It directed Sydney Water to build the desal plant and subsequently issued us with a section 16A direction to pass through the prudent and efficient costs of building a desal plant. In that particular instance, the question of whether or not a desal plant should be built was off the table for us, given that direction; we did not look at it. Given the specifications of the desal plant, we just looked at what are the efficient costs of building that plant.

The Hon. PENNY SHARPE: Are you subject to other section 16As at the moment in relation to proposals that are on the table?

Mr EDGERTON: There are a few section 16A directions that apply to the Sydney Water determination. One relates to a water recycling scheme at Camillia. Other section 16A directions are all outlined in our reports accompanying the price determinations. I can get back you to on those, if you like.

The Hon. PENNY SHARPE: That would be great if you can get back to us on that. I would appreciate it.

Mr EDGERTON: None stand out. There was one that related to Hunter Water and the Kooragang recycling plant—not this determination but last determination. There may be a couple of others, but none as significant as the desal plant.

The Hon. PENNY SHARPE: Sure.

Mr EDGERTON: The other way where water recycling and demand management can come into play is we set prices to reflect—the starting point is for us to look at the efficient costs of the utility delivering its services to consumers. Part of that is its efficient cost of complying with its broader regulatory framework, for example, environmental regulations. It may be that a utility proposes a water recycling project as an efficient means of augmenting water supply. Alternatively, it can be a combination of the most efficient means of augmenting water supply and also, in effect, complying with its broader environmental regulations and requirements as well.

The Hon. PENNY SHARPE: I was going to ask you about that. How is the environment picked up in the determination? Do you look in parallel to the other environmental regulations around it? It might be considered a prudent and efficient thing to build a particular piece of infrastructure but it might kill the river.

Mr EDGERTON: Our approach is to rely on the broader regulatory regime. We set prices to provide the utility with sufficient revenue to comply with its environmental and other regulations at efficient cost. For example, if the Environment Protection Authority [EPA] were to say to Sydney Water, "We require a high quality of discharge to the Hawkesbury and Nepean", and Sydney Water came to us and said, "We need to increase capital investment in our sewerage treatment plants to comply with these regulatory requirements", we would set prices to provide them with sufficient revenue do that at least cost. That approach recognises the expertise and I guess the broader environmental framework in general. Similarly, if DPI-Water or another Government regulator increased the environmental flow regime from dams of WaterNSW, that may trigger the need for WaterNSW to invest in necessary works to comply with that. If the environmental flow regime in the Sydney area was changed significantly enough, that may bring forward the need for water supply augmentation

and, again, the utility comes to us with the need for further investment to comply with these broader regulatory requirements.

The Hon. PENNY SHARPE: I am trying to nail this down. If the utility comes to you to seek a determination—specifically to invest; whether it is in recycling, a dam or whatever—where is the discussion, or is there not a discussion, about the environmental impact of that decision within your framework? Are you saying that it is picked up through all the other environmental regulations—through the EIS [environmental impact statement] process that they would go through? How does the environment have a voice within your process in determining these projects?

Mr HARMSTORF: The actions of the utility have to comply with all the typical regulation. The environmental regulation is in place, and that provides the framework within which the utility must operate. There may be environmental conditions within their licences. We have a role in setting licences. We review the licences every five years for the Minister.

The Hon. PENNY SHARPE: What does a review of the licence involve?

Mr HARMSTORF: Quite a lot.

The Hon. PENNY SHARPE: Yes, but what, specifically?

Mr HARMSTORF: The key point I want to make before I hand over to the question of licensing, is that where the licence would be merely duplicating requirements and regulations that already exist elsewhere, we would typically look to take them out so that we do not have competing and overlapping jurisdiction. As long as the utility is obeying the law and complying with the licence conditions, then our job becomes merely to look at whether it is doing that efficiently. As far as a licence review goes, I will hand over to Mr O'Neill.

Mr O'NEILL: We are in the middle of a licence review at the moment for Water NSW, which we commenced earlier this year. Like the pricing reviews, we allow for about 12 months. We started a little bit earlier than that because with Water NSW we are bringing together the ex-SCA [Sydney Catchment Authority] and the ex-State Water, licences so we thought a review might be a bit more challenging and complex. The process is similar to the standard IPART [Independent Pricing and Regulatory Tribunal] process, where we issue an issues paper and get feedback on that. We then issue a draft operating licence and supporting material. We get more feedback on that. We have a public hearing scheduled for early next year, and then we bring all that together and make recommendations to the Minister. That is where it is a bit different to the pricing arm.. In this space we recommend to the Government what the new operating licence should look like as opposed to making a direct determination ourselves.

The Hon. PENNY SHARPE: What is your scope to have environmental considerations within the licence?

Mr O'NEILL: Again, there are two licences. They are a bit different—the SCA and the State Water licence. But we will look at what we need to do in the new licence going forward. There are chapters that deal with having an environmental management system. The requirement for those is different on SCA and State Water at the moment. That is an issue that we are looking at in the review. Essentially, the idea is that we are heading towards environmental management systems and we are considering whether accreditation of those is necessary at appropriate Australian standard.

Mr HARMSTORF: If the Committee would indulge me, we have taken great steps recently to try and make ourselves more accessible. We have a new and much better web site. We also now produce fact sheets on our major decisions and recommendations, so you are no longer required to read up to 100 or 150 pages. We try to distil the essence of our recent announcements down to one or two pages.

The CHAIR: Excellent.

Mr HARMSTORF: We do not want to be mysterious.

The Hon. PENNY SHARPE: You have been very helpful to the opposition.

The Hon. RICK COLLESS: You have been very helpful.

The CHAIR: Shine the light on them, Mr Colless. Make them less mysterious.

The Hon. RICK COLLESS: Gentlemen, in relation to the pricing for domestic water, do you have a benchmark that you use for pricing? Obviously, if you were to include all costs for major water augmentation works it would probably be unaffordable for most water users. Is there a benchmark that you work from?

Mr HARMSTORF: Are you talking about the domestic rural water?

The Hon. RICK COLLESS: I am talking about domestic urban water.

Mr HARMSTORF: As I said, the impacter pays then the beneficiary pays—but that is only where the asset, if we are talking about a capital asset—is triggered by the need to continue water supply. Often there are other, overlapping triggers for an investment decision, such as, typically, flood mitigation. Where that is clearly of benefit to the broader community, we would price such that the necessary revenue was collected from the broader community rather than from users of the water.

The Hon. RICK COLLESS: So you see that as a community service obligation. Is that the right term?

Mr HARMSTORF: We would like it if they were explicitly funded by the Government as a community service obligation—it would improve transparency—but our role is merely in setting the prices to be recovered from water users. How the difference is funded is out of our control.

The CHAIR: Sorry to interrupt you. If a dam is built—I will say that is a detention dam so that all the fishermen do not want to string me up—on the Clarence River, if some of the water from that flood mitigation program was used elsewhere, would the price for that water include a component that looked at what the damage would have been had there been no infrastructure there—in other words, the historical record of flood damage or something like that? Is that your community service obligation?

Mr HARMSTORF: No. If the dam were to be built—

The CHAIR: Let us say that it was going to be built for flood mitigation.

Mr HARMSTORF: Then there is no reason that water users should pay any of it in the scenario that you just outlined. If it were merely for flood mitigation then the users of the water were already having their needs met, so they had not triggered it—they were not the impacter in this instance—so therefore—

The Hon. RICK COLLESS: In that case who would pay?

Mr HARMSTORF: The Government.

The Hon. PENNY SHARPE: The taxpayers.

Mr HARMSTORF: Yes.

The Hon. MICK VEITCH: Is that the CSO [community service obligations] that you were talking about earlier?

Mr HARMSTORF: It could be a direct payment to the utility, or it could be merely reduced profitability and hence a reduced dividend. There are many ways; that is not our role.

The CHAIR: If some of that water could be used—let us say it could be pumped over the hill for rural use—there would be costs involved. Obviously the end user would still be required to pay for that water—

Mr HARMSTORF: Yes.

The CHAIR: —but it would be offset to some extent by the fact that the dam was going to be built anyway.

Mr HARMSTORF: No. A dam can have dual purposes. We would apportion, where we think—

The CHAIR: I understand.

Mr HARMSTORF: In your example you are also creating additional operating costs through the pumping.

The CHAIR: Yes.

Mr HARMSTORF: Those users would have to meet those costs.

The Hon. RICK COLLESS: The end user of the water in that case?

Mr HARMSTORF: That is right.

The CHAIR: Sorry for the interruption.

The Hon. RICK COLLESS: That is quite all right; they were good points. Did you want to make a point, Mr Edgerton?

Mr EDGERTON: Just to elaborate a little bit further. When we are setting Water NSW prices we essentially identify the activities and assign them to a label or cost category. For each cost category we

determine what proportion of that expenditure relates to users and what proportion relates to the broader community. We do that on the impacter-pays principle. So if a cost is incurred because of the activities of water users or to serve water users, that is a case to assign 100 per cent of that cost to users, and include that in the cost base that we use to set prices. If the cost is incurred purely for the benefit of the broader community—for example, flood management—then that is assigned a zero per cent user share.

In reality some cost codes have 100 per cent user share. There may be a few isolated ones that have zero per cent user share. Several cost codes have somewhere in between 100 per cent and zero per cent. For example, there may be a gauging station in a river, and it may be there for monitoring the river flow to enhance delivery of water to downstream water users, and also for flood mitigation. In that case we may apportion some of those costs to users and some to the broader community. So it may be that just 50 per cent of that cost goes into the cost base to set prices for Water NSW.

The CHAIR: Are the cost categories a standard set of categories?

Mr EDGERTON: It has been, over several price determinations. We are currently in the middle of reviewing Water NSW prices. We are reviewing those cost categories and the user share assigned to those. We have sought stakeholder views on that, through the release of an issues paper. We are raising it in our public hearings. We have also engaged a consultant to assist us in reviewing those cost codes.

The CHAIR: Where could the Committee get some information on what those categories are? Is it published somewhere?

Mr EDGERTON: It is. It is published in our issues paper, which is on the website for the Water NSW review.

The Hon. RICK COLLESS: Could I go back to the issue of augmentation of water supplies, again. Can you give us some idea of how you work out the nexus between the level of security of supply and the cost? Obviously, if you spend hundreds of millions of dollars you could make any water supply 100 per cent secure.

