**REPORT OF PROCEEDINGS BEFORE**

# STANDING COMMITTEE ON STATE DEVELOPMENT

## INQUIRY INTO THE ADEQUACY OF WATER STORAGES IN NEW SOUTH WALES

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**At Sydney on Friday 16 November 2012**

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**The Committee met at 9.45 a.m.**

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**PRESENT**

The Hon. R. H. Colless (Chair)

The Hon. P. Green
The Hon. C. J. S. Lynn
The Hon. Dr P. R. Phelps
The Hon. M. S. Veitch (Deputy Chair)
The Hon. S. J. R. Whan

**CHAIR:** Welcome everyone to the third hearing of the Standing Committee on State Development's inquiry into the adequacy of water storages in New South Wales. I acknowledge the Gadigal clan of the Eora nation and their elders past and present, and thank them for their custodianship of this land. The inquiry's terms of reference require the Committee to inquiry into and report on a range of issues, including the capacity of water storages to meet agricultural, urban, industrial and environmental needs. The inquiry also will examine proposals for the construction and/or augmentation of water storages. Today we will be hearing from representatives from a number of organisations, including the NSW Irrigators Council, Murrumbidgee Valley Food and Fibre Association, Centroc NSW and the Australian Water Association. Before we commence I shall make some comments about certain aspects of the hearing.

Committee hearings are not intended to provide a forum for people to make adverse reflections about specific individuals. The protection afforded to Committee witnesses under parliamentary privilege should not be abused during these hearings. I therefore request that witnesses avoid the mention of individuals unless it is essential to address the terms of reference. The Committee previously resolved to authorise the media to broadcast sound and video excerpts from these public proceedings. Copies of the guidelines governing broadcast of the proceedings are available from the table by the door. In accordance with the guidelines, a member of the Committee and witnesses may be filmed or recorded, however, people in the public gallery should not be the primary focus of any filming or photographs. In reporting the proceedings of this Committee the media must take responsibility for what they publish or what interpretation is placed on anything said before the Committee.

Witnesses, members and their staff are advised that any messages should be delivered through the Committee clerks. I advise also that under the standing orders of the Legislative Council any documents presented to the Committee that have not yet been tabled in Parliament may not, except with the permission of the Committee, be disclosed or published by any member of such Committee or by any other person. Finally, I ask that everybody turn off their mobile phones for the duration of the hearing, including mobile phones on silent, as they interfere with Hansard's recording equipment. I welcome our first witness, Mr Tom Mollenkopf, from the Australian Water Association.

**THOMAS MICHAEL MOLLENKOPF**, Chief Executive, Australian Water Association, sworn and examined:

**CHAIR:** Welcome Mr Mollenkopf. If at any stage you consider that any evidence you may wish to give or documents you may wish to table before the Committee should be heard or seen only by the Committee, please indicate that fact and we will consider your request.

**Mr MOLLENKOPF:** Thank you.

**CHAIR:** Would you like to make an opening statement?

**Mr MOLLENKOPF:** I will try to keep it brief. Thank you for the chance to have a conversation this morning about, as I said previously to the Chair, something that is not just close to my heart but is central to my whole life. You will hear a little today, and I have seen in some of the other submissions, references to something I think we all know, that is, how essential water is to just every facet of our lives. We think about it in terms of some of those utilitarian things of agriculture industry consumptive uses. At the outset I should like to mention also the great value water plays in a social context in our health and wellbeing individually and societally. The Australian Water Association is a non-governmental not-for-profit membership-based association drawn from across the water sector. By that I mean individuals and corporate members, some 6,000 Australia-wide, representing utilities, consultants, contractors, equipment suppliers, technology suppliers, researchers and academics. We are a pretty broad church. I hope that what you will find from me are some facts that will help you rather than too much in the way of opinion.