Mr HARMSTORF: It is simply whatever capital works are required in order to ensure that security, in order to provide that security. The level of security is between the utility and its customers. If they sign up to a high security licence and they pay for that, then there are additional capital costs in providing that high security and, therefore, those users should pay for the costs of those capital works and their operating costs and so on, as I outlined.

The Hon. RICK COLLESS: I am thinking again of the Broken Hill example where the cost of running the pipeline from Wentworth is much greater than the cost of installing a bore field and running a new pipeline into Broken Hill. The argument is that the cost of running the pipeline from the Murray is going to give Broken Hill a much more secure water supply than relying on the Darling system, which is an inherently less reliable supply.

Mr HARMSTORF: I am following what you are saying, but I am afraid I cannot add anything to it. It is not something that has come before the tribunal.

The Hon. RICK COLLESS: So your decision will come after that decision has been made, essentially.

Mr HARMSTORF: That is right.

The Hon. MATTHEW MASON-COX: Would it be a controlled decision in the sense that, if Government makes a decision about the pipeline's appropriateness, it is your position not to second-guess that but to actually cost and price that?

Mr HARMSTORF: There are two things we check for: prudence and efficiency. Prudence is what you are talking about: Was that the best way to meet those needs? The Government may choose to remove that decision from the tribunal under direction 16A, as Matt referred to before. If it does not, the tribunal's role would include to look at the prudence of that investment in terms of whether it is the best way to meet the identified need.

The Hon. MATTHEW MASON-COX: In Victoria the Essential Services Commission does the pricing. South Australia has a kind of water levy. In New South Wales we have IPART, which is wonderful. There are some differences in how water charges are calculated in each State, and I am wondering whether you have a view on that.

Mr HARMSTORF: We are in contact with our interstate colleagues, and we are all doing our best to learn from each other, but the tribunal believes that the decisions that it has made in relation to prices in New South Wales are the most appropriate for the New South Wales circumstances.

The Hon. MATTHEW MASON-COX: You are all accredited by the Australian Competition and Consumer Commission and go through similar processes, but it appears from the feedback in some of the submissions we have received that the prices come out of different places, which creates some equity issues across the system when those costs should be shared on the same basis. Have you had that feedback about your processes?

Mr HARMSTORF: Under the water competition infrastructure—

Mr EDGERTON: Water charge infrastructure rules.

Mr HARMSTORF: —thank you—we have sought and been granted accreditation by the ACCC to set prices in the Murray-Darling Basin. Yes, there are some differences in relation to calculating the weighted average cost of capital, for example. The way we look at the likely cost of capital to a utility is slightly different from the way the Commonwealth does it, so we will have to do it the Commonwealth's way for those valleys.

The Hon. MATTHEW MASON-COX: What is the difference? What is the Commonwealth's weighted average cost for capital?

Mr HARMSTORF: The cost of capital is essentially driven by what is going on in the interest rate market and the capital markets at the time. In IPART, our preferred approach is to take a current measure and also a long-term measure and average those two, whereas the Commonwealth is more driven by what is going on right at the moment.

Mr EDGERTON: I think one of the points you are getting at with your question as well is differences in prices between valleys across New South Wales.

The Hon. MATTHEW MASON-COX: Yes.

Mr EDGERTON: There are a few points to note there. First of all, we are currently in the midst of a price review for WaterNSW. The last price review was done by the ACCC. Before that it was IPART. The ACCC's decision in 2014 ended up in a very similar place to where IPART ended up in 2010, so I think the approach that the ACCC took is actually very similar to the approach IPART has taken, including setting prices on a valley basis. Our approach to date has been to set valley-based prices with the aim of prices reflecting the cost of servicing that particular valley. The tribunal has formed the view that that is appropriate because it provides efficient and appropriate signals to water users about the true costs of providing the services to their valleys. In saying all of that, we are halfway through a review. We have had submissions from stakeholders raising this issue, so it is something that the tribunal will be considering again during this current review.

The Hon. MATTHEW MASON-COX: In working out those valley prices, obviously different valleys have various infrastructure that has been funded by the Commonwealth, quite often in relation to the whole National water initiative and the whole MDBA allocations. How do you bring that sort of infrastructure investment, which will vary depending on the valley, into your pricing equations?

Mr EDGERTON: Any funding that is essentially provided as a subsidy or a gifted asset by the Commonwealth Government, State Government or another body is excluded from the cost base when we set prices.

The Hon. MATTHEW MASON-COX: Regarding the weighted cost of capital, with the Commonwealth's weighted average cost of capital and the pricing methodology you are accredited to use, will that in your view produce a lower price in terms of the pricing that will come through in your determination?

Mr HARMSTORF: It is hard to say. It depends on what the capital markets are doing at the time the prices are struck. Again, we have a paper on our website which explains exactly how we set the weighted average cost of capital. It is completely transparent. Because of the strength and robustness of IPART's method, the ratings agencies have increased the credit ratings available to our regulated entities in recognition of their more stable operating environment created by IPART.

The CHAIR: Mr Mason-Cox, please put any other questions on notice, as we will move on to Mr MacDonald for questions.

Mr SCOT MacDONALD: This is supplementing what Mr Mason-Cox was asking, but I want to be clear that you see no argument for postage-stamp pricing across the valleys in New South Wales.

Mr HARMSTORF: The way we set prices is cost reflective on a valley basis.

Mr SCOT MacDONALD: There is a monopoly situation for all of our water providers, like Hunter Water and Central Coast. Is that due to lack of competitive tension? Can you reflect that in the calculations of your pricing? Is it holding back investment and technology? Is it good for consumers? Are there other ways that we can look at some of those bodies?

Mr HARMSTORF: In an instance where there is one provider, it may not necessarily have monopoly power even if it is the only provider. A monopoly is only wonderfully valuable if you are able to more than cover your costs, if you like, and overcharge your users—

The CHAIR: Set your own prices.

Mr HARMSTORF: That is where IPART steps in, and our role is to make sure that that does not happen.

Mr SCOT MacDONALD: I get that in terms of a cap, but are those bodies the poorer for being monopolies in terms of innovation and those sorts of things?

Mr HARMSTORF: Certainly our preference is for increased competition because, as good a job as IPART does, we will never be as good as a competitive market.

Mr SCOT MacDONALD: Could you give me more details of that prudence test? There is obviously some subjectivity there.

Mr HARMSTORF: It is not subjective in that it is based on evidence and rigorous analysis supplemented by expert consultants. For example, if the tribunal were to look at a utility's proposed forward capital works program, and if it came to the decision that the utility had put in too much fat and that users would be paying for unnecessary assets, the prices would exclude that amount of capital. However, if at the end of the price period for whatever reason or because of some exogenous event the utility had to spend more than had been allowed, we would look back at the additional capital spending and make a decision about whether it had been prudent and efficient after the fact. If it had been, it would be incorporated into the prospective price period.

Mr SCOT MacDONALD: One person's gold-plating is another person's security.

Mr HARMSTORF: The licences typically set the standards that are required. If a utility appears to be having trouble meeting its licence standards, that would suggest that it should be looking at ways to improve its operations as part of its own prudent management.

The CHAIR: How do you measure the performance? Is it based on quality and volume delivered? What are the typical conditions on the licence? Do they involve security of supply, days offline or whatever? How do you make a determination?

Mr O'NEILL: At the moment under the licence we assess performance based on management systems. The role of the licence is to ensure efficiency, effectiveness and transparency. In effect, the new Water NSW Act says that we must consider performance standards in relation to water deliveries, water quality and service interruptions. It is one of the key issues we are looking at as part of the review. What does that mean? What standards might be appropriate? Are they still management systems; that is, asset management systems, environmental management systems, and water quality management systems? Are they good enough to deliver that because those systems require them to engage with stakeholders and, in effect, to develop quality standards, or do we come in with prescriptive standards?

The CHAIR: Mr MacDonald is suggesting that once you go beyond those three key performance indicators, if they are meeting them they have met the minimum standards under their licence. However, the cost is an entirely different matter. If one water utility meets its volumetric requirements, quality requirements and reliability of service requirements, it does not mean that it is doing it efficiently if it needs five times the number of staff to achieve those outcomes. What sort of mechanisms do you have to standardise or to set benchmarks in determining whether a price is efficient?

Mr O'NEILL: This is where the two areas of the business interact. We might set the standard through the operating licence in some way, and then Water NSW would propose how they are to going to meet them.

The CHAIR: You set the standards for the physical delivery.

Mr O'NEILL: It is those three categories in the Act again.

The CHAIR: Yes. And the rest—the management systems, the transparency and so on—go into the cost and you determine whether or not that is reasonable.

Mr EDGERTON: That is right. That comes into play when we do the expenditure review as part of a price review. We engage expert consultants who have had experience in assessing water utilities in this regard. They look at a number of things. When it comes to capital expenditure, they look at the business case and justifications for that capital expenditure, the options, and the analysis undertaken. They also do their own benchmarking. For example, they can look at a utility and say that it needs five full-time equivalents to do that, and we know that industry best practice is two. They adjust expenditure accordingly. The other thing to note is the public process around this, which is very important. We put consultants' reports on the website, and we are open to stakeholder comment and feedback in response to those reports. We also provide them to the utilities, which then have a chance to respond. We then often engage the consultants again to review any responses from the utilities. Everything is put on our website, and everything is open to stakeholder submissions.

The CHAIR: We are out of time, but I wish we could have another hour. It is still mysterious to me, although a little less so now. Thank you for your expert contribution. The Committee appreciates your explanation of these issues. There will probably be a number of questions on notice. Can you respond within 21 days?

Mr HARMSTORF: Yes.

The CHAIR: Thank you again for agreeing to appear before the Committee. It is much appreciated.

(The witnesses withdrew)

(Short adjournment)

STUART JAMES KHAN, Associate Professor, School of Civil and Environmental Engineering, University of New South Wales, affirmed and examined:

The CHAIR: Are you an engineer?

Dr KHAN: I am a member of Engineers Australia, yes.

The CHAIR: Great. We love engineers at that table. We like associate professors, we do not like adjunct professors. Before we commence with questions from the panel, would you like to make an opening statement?

Dr KHAN: I would. A decade ago, this Legislative Council General Purpose Standing Committee No. 5, conducted an inquiry into a sustainable water supply for Sydney. The Hon. Rick Colless was on the Committee at the time. I made a submission and I turned up to speak as a witness, as I have again today. My message was that New South Wales should not race into constructing a seawater desalination plant for Sydney. I did not deny that Sydney had long-term water supply issues that required focused attention.

However, I argued that a seawater desalination was not an optimum solution and that there were real options available to better preserve and augment water supplies through water recycling. I maintain that the people of New South Wales would have been better served by a government that had taken the opportunity to embark on a path to significantly increased use of recycled water, than the path that was subsequently taken. In considering opportunities for rural and regional New South Wales today, I would like to reflect upon the way in which New South Wales chose to ignore the opportunities for recycled water for drinking in Sydney. In 2007, the *Sydney Morning Herald* reported that:

> "The [Liberal] Opposition Leader accused the Iemma Government of trying to scare people away from the idea of drinking water that is derived from treated sewage".

Indeed, Premier Iemma had insisted that he would not force Sydneysiders to drink recycled sewage.

In 2005, New South Wales Utilities Minister, Frank Sartor had told the *Sydney Morning Herald* that Sydneysiders were not prepared to drink recycled sewage, even if it was treated to drinking water standard and safe. Here is a direct quote from Mr Sartor:

> "The scientists are right but the scientists ought to get on talkback radio and persuade Sydneysiders that there won't be a mishap".

If this is what scares our politicians, then I wish to assure the Committee that scientists and engineers are lining up to tell you that drinking recycled water is an entirely viable, extremely safely manageable and potentially highly beneficial practice. It is a practice that the New South Wales Government overlooks, derides and fails to support to the detriment of the people of New South Wales. In 2009, the Commonwealth Government put forward $20 million to establish the Australian Water Recycling Centre of Excellence. The centre was funded for five years to enhance Australian capacity to plan for water recycling as a major water management strategy.

Four key goals of the centre were (1) that the identified social, economic and environmental value of water recycling is demonstrated and enhanced; (2) a national validation framework for water recycling is established; (3) reclaimed water is seen as an acceptable alternative water for augmentation of drinking water supplies; and (4) a national knowledge, training and education program for water recycling is established. At the completion of its life, an independent review panel was appointed to assess the achievements of the centre. The panel reported that:

> "The Centre went beyond the conventional academic, technical and scientific research that may have been initially expected of it, and focused also on work to make the policy, regulatory, and public opinion environment for future water recycling projects more receptive".

It found that:

> "When the next drought occurs, decision-makers, relevant institutions, regulatory authorities, and the public will be in a better position to move to recycled water".

One of the projects funded by the Centre of Excellence was administered through the Australian Academy of Technological Sciences and Engineering (ATSE) and that is the report that I would like to table.. I was the lead researcher for that work and my task was to examine opportunities to Australia from potential use of recycled water for direct reuse as a safe drinking water supply. This approach, known as direct potable reuse or DPR is now practiced in a number of United States cities, such as Big Spring in Texas, which is a city with many characteristics in common with Broken Hill in New South Wales. Furthermore, the State of California is

currently undertaking major legislative steps toward the very large scale implementation of direct potable reuse in that State. I would like to read you the concluding paragraphs from the executive summary of that ATSE report:

> "Ultimately, water supply decision-making should be based on an objective assessment of available water supply options to identify the most economically, environmentally and socially sustainable solution. While optimum solutions will continue to be case-specific, ATSE is convinced of the technical feasibility and safety of drinking water supply through DPR when properly managed. ATSE considers there can be considerable environmental, economic, and community benefits of supplying highly treated recycled water direct to drinking water distribution systems in suitable circumstances.
>
> ATSE therefore concludes that DPR should be considered on its merits—taking all factors into account—among the range of available water supply options for Australian towns and cities. Furthermore, ATSE is concerned that DPR has been pre-emptively excluded from consideration in some jurisdictions in Australia in the past, and these decisions should be reviewed.
>
> Governments, community leaders, water utilities, scientists, engineers and other experts will need to take leadership roles to foster the implementation and acceptance of any DPR proposal in Australia".

That report was released in 2013 and launched by ATSE President, Dr Alan Finkel. Dr Finkel resigned from that position in 2015 to take up a new appointment as Australia's Chief Scientist. I drop his name here only to point out that this promotion of the benefits and safety of recycled water for drinking water augmentation is not restricted to a bunch of lab boffins. Mr Sartor's call for scientists to get on talkback radio to explain the issues around drinking recycled water has been enthusiastically embraced by those at the highest levels.

When the ATSE report was released, I spent the morning doing talkback radio, news television and newspaper interviews. The headline in the Fairfax media was "Drinking recycled water inevitable in smarter Australia". That article was accompanied by a readers' poll on the question, "Would you drink recycled effluent?" Of the 1766 respondents, 63 per cent voted "yes". It is not scientists holding back opportunities for more sustainable water supplies. And it is not the community either. It is politicians afraid to engage the community in the broader discussions about water supply planning and sustainability. Politicians need to do better than looking for new rivers to dam and 800-kilometre pipelines to transport the water.

My primary message today is this: As the next major drought hits rural and regional New South Wales, the use of recycled water for a variety of applications, including drinking water, can significantly enhance water supply security. Rather than hinder or ignore those opportunities, look to ways in which government can support them, foster community understanding, develop the capacity of government agencies to identify the opportunities, and expand the regulatory capability to assess and safely regulate diverse water supply systems. Do not sit back and blame scientists for the gaps that you perceive in community acceptance. Show some leadership and use that capacity to unwrap the opportunities, which clearly exist for New South Wales.

The CHAIR: Solidarity brother. That was really well said. A very impassioned opening. I was waiting for you to say "I told you so".

Dr KHAN: I think it was implied.

The CHAIR: I think it was. Before I hand off to the Opposition to begin their interrogation of your ideas, you talked about politics or politicians, call it the same thing, being a limiting factor in moving forward. In the 50s we built big dams and monster long pipelines, et cetera, and probably very difficult to do today. Are there any cooperative research centres [CRCs] on water in Australia?

Dr KHAN: There is the CRC for sustainable climate, the low carbon living CRC which does have, I think, Sydney Water as a member so there is involvement from water utilities. But no, I think at the moment we are at a low point for CRCs that are specifically looking at water quality and water management.

The CHAIR: Would you believe there would be a place for a CRC specifically looking at strategic, long term water supply and use?

Dr KHAN: Yes. If you look over the history of CRCs, one of the most successful, one of the very few that have continued beyond their government funding has been the CRC that Professor Don Bursill was the chair of, the CRC for Water Quality and Treatment—I think it was called, or something similar to that—which ultimately became Water Research Australia. So a big industry-lead funding agency now that continues supporting and funding research across the country addressing primarily Australasia's water but also water supply and availability issues.

The CHAIR: So the second question I guess implies some crystal-balling on your part or on the part of you and your colleagues, the demand side of our water use is going to drive, whether you like it or not, how much water we are going to need out into the middle of this century. One could probably argue that is a straight interpolation of population growth; wanting to eat food, wanting to drink water, wanting to produce food. Let us take the current situation with the water supply in New South Wales, how far do you think recycling can take us

towards solving the problem of a shortage of supply, in other words matching demand? Is it a ten per cent solution, 20, 30, 50, 100, what is it?

Dr KHAN: That is a good question, and it depends on how you do it, of course. It is never going to be a 100 percent solution because you do not recover all of the water that goes through a waste water treatment plant. It depends where you are, and particularly depends how much of that water is actually used for outside use, for watering gardens, etcetera, as opposed to inside use. And in many places, like Sydney in the summer time, about 50 per cent is used outside, so that is not going to be recovered. There is pretty much an upper level of 50 per cent. Typically when you look at the successful cases around the world—and there are a number of big direct potable water recycling schemes and indirect potable water recycling schemes—it is more like 20 to 30 per cent that is actually being achieved, but the opportunity is there for up to 50.

The CHAIR: Somewhere between 30 and 50 per cent would be a worthwhile target or goal.

Dr KHAN: Of course, that could mean not building a very large, expensive dam or inter-valley pipeline.

The CHAIR: Bugger. I like dams.

Dr KHAN: That 50 per cent we are talking about, as I suggested, it depends very much on the density of the population and if you start looking at much more denser urban environments where less water is used outside and most of it ends up going to the sewage treatment plant, then you have the opportunity to reuse much more—places like Singapore, for example.

The CHAIR: You think external water use ends up in our sewerage, do you?

Dr KHAN: No, that is what I am saying. What you put on the garden, what you use to water the lawn does not end up at the sewage treatment plant, so is not available for water recycling.

The CHAIR: In Rydalmere it does. Sorry, I am having a crack at our antiquated sewage system with stormwater inflows. I should not be wasting your time by messing around. So, we could then say a couple of things; yes, there should be a bit more serious attempt, from academia perhaps, government funded, to look at the overall water picture, because it is only going to get worse, it will never get better, even though there is an industry related organisation doing some of that work now. Directly recyclable water could provide from 30 to 50 per cent of our demand, and I guess as the population increases, therefore water usage increases, therefore recycling increases, that may be a diminishing curve but probably somewhere around the ballpark. So how far ahead in terms of planning do you think governments —and we will look at the New South Wales Government —should be thinking to plan our water needs for this State, even if it is just an idea of yours?

Dr KHAN: One of the issues with things like recycled water, it actually takes time to get the community on board and one of the arguments for why it did not happen for Sydney in 2005-2006, when we were all panicking, is because you cannot do it when you are panicking, you cannot do it in when you are in the middle of a drought. Just to have the community conversation and to provide the education that is needed, to provide the resources for regulators to be able to make proper, informed decisions, to have the skills and availability to be able to assess these types of schemes, takes a long time. We should be looking at least decades in order just to have the discussion and to resource our departments and capabilities.

In terms of looking at what we should be doing from an infrastructure perspective, I mean it would have been nice if we started thinking about recycled water well over the horizon before we built the deep water ocean outfalls in the 1990s and before we build the seawater desalination plant ten years ago —getting on to. Because they are all infrastructure now that are sunk and they all now play against the argument or the economic viability of doing something which would not make good use of that infrastructure. So you do not want to invest millions or billions of dollars in desalination plants and ocean outfalls and then say actually our main water supply or a significant part of our water supply is to recapture water from the same sewage treatment plants, treat to a very high level for drinking and put that back into our drinking water supply. So really, multiple decades we need to be thinking ahead in order to be making the right infrastructure decisions down the line.

The Hon. MICK VEITCH: Aquifer recharge; what are the pros and cons for aquifer recharge?