I acknowledge also my colleague Andrew Speers, who was not able to join us today. Andrew, as AWA's National Policy Manager, did a substantial amount of work on the formal submission that was forwarded to you. The question of dams or, rather, the storages they create is, as I said, central. Dams and those storages perform a critical role not just in water security but, as the terms of reference indicate, also in flood management, recreation and, we do not think of it often, environmental management. AWA believes that dams are an essential part of a total portfolio response to each of those issues. In particular, when we look at water security, the Sydney Water Strategy sums it up in one sense. You do not pick one or the other; you take that portfolio approach of looking at dams, recycling, desalination and efficiency. We are very much advocates of not looking at one alone but equally let us not exclude any one alone of all of those options as we look at water supply security.

Dams involve great costs. We all know they are blessedly expensive to build. They draw a huge amount of public interest—that is the most polite way to put it—but they have benefits as well. Sometimes the benefits that dams offer outweigh the alternatives we often think of. If you look at some very obvious ones, such as desalination, it is a pretty expensive option, especially when we think of the Melbourne situation. Melbourne consumers have been hit with massive price rises. They are looking at the differential between the cost of supplying water from pristine protected catchments, such as the Thomson and the Upper Yarra rivers, versus the cost of desalination, and they are aghast. Many of us here have been the beneficiaries of the foresight of our forebears in being able to capture those benefits. A colleague of mine is with the Vienna Waterworks. He talks about how 100-plus years ago when many people along the Danube River were just pulling water out of the river, the emperor of the Austro-Hungarian Empire said that he wanted pure mountain water to be brought down by aqueducts from the alps. At the time that was hideously expensive, but now Vienna, set amongst its peers along the Danube, is a beneficiary of essentially untreated water that is gravity fed from pure mountain springs when everybody else has to pull it out of rivers and put it through highly expensive treatment processes and pump it back up the hill again.

Potentially, there are great benefits in dams. Before I go any further, I want to raise some assumptions that I think are in this inquiry and expand on them a little bit. The title of the inquiry assumes that the nature of the problem that we are addressing or the opportunity that we are trying to seize is clear, or that our objectives are clear. I would like to suggest that it would be helpful for us to be explicit as to what our objectives are. I mentioned dams can be used for water security, flood mitigation, and for recreational use, but as you will have seen from some of the other submissions that have been made, such as the Australian Water Association submission, some of those uses can in fact be in conflict with each other. For example, if you look at the Wivenhoe Dam situation that is referred to in Professor Khan's submission, if you are using a water body as a storage device, you want to let it fill up so you can draw down on it. If you want to use it as a flood mitigation device then what you want to do is empty it so that it has got the most attentive capacity when the floods come.

When we look at recreational uses, very often they combine quite well with water bodies that are used for irrigation, but they do not combine well with water bodies that are used for drinking water. Again, if we look at the example of protected catchments, as a society, we are often much better off having those catchments free of pollutants coming in there; do not let them get in there in the first place is one of your multiple barriers to protect human health then you do not have to worry about how you are going to get it out.

The other thing is that if we look at what our particular objective is—for example, is it water security—one does not want to assume that dams are the sole response that we have in our armoury. I mentioned other alternatives. In particular circumstances dams can be a good option, but weighed up in other circumstances you might find that you are better off looking at recycling or desalination, or a combination of them. Articulating our objective is an important part of this process, because it will steer us down a path so that we can look at how do dams fit in as part of that mix. The second assumption that comes through—not from the Committee but in some of the other submissions—is that more dams equal more water. More dams equal more storage capacity, but it does not mean more rainfall. I do not want to play on that any further. That may be obvious enough. The last one is that water is free. It falls free from the sky, but dams are not free, so capturing it, transporting it, treating it costs money. We all hear those views, "Why do they not build more dams? That will fix our water problems." If no water flows into the dams and we had ten years where all of our existing dams had declining amounts of water, building more dams is not going to fill them up.

I did not want to labour my written submission, but I would like to bring up a few key points and then I will allow you to ask me some questions. The first one is that our view is that an integrated approach to water management is essential, so concentration on one source of supply to the exclusion of others is not likely to be economically efficient. All options should be considered. In some jurisdictions, we had a situation where recycling is considered acceptable for some purposes, but not for other purposes, despite what the science may say. When Queensland was up against the prospect of actually running out of water for Brisbane five or six years ago, a very extensive water recycling scheme was established that was intended to deliver high-quality treated water back into the water supply system. In Victoria, the decision was made by Government of both shades that that is not going to be contemplated, not ever. I do not understand why, if the science permits it—you might have a big case to talk with the community about it, and getting community trust is critical—why one would wipe that off the agenda as something that you would never consider, even if it made economic and social sense.

Likewise, the idea that we have in some quarters "no dams". "No dams ever" strikes me as a madness. Everything that human kind does on this earth has some impact and our submission is that you have to put dams into the mix and weigh it up on that triple bottom line [TBL] basis. Investing in modelling the impacts of climate change is going to be critical. I am not here to argue what is causing climate change but I think the fact that our climate is unpredictable and highly variable should be obvious from our records of hundreds if not thousands of years. Despite the fact that we have some reasonable records of rainfall is a little bit like investment performance and that is that past performance is no guarantee of future performance. What we have seen with inflows, particularly in the west of the nation, but also what we saw during what has been described as the millennium drought, is a step change in the severity and impact of our rainfall. We do need to understand better what we are going to be dealing with in terms of rainfall and flows. It feeds into, if we are going to have more dams, where will we site them, how big should they be and are they going to make sense.

There are a couple of subsidiary points that I want to draw your attention to. Whilst I do not necessarily want to table it I want to alert the Committee to a survey that we just undertook. We have had a lot of rainfall in the last few years and the Australian Water Association [AWA], with Deloittes, undertook a state of the water sector survey. The three most important issues that 2000 respondents from the water sector identified go to the heart of this Committee's hearing. The top issue, rated by 42 per cent of respondents, was maintaining and augmenting infrastructure. There is a big concern that we are not investing enough in our water infrastructure. The second is ensuring our water supplies are secure. The message there is quite clear; nobody believes that just because it has rained for the last two years that we have it sorted. The last one is managing our catchments effectively. That leads back to if you can tackle the problem at the source you will very often save yourself money down the track. It is like planning and making reservations ahead of time.

Another one I wanted to draw the Committee's attention to is I have mentioned the portfolio response for water security purposes and the Australian Water Association recently released a paper on water efficiency. What that paper discusses is that there are multiple benefits from water efficiency—that is the demands side, not just looking at the supply side—and water security. The programs that we have undertaken have been effective in reducing consumption without necessarily reducing liveability and social utility. It saves costs and big

infrastructure spends but interestingly when you are saving water you are saving energy as well. That is going to be an increasingly big driver. Something as simple as when you are running the hot water tap you are not just using water you are using energy to heat the water. If it is not being put to efficient use it is wasted. I could talk until the cows come home on this but I am mindful of not speaking too much at the outset.

I will wrap up: Amongst those tools that I would like to suggest that we all consider as we look at water security matters is water trading and that is ensuring that water is going to the highest and best use. That is another area where there have been policy bans. Victoria has set limits on what they will allow to be traded in certain circumstances. Another big contributor to water security, from an infrastructure perspective, is it is not just about the dams, it is about the conveyance mechanisms and grids. We have seen some very helpful things done in regional Australia linking towns with nearby catchments where in one catchment you might have a less reliable rainfall or less storage capacity and it is important to link across to neighbouring catchments.

We all know it can be pouring with rain in St Leonards and you can be sunning yourself on the beach at Bondi. The ability to interconnect catchments is important as is maintaining those systems. It is a little bit like the standard marketing wisdom, that is, it costs way more to get a new customer than it does to keep an existing one and it costs way more to build a new asset than it does to maintain an existing one. One of the things we would ask to be considered as part of our whole look at infrastructure is ensuring that we have proper asset management and investment in asset management.

**CHAIR:** Before I hand over to Mr Whan, one of the recommendations you have in your submission is that investment in supply infrastructure not be subsidised by governments. Would you care to expand on that and give the Committee an idea of what you mean by "unless there are social, economic and environmental reasons for doing so"?