Dr KHAN: There are lots and it depends on what you are recharging. But, for example, you can look at a lot of the work that has been done in South Australia looking at recharging urban stormwater, for example. Some of the pros are that you are storing water underground, so you are minimising losses from evaporation, which can be very significant depending on the dimensions of the surface storage; you do actually get additional treatment bonus if you are looking at treated wastewater. There is a great big scheme in Orange County, California where they take recycled water and store it underground prior to reuse and the regulatory agencies actually give them a significant credit for improved treatment of that water in terms of removing potential

present pathogenic organisms, viruses, bacteria, protozoa; you get chemical improvement as well by infiltrating water through soil, which actually cleans water, so you get additional treatment benefits. Depending on the dimensions of that aquifer you can also get the transport of that water for free. You are effectively putting it in at one place and drawing it out at another location, so you are saving on pumping and pipes. The main reason for wanting to store water in circumstances like that is often because the water needs are seasonal, so by storing water underground you have a good opportunity to be able to carry water over from wet periods and reusing it in dry periods. Some of the cons; suitable aquifers are not always available.

The Hon. PENNY SHARPE: What is a suitable aquifer?

Dr KHAN: What makes a suitable aquifer? It depends. There are sandy aquifers, there are soil aquifers, there are rock, sandstone-type aquifers. It depends on what you are trying to achieve. The permeability of the aquifer is important. A sandy aquifer will be much more permeable than other media. That has an impact on how much pressure is required to inject water and to re-extract water. If you are looking for treatment credits, again, it depends on the sort of soil that you might be moving through, the physical properties of that soil and how various chemicals or other contaminants that might be present will interact and absorb into the soil, et cetera. Some aquifers have saline water in them and it is not very helpful to recharge relatively clean water into a saline aquifer and then having to pull it out and retreat it. Further, some aquifers are close to the surface. They are connected to the superficial groundwater table and, therefore, they can be prone to contamination whenever it rains. Other aquifers are more confined and deeper and, therefore, protect the water more.

The Hon. PENNY SHARPE: You need to map each aquifer by aquifer to do that?

Dr KHAN: Yes.

The Hon. MICK VEITCH: Has been much work done on aquifer mapping in New South Wales?

Dr KHAN: I would not like to say no in case there is work that I am not familiar with. I know that Orange City Council have had a look at the basalt aquifer under Orange for potential aquifer storage and reuse. Most of the work that I am familiar with has been undertaken by the CSIRO, particularly CSIRO land and water which has focused on South Australian examples. They have been doing research on that topic for many decades. In fact, one of the world renowned experts on aquifer storage and recovery is Peter Dillon, who recently retired from CSIRO in South Australia.

The CHAIR: We have his name.

Dr KHAN: And also Perth. Traditionally about 60 per cent of Perth's drinking water supply—it is a bit different now with the seawater desal plants—has come from groundwaters. They have two or three important aquifers under Perth, the Leederville Aquifer, in particular, which they rely on for water supply. They have obviously undertaken a significant amount of research in terms of how that aquifer works and they are now recharging that aquifer using recycled water from a waste water treatment plant—one of the biggest waste water treatment plants north of Perth—called the Beenyup Waste Water Treatment Plant. That is about 40 kilometres to the north of the city. They take that water, treat it by advanced water treatment processes and pump it back underground to recharge the drinking water supply. That is an example of the type of potable reuse we are talking about, and aquifers can play an important and significant role in doing that. I am not familiar with a lot of detail of how much work has been done in New South Wales. People have looked at Sydney, for example. The Botany Aquifer has issues around contamination, but whether it is entirely unrealistic to reuse I do not think has probably been sufficiently thoroughly investigated.

The Hon. MICK VEITCH: Has there been any economic modelling or cost comparability between the various methods of aquifer recharge or the direct potable reuse [DPR] you were talking about earlier?

Dr KHAN: Aquifer recharge, as I said, often plays a role in potable reuse, but not in DPR. DPR means taking out the environmental buffer and going straight into the water supply system. In fact, in the report that I have just tabled, there was a consultancy investigation. We got GHD on board because GHD are an engineering consultancy firm that are regularly engaged in economic feasibility assessment of water supply options. We put to them a number hypothetical scenarios that involved indirect potable reuse, direct potable reuse, non-potable reuse using water for non-drinking purposes and seawater desalination. It is an appendix to the report, but there is a quick summary of it in one of the chapters in the report. They asked exactly this question: How much energy is involved and what are the costs, the costs coming from the capital infrastructure costs as well as the operational costs from energy, et cetera. They modelled where they thought the different opportunities came out.

Aquifer storage actually was not included. The indirect potable reuse they looked at involved putting the water into an open reservoir, but even in that circumstance one of the opportunities or one of the real

benefits of direct potable reuse, leaving out any kind of environmental buffer, including an aquifer, is very case specific, but is very often a significant energy and cost saving by not having to pump the water, first of all, to the suitable water storage system, whether it be an aquifer or a dam, and if it is an aquifer, having to inject it and then re-extract it and then retreat it. By the time you get to the point of pumping that water and storing it, you have already treated it to a level that is suitable for drinking, or close to it . So going back into an environment, an aquifer might improve the quality but other aquifers might lead to a need to re-treat that water further down the line.

The Hon. MICK VEITCH: Is there anywhere we should look at as a best example of aquifer recharge?

Dr KHAN: Yes. I think it is important to emphasise that it is difficult to simply pick up solutions from one city and drop them on another. There are very important local geographical considerations.

The Hon. MICK VEITCH: Geological.

Dr KHAN: Geological considerations to take into account. But, yes, Perth. Perth is an amazing case study. It only started operating this year. They started recharging the Leederville Acquifer. It has huge Government support, having the State Government on board pushing it forward, and it is achieving great media coverage of drinking recycled water in Perth. There was a lot of research. They spent three years undertaking research in the lead-up to the initiation of that recharge program. They had a three-year project. They built a pilot plant, looking at the water quality, making sure the water quality was reliable, looking at issues around the interface between the water and the aquifer, and so potential interactions that different water qualities can have on aquifers, and that is an important issue that needs to be looked at on a case-to-case basis. Looking at the costs, looking at the science behind it and once they were confident they knew what they were doing, the Health Department and the Environment Department were strongly on board. They went ahead with it. It started operating this year, and a couple of months ago they announced that they would be doubling the capacity of the existing scheme that opened this year to twice the size in three years time, so they are replicating it already. It is a great success story.

The Hon. PENNY SHARPE: Reticulation systems. There has been some limited use that has been successful where they have been put in. Is cost the main driving factor that is stopping it? Is it something that Government should look at through the basic scheme in respect of requiring it?

Dr KHAN: That is a good question. You are talking about dual reticulation schemes where we supply recycled water to households—

The Hon. PENNY SHARPE: Rouse Hill, Newington.

Dr KHAN: Rouse Hill, Newington, yes. They are both great success stories and very important case studies, particularly Rouse Hill, which was a world ground breaker. It is important to remember that the real objective for the Rouse Hill scheme was about keeping nutrients out of the local waterway. It was not really about shoring up supply security for drinking water.

The Hon. PENNY SHARPE: It does not matter which pathway you take, it still does that, or—

Dr KHAN: Arguably not.

The Hon. PENNY SHARPE: Are there design factors?

Dr KHAN: There are design factors. That was a pioneering scheme. There have been a lot of lessons learnt from it in terms of the design and operation of that scheme. In fact, when we have been in drought, the pricing on that scheme is a big issue as well and the recycled water is lowly priced compared to the potable water and it was heavily drawn on by the community. When we were going through the millennium drought, Sydney Water regularly needed to top up the supplies of that recycled water scheme with potable water going through those pipes. There are lessons to learn from that scheme.

The Hon. PENNY SHARPE: That is a costing issue. I note that in your submission you mentioned that recycled should be set at a benchmark of around 75 per cent of the costs.

Dr KHAN: Yes.

The Hon. PENNY SHARPE: What is the cost at Rouse Hill, if you can recall? Ballpark.

Dr KHAN: It is difficult to know the answer to that. I guess it is not if you know anybody who lives there. No, I do not know the answer and it has been a long time since I looked at it. I remember looking at it 10 years ago and it was down around 30¢ per kilolitre compared with over $1 per kilolitre for the drinking water.

The Hon. PENNY SHARPE: Yes, so 30 per cent.

Dr KHAN: They are very out-of-date numbers now.

The Hon. PENNY SHARPE: Sure.

Dr KHAN: There are other much greater issues as well. The real case study is the Gold Coast City Council built the Pimpama Coomera dual reticulation scheme about a decade ago. They are already closing it down because after spending millions of dollars on an advanced water treatment plant to supply the water for that recycled water scheme, building the infrastructure for the pipes to deliver that water to households, the regulatory compliance, my understanding is that all of those costs blew out and they recently had it reviewed by some consultants to look at the cost benefit ratio of continuing that scheme. The infrastructure is already sunk and, even still, it is not considered that the cost benefit weighs up in terms of what it costs to produce the water, to deliver the water and the regulatory and compliance requirements compared to the benefit that they get. They are actually better off—

The Hon. PENNY SHARPE: You would argue that you would need to do the recycling further up the line and it basically gets mixed in with the potable water. Is that a cheaper way of delivering it?

Dr KHAN: I have set out in my submission that there are many ways to recycle water.

The Hon. PENNY SHARPE: That is right.

Dr KHAN: It is case specific. There are some good examples of dual reticulation schemes around the country that we can point to. One of the big problems with them is that they cost a lot, infrastructure wise. They can be realistic in greenfield development areas but they are more or less totally impractical to retrofit into developed areas. There is a big regulatory burden and there are significant operational burdens in managing those schemes. One of the advantages, by comparison, of treating the water to a much higher level so that you can put the water straight back into the drinking water supply is that you have a more reliable ability to re-use all of the water, as opposed to some of it, and the cost and energy requirements are much lower.

The Hon. RICK COLLESS: It is good to see you again, Dr Khan.

Dr KHAN: Thank you; you too.

The Hon. MICK VEITCH: The Hon. Rick Colless has been here since last century.

The CHAIR: It sounds like a long time.

The Hon. RICK COLLESS: That is not quite right. With respect to dual reticulation systems, there are some developments occurring in regional New South Wales which I am sure you are aware of, where they are being put in—and successfully. Is that not a better option than to completely recycle all the water to a potable standard and then use that potable water for watering garden parks, which is what I think the dual reticulation water is being used for?