**Mr MOLLENKOPF:** The caveat or qualification to that recommendation is the important element. There are two critical things we have observed over recent years: First, our resolve when it comes to cost reflective pricing, particularly in urban areas, has been waning. What that means is that we as a society are not adequately recovering the costs of our investments, let alone gathering enough in the way of income to cover new investments. A perfect example is in the Northern Territory. A couple of weeks ago the chairman of Power and Water Corporation was terminated. The implication was that power and water had not been managing finances correctly. The reality was that the Power and Water Corporation had been saying to the Government for several years, prior to the change in Government, this is the investment program we need to undertake to meet the needs of the community over the coming years.

We are going to undertake those works because they are critical. We need you to allow us to increase prices to cover the costs, because the money has to come from somewhere. The Government was not prepared to allow costs to increase. The reality is that Power and Water Corporation is in a powerless financial state and I do not know whether you can blame the chair for that. Cost recovery is an important element. Subsidies have a role but what we have observed in recent times is that they have not been transparent and we have not been clear about how much money we are putting into things and if we are not going to be clear about that how do we do a proper cost benefit analysis.

**The Hon. STEVE WHAN:** You mentioned in your opening remarks a comment about Victoria having restrictions on the trade of water and that being a negative and you talked about artificial restrictions on intra-basin trades. Can you explain what the artificial restrictions are? Is that Victoria's four per cent limitation they had on the sale of water from a catchment that you are talking about, and are there others?

**Mr MOLLENKOPF:** That was the principal one. There are some other limitations on water trading that are not fixed, but they actually have to do with the ease of affecting trades and the commonality of even our descriptors of water security entitlements between jurisdictions. One of the opportunities we have between jurisdictions is to see the free flow of water from willing sellers to willing buyers. There are operational and environmental constraints. However, subject to those, we want to make trading as simple and as easy as possible. Having a common nomenclature and standards of supply security will make it easier.

**The Hon. STEVE WHAN:** You mentioned the operational constraints on water trading. Can it be treated as a commodity that can be traded outside and through catchments? What are the operational constraints?

**Mr MOLLENKOPF:** I do not know whether I should quote him, but Senator Barnaby Joyce once said—

**The Hon. Dr Peter Phelps:** You had me until then.

**Mr MOLLENKOPF:** It was always going to be a line ball. I thought he was spot on when he said that a drop of water in southern Queensland is unlikely ever to reach the mouth of the Murray. Our land is flat and it is like a blotter. Unless we get massive flooding events, that does not happen. It is not like electricity where you pop in an electron and with a little system loss it can be popped out hundreds or thousands of kilometres away. There are absolute physical constraints. We use our waterways as the conveyance mechanism by and large. It relates to where the waterways run and their capacity to accommodate things during the seasons. We do not have the opportunity for unlimited trades.

**The Hon. STEVE WHAN:** You talked about water efficiency. This may be slightly biased, but it appears that New South Wales farmers, particularly those in the south—and trials have also been done in the north—have done a lot with on-farm saving of irrigation water and system-wide savings. Is that being matched in Victoria and South Australia from the point of view of your association and what else should they be doing?

**Mr MOLLENKOPF:** I will draw an analogy. I had a budget meeting with my team yesterday and talked about tough times, being careful and implementing efficiencies in the business. Everyone nodded their heads, but I could see them thinking, "That bloke over there must do it better. They have fat." I see that with water issues. If I were to have this conversation in Victoria they would probably make the same observation—"We have been working really hard and achieving lots." I could go to South Australia and they would say the same thing. I genuinely believe that around the country farmers have this at the top of their mind. Water is their lifeblood. We in the city assume a lot will happen and we do not worry about it. Farmers do. First, even people with relatively high security water entitlements know that nothing is guaranteed. They work on the basis of what they can do to ensure their economic security. It is not universal in terms of every farmer; there are still some practices that I am sure can be improved. However, I think there is a focus around the country.

**The Hon. MICK VEITCH:** In your submission you say that volume is not the only measure of capacity in the system. What are some of the other measures that should be considered?

**Mr MOLLENKOPF:** There are the in-flows. That is a capacity constraint as well and the extent to which you can deliver to source. However, the other constraint that we talk about is qualitative. Water quality clearly impacts on the ability to use it. The other thing relates to topography. I cannot remember the wetland in northern Victoria that was turned into a small reservoir, but it is near Wangaratta and Benalla.

**The Hon. STEVE WHAN:** It is Lake Mokoan.

**Mr MOLLENKOPF:** Yes. It was an excellent wetland but an appalling water storage. To its credit, the Victorian Government disbanded that as a water storage facility. I mention that because it is incredibly flat, so there are high evaporative losses. There is a theoretical detention capacity, but the topography means it is highly inefficient.

**The Hon. MICK VEITCH:** Your submission also refers to inadequate environmental flows. What is adequate for the environment?

**Mr MOLLENKOPF:** I will not be able to answer that in any numerical terms.

**The Hon. MICK VEITCH:** You can take the question on notice.

**Mr MOLLENKOPF:** I do not know that there are enough days in the year for me to come up with an answer on my own.

**The Hon. PAUL GREEN:** You can phone a friend.

**Mr MOLLENKOPF:** I would need all of them. What is an adequate environmental flow? First, we must consider a particular catchment or water course. Secondly, that is exactly what the last few years of violent debate in the Murray-Darling has been all about.

**The Hon. Dr PETER PHELPS:** Do you envisage that there are locations in New South Wales where economically viable dams could be built? If so, has your association had any ideas where they might be?

**Mr MOLLENKOPF:** To answer the second question first, we have not done an analysis as an association. I am sure that my members, particularly the consulting firms, have been engaged, as have a number of the utilities, in evaluating them, but I am not privy to the outcomes. Do I believe there are such sites? I cannot provide the data, but intuitively I believe there must be some. However, I do not know that there are many. I do know that there are not many unregulated rivers left on the east coast of Australia. There are some limitations, but I would find it hard to say there is no opportunity.

**The Hon. Dr PETER PHELPS:** The Committee has had evidence indicating that over 150 years or so every worthwhile location bar a couple—perhaps Peel Valley or expansion of the Sydney catchment—for a deep dam, not just a glorified evaporation pond, has been utilised and that we must move away from the idea of storage to alternative measures, and demand management in particular. Would you care to comment?

**Mr MOLLENKOPF:** I substantially agree. I said I find it hard to believe that there are none, but there are certainly limits. As I said, there are very few unregulated rivers on the east coast. Further north in Queensland it might be a different story because of the nature of more recent development. However, New South Wales has very limited options. From the point of view of our next supply argumentation or water security measure, that is why those other portfolio responses are critical. I mentioned dam recycling and water efficiency. What I did not mention is some of the really interesting things being done with cities as catchments.

**The Hon. Dr PETER PHELPS:** Stormwater recycling and the like?

**Mr MOLLENKOPF:** Stormwater recycling and also on-site capture and treatment, so just on-site harvesting?

**The Hon. Dr PETER PHELPS:** As decision-makers what are the criteria, what should we be looking at to say whether a new large-scale catchment should be going ahead? Is it the economic, is it the social or do you think we should just stay out of it entirely because I find it hard to believe that there will be large-scale private capital willing to develop deep catchments? I can understand you say that governments should stay out of it and there should be a greater degree of private investment in this but I am not particularly certain that there is the ability for private capital to go around doing these sorts of things?

**Mr MOLLENKOPF:** You are correct. Interestingly, New South Wales probably had the best outcome in terms of financing a desalination plant of anybody inasmuch as it took the risk, got the plant up and running and then, having taken the risk out of it, was able to pass it on to the private sector.