Dr KHAN: That is a good point. That is the argument that it often comes down to. One of the very recent developments has been in Ballina in New South Wales. It just opened a dual reticulation scheme for that purpose. You are going to invest money in one of two places. You are going to invest money in treating all the water to a potable standard—which, I acknowledge, not all uses may require—or you are going to invest money in keeping those systems segregated. So you might have lower treatment requirements but they may not be that much lower because you still need to manage public health risks for irrigation so the water is still heavily treated. Look at Newington, for example. The way they treat the water there is almost as well as you would treat it for a drinking water supply. Assuming that you do not have to treat it quite as well as you would for a drinking water supply you then have the infrastructure costs of keeping them segregated—the pumping and the pipes. Even though it might intuitively seem that you are better off to build the infrastructure than to do the treatment, the treatment efficiency, availability and performance—the ability to take waste water and treat it to a high level suitable for drinking—has come a long way in 20 or 30 years. It is more on that side of the equation now. Although it is case specific, it tends to be more economically advantageous to invest in treating the water than to invest in separate distribution systems for the water. I take your point, but it often does not work out that way.

The Hon. RICK COLLESS: In terms of waste water that has gone through a treatment plant and, as you mentioned in your submission, ends up as nutrient-rich water, that obviously has a potential value.

Dr KHAN: Yes.

The Hon. RICK COLLESS: In some cases that is being used—

Dr KHAN: In many cases.

The Hon. RICK COLLESS: —by farmers and councils and so on.

The CHAIR: Councils and mines.

The Hon. RICK COLLESS: The other side of that story is a bit of a conundrum, because in times of very low flow in the rivers the water resource people are looking for some of that flow to go back into the river to keep the river flowing—to keep a base flow in the river. How do we balance that? Firstly, you obviously have to get the nutrient out of the water anyway. You might recall that there was a project done by the University of New England about 20 years ago in relation to using water weeds—duck weed and azolla and things like that—to extract the nutrients from the water. Where do you think we should be going with those sorts of programs, now?

Dr KHAN: They are both good questions. The issue of nutrients is very important. Yes, the most common way to recycle water in New South Wales is by irrigating the local golf course. It goes straight out of the sewage treatment plant onto the golf course, and sometimes onto plantations, airports et cetera. Those schemes were generally developed during the 1990s in response to EPA regulations around discharging of nutrients. That is what they achieve.

Many of them developed new uses for that water. Golf courses need to be irrigated anyway, but some of them planted plantations and found other ways to get rid of this water. Those schemes do not relieve pressures on the potable water system. Ideally, you would like that recycled water to be used for something that the potable water would otherwise have been used for. That would increase the water supply security in a way that new uses for that water do not.

So, yes, those schemes exist, and they are very useful in achieving their objectives. In terms of water going into the river, that has been a big issue. The Gundagai Council now has the Cootamundra scheme, which is a good example where, by reusing that water locally, they have been able to save on discharge costs of salt and nutrients to waterways. They have also been able to save on the purchase costs of water. They buy water from a regional bulk water supplier. That has been the economic driver for recycling in that way.

It is important to acknowledge that the water that is discharged into rivers is recycled water, in many cases, because it is used downstream. That needs to be taken into account. That can be a very valuable use of that water. In fact, Sydney spent a lot of money designing a scheme to do that. The replacement flows project in Sydney was all about saving water in Warragamba Dam by building an advanced water treatment plant out at St Marys WasteWater Treatment Plant. They now take wastewater from three sewage treatment plants, pipe it to St Marys, treat it to a very high level—reverse osmosis—and then put that back into the Nepean River to let it flow downstream, because that becomes part of the drinking water supply at North Richmond, about 17 kilometres downstream of the off-take point.

There are, of course, any number of important water users. It does not need to be a drinking water supply downstream. We have irrigators and other water users. I count all of those as water recycling. That is just a means of delivering the water downstream. So, yes, if you are going to take water out of the sewage treatment plant and use it locally, then the cost-benefit analysis of doing that needs to take into account the other people that you are depriving of using that water.

The Hon. RICK COLLESS: It is an interesting thing about water. I often tell people that all water is recycled, anyway. It is just a matter of the methodology by which it is recycled.

Dr KHAN: Right. But if you think about Sydney, you realise that we send over a thousand megalitres per day into the Pacific Ocean.

The Hon. RICK COLLESS: We do.

Dr KHAN: That is recycling, but it is a—

The Hon. RICK COLLESS: I understand where you are coming from. I could like to turn to your comments about the Belubula River and Broken Hill. You made the point that there is little water flow going down the lower reaches of the Belubula River because of Lake Rowlands and Carcoar Dam. Those two storages on the upper Belubula at best could only be described as duck ponds. They are only very small storages, so they would not have a great effect on the overall flow of the Belubula at Canowindra and below.

Dr KHAN: I do not know the numbers. I have seen the river in recent years and I can tell you that it is not necessarily the largest, most powerfully flowing river that you have ever seen. It is highly seasonal, and there have been floods downstream as a consequence.

The Hon. PENNY SHARPE: It is flowing pretty well at the moment.

The Hon. RICK COLLESS: You made comments about a dam at Canowindra having a rainfall of 700 millilitres a year and evaporation of over 1,000 millilitres. Carcoar dam is 41 metres deep. What we would be looking for in terms of efficient water storages, are deep dams—dams that have a smaller surface area compared to their depth.

Dr KHAN: Precisely.

The Hon. RICK COLLESS: Dams up in that part of the world would be far more efficient than large, flat storages further west, which may only be four or five metres deep and cover a huge surface area.

Dr KHAN: One would hope so. The proposal at the moment is not very publicly available. I do not have anything to go on in terms of how deep this dam is going to be, what the dimensions might be or even, precisely the location.

The CHAIR: Big and deep.

Dr KHAN: Well, deep is what you want. Wide is not so much what you want.

The Hon. RICK COLLESS: I would like to ask you a couple of questions in relation to the Broken Hill pipeline proposal. I think you were here when we were talking about the security issues. Broken Hill is obviously in a very water-challenged part of New South Wales, not having a major river flowing through it and being in a very arid zone. Do you think that at some stage there needs to be some sort of serious augmentation to Broken Hill's water supply?

Dr KHAN: That is a very big question, and beyond my expertise, because I know that there are issues in terms of competition with other users upstream et cetera that would need to be taken into account in answering that question. Once you start putting things on the table—like building an 800-kilometre pipeline to pump water back, more or less to where it came from, because it is coming out of the Murray—

The Hon. RICK COLLESS: It is 300 kilometres long.

Dr KHAN: Once you start building long pipelines like this, you should also be thinking about what the opportunities are to capture and reuse water locally—stormwater, as is being done in Orange, and some of the non-potable or potable water recycling schemes that we have been talking about. The reason is that even if you assume that you still need the pipeline and you still need more water coming from somewhere and even if you assume that you have sunk the infrastructure costs, the half a billion dollars for building that pipeline, that is still extremely expensive energy-intensive water to deliver from the Murray River back up to Broken Hill.

The Hon. RICK COLLESS: But that applies to the water that comes from the Menindee Lakes now anyway.

Dr KHAN: Right, so we should have been talking about this even before anybody brought up the pipeline because the point is that if you can supply water locally at a lower price, of excellent, perfect quality and at lower energy, you should be thinking about maximising your opportunities to do that. Every kilolitre of water that you do not pump up from the Murray River is a good kilolitre of water. That is a significant energy and cost saving.

The Hon. RICK COLLESS: You would see, though, that there are many competing uses for water in Broken Hill with the mining industry and the need for parks, gardens, golf courses and that sort of thing. Traditionally the green belt around Broken Hill was watered by its effluent water to reduce the impact of dust storms and the arid environment.

The CHAIR: And the lead dust.

The Hon. RICK COLLESS: Yes, that has a very important social benefit as well.

Dr KHAN: Absolutely. These are examples of non-potable water recycling which should be optimised and maximised. The situation at the moment as I understand it, and it is summarised in my submission, is that that water is sold for about 17 cents per kilolitre—much, much less than the potable water supply—and is made available at the gate of the sewerage treatment plant. There is no thought about who would be the most efficient or most useful customers or who is going to pay the most for the water. Effectively, there is a pipe there and you can plug into it. You build your own supply pipe, as the mine and the golf course have done in Broken Hill, and you use it when you want it. You do not use it when you do not want it. The overall use of that water is far from optimised. There could be a lot better use of that water. There is actually an IPART report and a submission to the IPART report that I quoted in my submission that acknowledges that neither of those users, if they were expected to pay the same price for that water that they do for the potable water supply, would do so. These are

new customers; these are not replacing pressures on the drinking water supply for Broken Hill. Assuming the drinking water supply for Broken Hill is a problem that you want to solve, this recycled water is not solving it. It is going to a beneficial use—I do not deny that—but it is not the optimum use in terms of the amount of water that is being used and the amount of potable supplied water that is being replaced.

The CHAIR: It is a public health issue in this regard: The residents of Broken Hill are on the potable water supply and, in order to suppress lead dust, they need to have grass and they need to water. The question becomes: Would it not be more cost-effective overall for the community to develop the recycled water system, even if it is a higher cost dual circuit type of system, rather than stress the potable water supply which has to be used for every purpose? If there is no other water and if you do not water those lawns and those gardens, you get lead dust and all sorts of health problems for the whole of the community. That could suggest that there was some socio-economic benefit in actually putting in an extended recycled water system.

Dr KHAN: I agree entirely with what you are saying—

The CHAIR: Or do you think it would be better to say, "No, don't do that: Let's put in a reinjection system to put it back into the potable water system"?

Dr KHAN: I agree with what you are saying, and this is a very important, legitimate use of water, whether it be recycled water, drinking water or whatever. That lead dust needs to be managed because there is a real, measurable public health benefit that comes from that. I am not suggesting that that recycled water should be used for one particular application or another. I think this comes back to the point about locally appropriate and locally optimised solutions. What should be happening here is that there should be an assessment of the opportunities to use that water that maximise the use of that water and, in terms of the lead dust suppression, I think it would be legitimate to say that it is such an important problem that if the recycled water was not available to do that, somebody would have to think about paying for the potable water to do that.

The CHAIR: But you were saying earlier that the equation is starting to shift towards the reinjection of recycled water into the potable water supply rather than installing twin systems.