**The Hon. STEVE WHAN:** A joint effort, is that what you are say?

**The Hon. Dr PETER PHELPS:** We are not taking any responsibility for that.

**Mr MOLLENKOPF:** I would not like to suggest that this can all be done by the private sector. When I spoke about subsidies the key issue there was about us being transparent when it comes to government funding because there are absolutely some areas where, with big projects, government has got to be a stakeholder. The private sector does not want to do it on its own either, so, yes, the Government needs to be there. In particular, if one is to consider dams as part of the potential, even acknowledging that there may not be many sites—even if we assume that there are just a few sites—dams should be evaluated and I have mentioned the triple bottom line. I know that people hear that and think, "Yes, I have heard all about TBL". The reality is that if you do not have the social buy in, no matter what the economic sense of it is, it is not going to go ahead.

This Parliament is not going to approve things if there is not a social acceptance. From an environmental perspective, again it is one of the key interests that have to be considered as part of the evaluation. How should this be done? First, if we get pricing right so that we understand what the true economic costs of the different options are, whether they are provided by government or the private sector, that is a great building block. The next thing is that one can then do an evaluation: "So what are the economic costs of those alternatives?" You can then throw in those other elements of the triple bottom line to evaluate it.

**The Hon. Dr PETER PHELPS:** Would you include environmental costs in that?

**Mr MOLLENKOPF:** To the extent that any of us are any good at quantifying environmental costs, but environmental values, absolutely.

**The Hon. Dr PETER PHELPS:** Are you aware of the Water for Rivers program, which was being run in New South Wales?

**Mr MOLLENKOPF:** Yes.

**The Hon. Dr PETER PHELPS:** In other words, it was to effectively buy water for Snowy environmental flows largely through large structural medium infrastructure projects. What is your assessment of that program?

**Mr MOLLENKOPF:** I am aware of the project but I have not personally done an evaluation of what the outcomes from it are, so I would be straying into dangerous territory.

**The Hon. Dr PETER PHELPS:** More generally, what is your association's view of demand reduction, the demand-side infrastructure projects both on farm and off farm but for agricultural uses or is that simply another one of these invisible subsidies that you are concerned about?

**Mr MOLLENKOPF:** There are the programs themselves and then there is funding of the programs. What do I think of the programs? I always think that things that people put their own money into are really likely to be the most effective but I think there are still areas where the Government takes a role, particularly when it comes looking at evaluating innovative responses. So if it is in the research area there is a very important role for governments to play in funding things. If governments are also looking at a toss-up between putting money into the supply side things versus demand management, why would they not have an equal role in contributing to that?

**The Hon. Dr PETER PHELPS:** But surely there would have to be an analysis of where you are going to get the most bang for your buck?

**Mr MOLLENKOPF:** Yes, and that is what it comes back to—setting the objective and then one can do the evaluation of, "Okay, so what is your least cost best bang option".

**The Hon. PAUL GREEN:** You have been around for a while. With your experience if you had to put in a dam, where do you think would be an appropriate area, taking in those TBLs.

**The Hon. STEVE WHAN:** Nowra.

**The Hon. PAUL GREEN:** You didn't want an evaporation time.

**Mr MOLLENKOPF:** I really cannot say and the reason for that, as I indicated to Dr Phelps, is that neither I personally nor the Australian Water Association—

**The Hon. PAUL GREEN:** Just between you and me where would you put it?

**Mr MOLLENKOPF:** There was one, of course, proposed and knocked on the head two years ago which had gone a fair way down the path at Tillegra and I note a number of submissions had been made to it from interested parties to ensure that that never comes back on the radar again.

**The Hon. PAUL GREEN:** What about Cordeaux?

**Mr MOLLENKOPF:** I have not done that.

**The Hon. PAUL GREEN:** I will move on. You referred to maintaining assets and infrastructure. What has not been done and what evidence do you have to back up that comment?

**Mr MOLLENKOPF:** I think the evidence is going to come through over the next couple of years as we look at the spend of each of our major authorities because every one of them is under the pump on their financial performance. At this stage the evidence is largely anecdotal but I think it will flow through when we start to look at their annual accounts and see what the change in expenditure on maintenance has been.

Unfortunately with buried assets you can conceal these sorts of things for a long time. For example, if it is pipe cleaning the dirty water incidents will start to creep up over a few years. If it is sewer maintenance your spills may or may not be visible, sometimes for several years. That is one of the problems that we confront.

**The Hon. PAUL GREEN:** We have about 107 water utilities across New South Wales. Can you comment on whether that is efficient. You talk about the use of water and stuff like that. Do you think that having 107 water utilities is an efficient way of dealing with things in terms of water storages and use across New South Wales?

**Mr MOLLENKOPF:** Tying it back to water storages as opposed to general economic efficiency—I think we would prefer to see water managed on a catchment basis and there are different ways that you can skin that cat. You do not necessarily have to merge people. They have been some quite good things done with cooperation between the different municipally owned utilities.

**The Hon. Dr PETER PHELPS:** Except it is my water in my dam everywhere you go.

**The Hon. PAUL GREEN:** In my region.

**The Hon. Dr PETER PHELPS:** It's not even my region; it's my dam, my water, my local government area.

**Mr MOLLENKOPF:** From a pure system management perspective, at a bare minimum you have to work within the catchments. I mentioned earlier there is also the opportunity for getting together with neighbouring catchments in terms of trying to look at balancing flows and providing security through partnering.

**The Hon. PAUL GREEN:** The last Government was moving towards amalgamating some of the 107 water utilities. What would be your comment on that?

**Mr MOLLENKOPF:** If you look at Victoria, I think that probably it has a more effective sector because you have seen amalgamations there over 20 years. New South Wales is different inasmuch as in Victoria, obviously, you have the population concentrated in a smaller geographical area. Each of the 15 or 16 regional authorities in Victoria has a major centre at its core. That has worked quite well there. My suggestion is that that will be necessary, whether it is amalgamation of coming together in co-operative ventures, if you are going to raise the skill level and provide career paths for people who are working on water assets.

**The Hon. PAUL GREEN:** We have 107 water utilities and basically you have said that it will not be long before we see their infrastructure failing and that a lot of them are probably not financial sustainable. How would you address that?

**Mr MOLLENKOPF:** I have not come fully prepared to talk about that but I will try to answer it.

**The Hon. PAUL GREEN:** I am just asking whether you have a view, but you do not have to answer the question. I am trying to draw from your experience, obviously.

**Mr MOLLENKOPF:** The issue for municipalities is not just around water. If you look at their ability to serve all of the needs of their communities is often dependent on them actually having water in the mix because it provides two things: an additional income stream to allow them to smooth over their other obligations and it allows them to maintain a critical mass, and to amortise some of their other corporate overheads. In one sense water is helping to sustain municipalities. But not withstanding that, my observation is that they are still struggling and that has to do with much broader demographic issues about where people are moving and declining populations. The issue that will confront this Parliament is much deeper than just what to do with water utilities.

**The Hon. PAUL GREEN:** I believe that.

**The Hon. CHARLIE LYNN:** You alluded to a matter earlier in your introduction, but the Committee received a submission from Stuart Khan from the University of New South Wales who discussed the dual role dams can play in both water storage and flood mitigation. Will you expand on that please?

**Mr MOLLENKOPF:** Yes. The charts that Stuart put in his submission give an indication of where at Wivenhoe they tried to deal with both those issues. Effectively they only use half of that reservoir for water supply purposes and the top half, as it were, for flood mitigation. Where you get tensions there is there were concerns that following the drought that the water that was being held for consumptive purposes was too great and that reduced the retention capability for flood mitigation purposes.

The other thing though is that Wivenhoe Dam, from a water supply perspective, is a pretty awful place. It is one of those broader flatter areas. So from a water quality perspective and from an evaporation perspective it is not ideal as a water storage. Very often what we will see, particularly west of the divide, is you have got few places where the topography lends itself to a good water storage for water supply purposes. That things that you would be looking at are you would possibly build the storage for flood mitigation but that is again one where many are not concerned about spreading over a very broad area. The other thing is that, just as for water security purposes, dams are only one alternative. From a flood mitigation perspective, sometimes dams are a pretty expensive alternative.

**CHAIR:** I acknowledge that your submission contains a number of recommendation which the Committee appreciates because it provides the Committee some good ideas about the type of things it should be recommending back to government. I do not think you took any questions on notice during your evidence?