Dr KHAN: If you assume that, regardless, we are using the water to suppress dust and to manage the lead risk, is the most economically viable way of doing that to supply a dual reticulation scheme to all of the houses to have a lead dust suppression water supply or to treat that water to a suitably high level to put that back into the drinking water supply and encourage people to use their drinking water to do that? I would think, in terms of the costs involved, the latter is going to be favourable—just have one supply system instead of two supply systems—but I acknowledge that you have an issue to get around there in terms of having to find a way to satisfy the problem of customers having to pay drinking water prices to suppress lead dust.

The CHAIR: They are now; they have no choice now. The golf course and the mine have a choice but, without that reticulation system, the residents do not.

Dr KHAN: So that would be a good use of the water locally. Even if you are going to be pumping up water from the Murray River, you still have this problem of the lead dust suppression.

The CHAIR: Yes, that is correct.

Dr KHAN: The real question is: where can that water most economically be sourced from? Is it going to be locally supplied recycled water? Is it going to be water that is pumped 300 kilometres from the Murray River? Or is it going to be water that is supplied by dual reticulation scheme to every property in Broken Hill? I would suggest, even though I think that you need to formally assess each case, that the likelihood of treating that water and putting it back locally into the drinking supply is going to stack up reasonably well against those other options per kilolitre cost.

The CHAIR: We are out of time. Thank you very much, Dr Khan, for agreeing to come in. This has been most enlightening. There may be some questions on notice. If there are, the secretariat will send them to you in writing, and we would appreciate it if you could return answers to those questions within 21 days.

(The witness withdrew.)

DEREK SCHOEN, President, NSW Farmers, affirmed and examined**:**

The CHAIR: Before we begin trying to extract all your ideas and opinions in a truncated time frame, which is what this is all about, would you like to make an opening statement?

Mr SCHOEN: Yes. NSW Farmers appreciates the opportunity to respond to the Inquiry into the Augmentation of Water Supply for Rural and Regional New South Wales conducted by the General Purpose Standing Committee No. 5. NSW Farmers is Australia's largest farming body, representing the majority of commercial farm businesses in New South Wales, ranging from broadacre meat, dairy, wool and grain producers to more specialised producers in the horticulture, egg, pork, oyster and goat industries. It is important to note that as a member of the NSW Irrigators Council NSW Farmers endorses the NSW Irrigators Council's submission to this inquiry. NSW Farmers acknowledges that the Government introduced reform in regard to a few of the recommendations previously made by NSW Farmers in 2012. However, in our view there remain many areas where further reform is crucial for the continued productivity and sustainability of farming in New South Wales, particularly in respect of improving available information, meeting competing needs, and water efficiency.

NSW Farmers considers that one of the greatest barriers to planning for the State's future water needs is the limited information systems currently in place across the country. We would like to see a comprehensive study conducted that identifies risks, opportunities and cost-effective infrastructure solutions. Important information gathering should also be conducted through industry consultation within each catchment so that a fair and equitable basis can be determined for the allocation of water within the catchment between all users and beneficiaries, including domestic, livestock, environment, and irrigation. In our view, more can be done to optimise water storage and distribution processes and structures in New South Wales. Long-term water strategies for the eastern and western fall should be developed and the Government should conduct studies into the most appropriate ways of steering water in times of excess rainfall in order to provide triple-bottom-line outcomes. While new storages will need to be built if agriculture and urban needs are to be met for future growth, groundwater recharge must be seriously investigated as a long-term storage option in years of high flows.

Any discussion about new and augmented public water storages and water-sharing plans must consider not only current and projected stakeholder demands but also the role that these storages and plans may play in respect of flood mitigation, water security, and the provision of clean energy. The New South Wales Government must continue to support and facilitate demand management practices and urban water conservation measures. The production of more wastewater recycling funding for innovative water-sharing schemes in rural New South Wales could further support agriculture and industry. NSW Farmers would like to see a fair and equitable approach to fixed water charges and water-sharing plans to ensure that irrigation districts or valleys do not get priced out of productive utilisation, and that we end up with stranded assets either in irrigation infrastructure or redundant storages. There must be consideration of the vagaries of seasonal conditions. Fixed water charges should be waived when exceptional drought conditions prevail, and water-sharing plans should be reviewed where inflexible rules fail to take into account catchment conditions and productivity.

Environmental water should be a combination of water stored for that purpose and flood releases allowing for stored water being given a higher priority to irrigation in years of higher inflows, like this year. The inequity must be remedied. Groundwater diverters in the south western basin had their entitlement dramatically reduced in a clawback and received very little compensation. It was not scientifically based and an arbitrary line using the Riverina Highway was the basis of the decision. More than 80 per cent of water used in New South Wales is used for agriculture. Responsible management of our water resources is fundamental to the success of New South Wales farming enterprises.

The CHAIR: At any time have NSW Farmers, any other collegiate State body, or the National Farmers' Federation done any work, or do you know of any work that has been done that could give the Committee an idea of what the demand for food and fibre will be 20 years or 50 years from now?

Mr SCHOEN: I am not sure about any such study. However, it is something that must be done because there will be increased demand for food and fibre. One of the limiting factors is the availability of water.

The CHAIR: It is probably the limiting factor.

Mr SCHOEN: Yes.

The CHAIR: You suggested that there was insufficient research defining what water we have, where it is, and so on. We talked earlier about aquifer mapping. There does not appear to be a great deal of

information. If there is, it is hidden in the CSIRO, the Department of Resources and Energy and so on. Is that work best driven at the Commonwealth level? New South Wales is part of a network of exporters; we do not export wheat only from New South Wales.

Mr SCHOEN: No. Ideally, that would happen at the Commonwealth level, probably with the assistance of the Australian Farm Institute, which conducts a lot of groundbreaking research. It is very good at correlating the reports and bringing them into one cohesive report.

The CHAIR: I think the Department of Primary Industries compiles the gross domestic product and agricultural product figures for New South Wales, and Treasury might have some involvement. Do you have any data coming from your membership or do you poll your membership from year to year about their gross aggregate production?

Mr SCHOEN: No, we do not. However, we have limited resources and we are usually dealing with policy issues rather than feedback. We would need another department to cater for that, and we do not have the financial resources to conduct that work.

The CHAIR: Clearly work like that probably needs to be done by State or Federal governments.

Mr SCHOEN: Yes.

The Hon. MICK VEITCH: Your submission is critical of the current water-sharing plan and processes, and particularly the reviews. You are calling for an urgent review of water-sharing plans. Can you extrapolate as to why NSW Farmers is calling for a comprehensive review?

Mr SCHOEN: There seems to be an enormous amount of incomplete work in the water area. Many decisions made in the early 2000s were supposed to be reviewed, but that has not happened. It is a little like environmental water. Environmental water is flushed down the river, but there is no cohesive review of the outcomes. We have anecdotal reports from members saying that much of the environmental water is either being wasted or is delivering perverse outcomes. Forests along rivers are dying because the process is being handled arbitrarily by people who have a policy manual but who do not have local knowledge to operate the process effectively. There must be a serious review of all aspects of our water sharing.

The Hon. MICK VEITCH: How was NSW Farmers involved in the development and construction of the water-sharing plans originally? Some of them have been reviewed or rolled over recently. What involvement did you have and what consultation took place with your members?

Mr SCHOEN: Some of the reviews were rolled over because they ran out of time and no review was conducted. That is a serious omission. All of these things take time. However, when you get to the deadline it is not good enough simply to roll them over. The ground work must be done to determine whether they are operating in the way they were designed to operate. NSW Farmers has been exerting a lot of pressure to get these reviews conducted. Unfortunately, many water-sharing plans were rolled over instead of being reviewed. The northern part of the Murray-Darling basin has been reviewed, but the southern part is still waiting. Last week the NSW Irrigators Council said the southern review would probably take 18 months to two years to conduct. It is long overdue. We have people who are hurting and who are awaiting a review that could be another two years coming.

The Hon. MICK VEITCH: There tends to be a publicly displayed version of the plan and later on there is a gazetted version after the consultation process. You are critical of the timeframe of that process. Is the advertising campaign designed to make stakeholders aware and involved appropriate?

Mr SCHOEN: I think some of the advertising timeframes can actually give people a heads up, because there is a lot of work that has to be put in to getting a submission organised. A lot of individuals are not really proficient in submitting a submission, so it enables NSW Farmers and Irrigators Council then to assist groups to formulate a submission to put in, because it is quite daunting to actually write a submission and to have it actually of any substance. I think the timeframes have to be advertised well in advance so that people have forewarning of what is expected.

The Hon. MICK VEITCH: My last question actually relates to your recommendation 1 in the submission, which is a very substantial recommendation I have got to say. I will read this out:

> "That the New South Wales Government commission a comprehensive climatic, physiographic, hydrological and engineering study to identify risks, opportunities and cost effective infrastructure solutions to future water demands and the consequences for public water storages."

Do you have a timeframe for the Government to implement that?

Mr SCHOEN: No. Perhaps we should have put a timeframe on it. It would be a fairly long timeframe I would say.

The CHAIR: Two years sounds good.

The Hon. MICK VEITCH: I all seriousness, that is a pretty significant body of work you are calling on the Government to undertake.

The CHAIR: Thank you for writing our first recommendation.

The Hon. MICK VEITCH: Who is best placed in government to undertake that sort of significant work? Is this something that the Premier and Cabinet should do, are you suggesting?

Mr SCHOEN: I think it would the Department of Primary Industries Water would be the best ones to handle this sort of thing, because it encompasses agriculture to a great extent. There are rural urban users as well but 80 percent of water in New South Wales is used by agriculture, so I think Department of Primary Industries Water would probably be the most valuable area to put that in.

The CHAIR: Could I suggest to you that the questions I put to you earlier would really need to be answered before the Government could even begin to do this, because the most deliberative word in there is "demand".

Mr SCHOEN: Yes.

The CHAIR: You do not know what your water demands are until you know what your production demands are. You do not know what your production demands are until you know what our population growth is going to be. If you said the Commonwealth Government has got to sit down and determine for the whole of Australia because they have the most money to be able to do the work, that could take five years and then this could take another five years or another three years, so we are 10 years down the track, but would you agree that it is imperative that somewhere along the line we start planning to adopt that recommendation now?

Mr SCHOEN: Definitely. These things do not happen overnight and to get something up and running it is going to take a lot of organisation. It really has to be started post haste because we are running behind in all this.

The CHAIR: Why do you say that?

Mr SCHOEN: There is so much work that has not been done.

The CHAIR: So there is a backlog to catch up.

Mr SCHOEN: That is right. We are running behind the 8 ball.

The Hon. PENNY SHARPE: In your submission you talk about no dams having been built since 1987. Why is that?

The Hon. RICK COLLESS: You did not build any. We built the last one in New South Wales.

The Hon. PENNY SHARPE: I am actually asking a serious question and I am interested in the reason.

Mr SCHOEN: You're asking why no dams have been built?

The Hon. PENNY SHARPE: I am interested from your perspective. I know we have looked at a lot of places where dams can be built and they have been rejected on multiple occasions; so my question is, from your perspective, beyond an unwillingness of government to build one, what do you think the barriers are to dam building in this State?

Mr SCHOEN: I think a lot of it is put in the too hard a basket, to get the environment credentials, to get a new dam up and running can often be almost impossible. There are ideal sites out there, so they are almost ready to go, but to actually get the investment put in and build these dams and to get it past the environmental hurdles, I think is just a hurdle too far.

Chaffey Dam was extended and that is greatly appreciated but that could potentially become a stranded asset. If the water charges keep going up, Chaffey Dam will have an extended capacity but there will not be any irrigators there using that water because the water is too expensive, and this is something we have to look at. There are assets there that will become stranded in the future if the water charges keep going up.

The Hon. PENNY SHARPE: If that is the case and given the issues of building dams—and I know that you were here for Dr Khan's evidence earlier—but what is the view of NSW Farmers in relation to water recycling and other harvesting opportunities before dams as to the first option?

Mr SCHOEN: I think water recycling should be looked at seriously. We live next door to Riverlea piggery, the largest piggery in the southern hemisphere. We were connected to a reuse scheme with the piggery. Trying to remove nutrients from water that can be used for agriculture seems to be a no-brainer.

The Hon. PENNY SHARPE: The technology is there to fix this stuff.

Mr SCHOEN: You do not even need the technology. What they did at the piggery, they pumped it across the fence to our place and we use it. So, the water that we receive has got 100 percent of the nitrogen requirement to grow an oat and hay crop, it has got 65 percent of the phosphorous requirement to grow that oat and hay crop, so why would you go and remove all those nutrients at a great expense to go and discharge it into a river or into potable water, when it can be used in agriculture and then use some of that water that was earmarked for agriculture to replace that water?

The CHAIR: Somewhere else.

Mr SCHOEN: Yes. I think it seriously has to be looked at. Small rural councils do not have the financial ability to put in the expensive reverse osmosis treatment plants and stuff like that, so using that water for a different purpose is better than actually trying to treat it and remove the nutrients that are actually a valuable asset in the water.

The Hon. PENNY SHARPE: You know a lot more about this than I do in relation to how the water sharing agreements operate and the consideration of those types of arrangements. The arrangement that you have just described, is that just something that happened because the piggery was built? How did it come to pass and is it actually captured in terms of any of the considerations of what is happening with water around your area?

Mr SCHOEN: It is not part of a water sharing plan as such. The Environment Protection Authority got on their back, they did not want the water dispersed on a small area. The nutrient load would have been too high and then it would have given trouble to the underground aquifer. We were just fortunate that we live next door to the piggery and they offered it to us. They offered it to all the neighbours but we were the only ones that took up the offer.

It was a very lucrative offer and we thought everyone would have been bending over backwards to get it, but there is a reluctance to use treated effluent. Some people feel that it can be a path to diseases in stock and stuff like that. We did our research, we had a trip down to Werribee where they have been reusing effluent for a long, long time, and we saw that basically there were more pluses than negatives to reusing it.

The Hon. PENNY SHARPE: How long has that been operating?

Mr SCHOEN: Operating on our place or Werribee?

The Hon. PENNY SHARPE: Your place.

Mr SCHOEN: Fourteen years now.

The Hon. PENNY SHARPE: The forecast concerns about disease have obviously not come to pass.

Mr SCHOEN: Have not eventuated. We are in acid soils area, the effluent is actually alkaline, so it has a liming effect. We are very low in potash and it is reasonably high in potash, so it also puts in a lot of that nutrient as well. Even when we do not irrigate, you can still see where the circles are in the paddock where the effluent has been applied. It always grows two or three times better than the rest of the paddocks.

The Hon. RICK COLLESS: Could I just ask a supplementary question which is in the same line of what you are asking, Penny?

The CHAIR: I am sure Penny will not mind.

The Hon. RICK COLLESS: Just in relation to monitoring that area, does the Environment Protection Agency require a regular monitoring to detect if there is any nutrient build up?

Mr SCHOEN: Yes, they originally did. So, for the first five years they were monitoring it. There are test bores around our property and neighbouring properties that are also monitored on a regular basis, just to make sure that there is no leaching into the underground aquifers. But all our soil tests are coming up that there is no actual build up in nutrients, that the cropping cycle that we use is actually reducing or removing all those nutrients.

That was part of the Environment Protection Agency licence, that the majority were going to be hay crops, so that you had a large amount of biomass that was removed.

The Hon. PENNY SHARPE: Which brings me back to the Environment Protection Agency, presumably your arrangement is picked up in their Environment Protection Agency licences, in the operation of the piggery, is that right?

Mr SCHOEN: Yes, that is correct.

The Hon. PENNY SHARPE: If we were trying to map these kinds of arrangements that might be a place to look, because I am sure they are not picked up anywhere else. Can you think of anywhere else?

Mr SCHOEN: No, I do not think anyone else has their fingers on it, so it would be Environmental Protection Agency [EPA] and then it was a private agreement between us and the piggeries. When I was on Corowa Council we had the same problem there. We were discharging to the Murray River. We had enormous licencing fees to do that discharge so Corowa Council built an agroforestry lot and we were putting the effluent on to that. Unfortunately the outlet for trees was pretty small so I notice they have just cut down all the trees and put in a centre pivot and now they are using that effluent to grow hay as well. So they have gone down that way. They win out, they get any income from the effluent and they are not paying the EPA licencing fee to discharge to the Murray.

The Hon. MICK VEITCH: That was the load-based licence.

Mr SCHOEN: That is correct. Albury has gone the other way. They have built a large wetlands on the Murray River flats and they run their water through the wetlands and discharge back into the Murray.

The CHAIR: Parkville Piggery, I think they put all their pig poo on to asparagus. So it cannot be too bad.

Mr SCOT MacDONALD: Can I just ask you two things? One is about carry over. The snowy dams are pushing out consumptive water with all this environmental carry over water. So the Commonwealth water holder is holding a lot of water, as is Office of Environment and Heritage [OEH] holding a lot of water and carrying over a lot of water, is New South Wales Farmers getting concerned about the availability of air space or space in the dams for consumptive water?

Mr SCHOEN: That is a major concern. We are getting our allocation announcements later and later in the seasons because of the amount of environmental carry over water in the system. It is interesting to note the 3.6 gigalitres of water—Lake Hume is the second-largest water supply catchment in the Murray-Darling Basin and almost the total volume of Lake Hume could be used to accommodate environmental water. That is how much environmental water we have in storage on the Murray-Darling.

Mr SCOT MacDONALD: So ,what is the answer? Should it be capped, I guess basically I am asking?

Mr SCHOEN: One, it should be capped; and two, I think what we should be looking at is, like with this current flooding event, that is the largest environmental flow that we have had, probably in the last 20 years and it has not been looked upon as an environment flow, it is a natural environmental flow. It is a winter flood, which was the traditional way the Murray flooded. It should be looked upon as an environment flow then relieving water that is held in storage by OEH and the Commonwealth water holder and made available to irrigators .

Mr SCOT MacDONALD: Can I ask you about the other submissions by New South Wales Farmers Griffith, always very vocal?

Mr SCHOEN: Very.

Mr SCOT MacDONALD: Which is good. But the voluntary contributions that I think Murray and Murrumbidgee—but I am particularly talking about Murray with their 5 per cent high security, 15 per cent general security—the position of New South Wales Farmers, it seems to have taken a long, long time to get any clarity on it. But charges are still being paid by the water access licence holder and that seems very different to Water Access Licences [WALs] held by the Commonwealth water holder and OEH as well. Are you making any progress there, and what is the position in New South Wales Farmers?

Mr SCHOEN: We really appreciate the work that has been done by the Griffith branch, they put a lot of hard work into this. That water was surrendered around about 2002. It was supposed to be reviewed after 12 months and then again after five years, both of those reviews, so here we go again. We are running behind the eight bail with those reviews. So that water has just basically been rolled over into OEH water. That water actually was a temporary solution for salt down at the Morgan part of the river and that was to alleviate that high salt load. Then because it was voluntary contribution it was going to be looked at as being given back at a later date. So that is why they continued to pay the fixed charges on that. But now we are probably up to 14 years

later, the members that surrendered that water are still paying the fixed charges and they do not have that water reallocated back to them. So I think either way, you either have to erode the fixed charges on it, or they have to deliver that water back to irrigators.

Mr SCOT MacDONALD: When I asked into it—and I suppose I will get the chance again to ask New South Wales Department of Primary Industry [DPI]—their response is always, well, you are going to pay it one way or the other, either you pay it divvied up with this voluntary contribution, either way you will pay the charge. But I do not understand why when the Commonwealth water holder acquires its WALs it takes all the characteristics, if you like, of it including the charges. But these contributions, it seems to be a hybrid, they lose the water but keep paying the charges. I guess we continue to prosecute that case I suppose.

Mr SCHOEN: Definitely, and I think it is a double whammy for those producers. We surrendered 10 per cent of our licence to accommodate it as well and we are paying the charges on that. So, it is a double whammy, you have lost the use of that water plus you have to pay for the privilege of someone else using it. And the water can be reused by irrigators further downstream. The Government can actually sell that water and recoup charges while we have actually given it to them .

The Hon. MATTHEW MASON-COX: I wanted to ask about your submission. You mentioned in there that you are looking for a fair and equitable approach to bulk water charges. We had the Independent Pricing and Regulatory Tribunal [IPART] in a moment ago. I wondered in relation to the role they play are you critical of the role they are playing or is it other aspects in relation to how actual charges are priced?

Mr SCHOEN: Part of it is the role that IPART do play. I think — and this is what I was talking about before—we will soon end up with stranded assets in New South Wales, so irrigation schemes that are no longer viable to operators of an irrigation scheme. When you are paying a basic water charge of $58 a megalitre and your ongoing charges on top of that, it becomes non-viable to use that water, especially if these irrigators are in an area where they cannot do broad-scale cropping and change to, say cotton, or something like that, that has a higher return. Say producers in the Peel Valley who are traditionally growing lucerne, once the water gets up around $58, $60 a megalitre it is no longer economically viable. You can buy lucerne in from Gatton and bring it down to Tamworth for the horses to eat rather than growing it in the Peel Valley. But those producers cannot move to using it, say for growing cotton or a higher value crop because the land is not usable in that way.

The Hon. MATTHEW MASON-COX: In those circumstances what you are really talking about is a cross subsidy between river valleys.

Mr SCHOEN: That is part of it. Also, a lot of that infrastructure is quite old infrastructure. The Chaffey Dam has been there for a long period of time . Do we still have to be charging the irrigators for the cost of that dam? I think that is one thing. Tamworth Council has a large swag of the water that is in Chaffey Dam. Not only do they have a high price to the water they often have a fairly low allocation in the Peel Valley as well, so that also makes their irrigation infrastructure a lot more expensive to operate.

The Hon. MATTHEW MASON-COX: The other question I wanted to ask you was picking up where Mr MacDonald was going in terms of the rules under the water sharing plans and the like. You mentioned that there is a lack of flexibility pretty much cross the whole system and you mentioned the opportunity there to allocate environmental water, perhaps to more productive use where there is a big flow through the system, which we have just currently seen. In that regard, to use the nomenclature—translucent flows, transparent flows, carry over—how would you seek to prioritise that and what cost do you think, if any, should apply to water through the system?

Mr SCHOEN: I think reallocating the water so that the irrigators can get an earlier indication of what their allocation for the year will be because we had to plan ahead. It is no use getting an allocation in January saying that you will get this percentage of your allocation and finding out that you have missed your planting window. So a lot of water then has to be sold on the temporary market because the producers did not have enough water to actually plant a crop because the allocation was not announced early enough. I think we should use some of the water that is held in storage for the environment to give an earlier indication because usually those allocations go up as the season progresses.

The Hon. MATTHEW MASON-COX: It is too late.

Mr SCHOEN: It is too late, so you have lost your planting window. A lot of people in the department do not realise that we have planting windows and when that window is gone, it is over. You might as well close up shop. This is a major problem that we are facing continuously now, that the allocations are coming out later and later, and we are missing our planting window.

The CHAIR: Before you go on, that was an interesting comment you made. The people in Government who should know the most about the cycle of planting times are those in the Department of Primary Industries. The same department now controls New South Wales water, so there should probably be an absolute close understanding within the water side of exactly when flows are required, should there not?

Mr SCHOEN: You would think so, but we always come across that State will blame Federal and Federal will blame the State. We get this duckshoving all the time. No-one wants to take responsibility for the decisions that are made.

The Hon. MATTHEW MASON-COX: To clarify, what is the time you need to know to make those key economic decisions?

Mr SCHOEN: If you are looking at cotton, probably 20 October is the finishing of your planting window. Prior to that, you have to have an indication of what the water allocation is because you have to get your country prepared. You are not going to spend a lot of money preparing country to put in cotton, which is a high up-front cost.

The Hon. RICK COLLESS: Can you pre-water it?

Mr SCHOEN: No. They usually water it up or maybe just before, but they do a lot of preparation work with beds and fertiliser, but you are not going to do that preparation work if you do not know what your allocation is going to be because it is quite an expensive up-front cost.

The Hon. MATTHEW MASON-COX: Could you, on notice, send us the key dates for which crop in which river valley—just some useful information for us to contemplate and reflect upon.

Mr SCHOEN: That would not be a problem.

The Hon. RICK COLLESS: Thank you, Derek, for your comprehensive submission and also the forthright information you are giving us today. Can I go back to this issue of the translucent flows. This issue has to be considered in conjunction with the carry-over water that is held in the storages, particularly in relation to the carry-over environmental water, but also to a certain degree the carry-over productive water, when those translucent flows occur, either through the storages or in tributaries below the storages. Do you think they should be considered to be the environmental flows and that that environmental water that is held back in the storages then should be converted back to productive water?

Mr SCHOEN: Definitely. There is a reluctance to convert the water that is held in storage back into productive water. This is one of the problems we are coming up with. They are carrying over water in the reservoirs for the environment and not releasing it or using it for a higher purpose. I am not saying that the environment is a low purpose, but at that time of year it is probably a higher purpose to give it to agriculture. It is a major problem that we are seeing that there is this carry-over water. A lot of farmers carry over water as well. That is a bit of an insurance to actually get a crop in, because if you carry over water you know you are going to have a starting allocation so you can plan on that. This is the reason a lot of farmers are carrying over water, because the allocations are being announced so late. We usually carry over probably 300 megalitres because we know we can get the crop in and then we hope for a further allocation to water that crop once the season gets going. There is a risk involved with that. You lose that water once the dam spills. This year we have lost that water, so that water would have gone to the environment because once the dam spills you lose that carry-over water.

The Hon. RICK COLLESS: The problem with productive carry-over water is that it can tend to reduce the amount of water to be allocated in the dam, anyway, particularly if there is a big proportion of carry-over environmental water already in the dam?

Mr SCHOEN: That is right. Carry-over water does have the skewing effect. If we were guaranteed we would have our allocation a lot earlier and that it would be a larger percentage, then I think you would find there would be a hell of a lot less carry-over water in the reservoirs.

The Hon. RICK COLLESS: In the Murray system now with all the dams flowing and the river in flood, do you have any indication of what the carry-over environmental water being held in Lake Hume is now?

Mr SCHOEN: I would not be able to tell you. I would have to check up on that.

The Hon. RICK COLLESS: Can I also ask you about your views on dams and storages and new storages. There are a couple of options that are on the table, of which you are no doubt aware. What sort of requirements going into the future do you think we are going to need to look at for additional storages?

Mr SCHOEN: There is going to be a larger and larger draw on the water resources of this country. We have to plan for that in the future. There is no use in 30 years time saying, "We should have built a dam 20 years ago." There is science that is ready to go and we should seriously be looking at increasing our storage capacity. I reiterate when you think of Lake Hume, the second largest storage on the Murray-Darling, the full capacity of that can be used for environmental water. We are taking a large slug of water out of the system that cannot be used for productive agriculture.

The Hon. RICK COLLESS: The last question I have relates to the Murray-Darling Basin Authority and the management of the Menindee Lakes, Lake Victoria, Lake Alexandrina and Lake Albert in South Australia. What do you think the future holds for the management of those lakes, given the fact that we are potentially entering a more water-challenged time in the future?

Mr SCHOEN: We have to start looking at reassessing some of these water storages that we do have. Victoria did it. They decommissioned Lake Mokoan. It was a shallow storage. There was a lot of hoo-ha when that was decommissioned. When you see it now empty you realise what an evaporation basin Lake Mokoan was. It was a very shallow lake. We have to start addressing some of these issues with some areas of the Menindee Lakes, whether we retain water in them or we keep it at a lower level in the deeper part of the pool, and also the lower lakes in South Australia. We built an artificial wall against the sea. They are dredging the mouth all the time. Part of the reason we have to dredge the mouth is because there is no natural tidal flow any more in the lower lakes of South Australia. That is what traditionally kept the Murray mouth open. We are using dredging and flushes of fresh water to try to keep an artificial system open, but it will be very difficult to get agreement on South Australia to remove those barrages.

The CHAIR: Derek, New South Wales blokes do not understand. You have to have at least three feet of water under the keels of the boats in the Hindmarsh Island canal developments. Do you not know that?

Mr SCHOEN: That is exactly right.

The Hon. RICK COLLESS: One thing I would like to seek your comment on is, in your organisation, do you have discussions about the lower lakes issues with your Victorian and Federal counterparts, and South Australian counterparts, obviously?

Mr SCHOEN: The National Farmers' Federation handles that on behalf of us and the National Irrigators Council. We realise nothing is going to happen with the lower lakes unless South Australia can be convinced, because it only takes them to say no and nothing will happen. Until we can change that attitude in South Australia, then basically nothing is going to happen with the lower lakes until something drastic has to be done and they have to rewrite the whole legislation that surrounds it, but, really, it is a no-brainer that we are keeping those lakes at an artificial level for recreation. The irrigation and the water supply can be handled another way by pumping it, because South Australia pumps their water everywhere.

The Hon. RICK COLLESS: That is right.

The CHAIR: We need to borrow a couple of F18s from Williamtown.

The Hon. MICK VEITCH: In your opening address, you spoke about the lack of information systems. I think you were talking about sophisticated information systems to assist in the management of water across the State.

Mr SCHOEN: Yes.

The Hon. MICK VEITCH: I am after what you mean by that. Can you take on notice what you mean by improving the information systems for managing the water in the State?

Mr SCHOEN: Some of it is the river level management, information from that. We have some rivers that have just got antiquated measuring equipment that is either unreliable or is so inaccurate it is not funny.

The Hon. MICK VEITCH: Or Computer Assisted River Management [CARM] down in the Murrumbidgee?

Mr SCHOEN: Yes. We can supply you with that information.

The Hon. MICK VEITCH: That would be great, thanks. My second question relates to the continuing delay—it is happening later and later—of advice on allocations for irrigation. What is causing that, and what representations are you making to Government about trying to improve the release of information you need to make your decisions?

Mr SCHOEN: We have been lobbying the New South Wales Government continuously to try and get these allocations made earlier in the season. Sometimes we do not even get an opening allocation until, say,

December. It is all over, red rover, by December. You cannot do anything. Then there is a reliance on maybe a bit of lucerne growing, and stuff like that, to utilise the water. If people had an earlier indication they could trade the water to people who wanted to buy it and make a larger pool of water, or use the water themselves. The late allocation is a major hindrance to productive agriculture in New South Wales.

The Hon. MICK VEITCH: The Committee is looking at a range of water-saving initiatives and innovations, particularly on farms. My question to you is particularly about on-farm innovation. Could you take on notice whether there are three or four places around the State that are implementing significant innovations around water-saving measure on farms. We would love to have a look at them and see how good they are.

Mr SCHOEN: We could identify those. There are great innovations out there in agriculture. We are not inventing it all ourselves; a lot of it is imported technology that we are putting in place to use in our productive growing systems.

The Hon. MICK VEITCH: If you could help the Committee secretariat that would be great. Thank you.

The CHAIR: We are out of time again. Unfortunately, the time is too short. There will probably be some questions on notice for you—I think I am going to send you one. If we could get replies to those questions within 21 days after you receive them we would really appreciate it. Thank you very much for coming today and giving us the opportunity to hear your views.

(Witnesses withdrew)

Committee adjourned at 12:45.