**Mr MOLLENKOPF:** I was invited to take something on notice.

**CHAIR:** If the Committee has any other questions arising from your evidence, are you prepared to respond to those?

**Mr MOLLENKOPF:** Of course.

**CHAIR:** If so, could you respond within 21 days from receiving them?

**Mr MOLLENKOPF:** I would be happy to. I mentioned two reports and if there is interest I am happy to make those reports available to the Committee.

**(The witnesses withdrew)**

**(Short adjournment)**

**STEFANIE SCHULTE**, Economic Policy Analyst, NSW Irrigators Council, and

**MARK MOORE**, Policy Analyst, NSW Irrigators Council, affirmed and examined:

**CHAIR:** I welcome Ms Schulte and Mr Moore to the hearing today. If you consider at any stage during your evidence that there is evidence that you would like to be seen or heard only by the Committee, make that known to us and we will consider your request as we go. Would one or both of you like to start by making a short opening statement?

**Mr MOORE:** Yes, thank you, I do have an opening statement for you. We would like to thank the Committee for the opportunity to make a submission to this inquiry as well as inviting us to the hearing today. We appear on behalf of our members, all of whom have an interest in this inquiry and have contributed to our submission. Water issues in New South Wales continue to keep the Government and us very busy. Throughout the drafting of the Murray-Darling Basin Plan, the competing pressures for water resources between people, the environment and industry became very evident and continue to generate a great deal of debate. What we all need is adequate storages and the optimal management of them.

The New South Wales Governor, Professor Bashir, this week said, "A Snowy-style scheme in the north of the State could protect the Murray-Darling Basin from drought. A clever country such as ours that built the Snowy dams it wouldn't be too hard to think this one through." Unfortunately, it is hard, but maybe, just maybe, we have reached a point where we are willing to tackle such an idea. The Federal Government's Martin Ferguson put out a media release this week, "Improving Australia's Resources Potential", about the funding of $114 million to Geoscience Australia, and highlighted the importance of understanding Australia's resources potential in securing domestic energy security, servicing export markets and developing its critical energy resources. Granted he did mention groundwater, but all of this is impossible without our most important resource—water.

We find ourselves in a situation where our dams are full or close to being full—the last I checked they were just over 80 per cent. But, as history shows, this will not last and our water resources will likely again be in short supply. The NSW Irrigators Council supports the construction of new dams and the associated sharing of water resources amongst all types of water users to ensure there are benefits for everyone. We are glad to see that the topic of water storage is being discussed. We hope that there is political will to tackle this issue and implement changes that will help ensure a secure supply of water into the future.

We would like to emphasise that modelling of our future demand is essential if we hope to truly understand the pressures and uncertainties that we will be facing not only in the near future but also in 50 to 100 years. We want to maximise the use and benefit of this valuable natural resource; we need to look at the long term. As Premier Barry O'Farrell has stated, New South Wales is not closed for business, so let us prepare for a long, prosperous and secure future for the people, the environment and industry with a secure water supply.

**The Hon. Dr PETER PHELPS:** Where are we going to build them?

**Mr MOORE:** There has been a bit of work done in the past to identify certain sites. We have mentioned a couple of those in our submission. We have not gone into detail about where we think sites are best, but really there needs to be a lot of work done as to where we want to position ourselves as a State: what do we want to use this water for; what are the shared resources that will be utilised from a new storage? Is it in the north of the State where there is a possibility of consolidating on-farm storages and making deep-water large storages that can be more efficient? Are there opportunities down in the south of the State? There is some work that still needs to be done to identify the best sites that will benefit everybody in New South Wales.

**The Hon. Dr PETER PHELPS:** Are you aware of the demand management strategies which have been put in place, things such as water for rivers, where in the use of on-farm and off-farm but for on-farm purposes there has been a fairly high degree of capital expenditure to try and pipe and to have covered storage facilities and what is your association's view of those?

**Mr MOORE:** We definitely support on-farm storage works—anything that is going to lessen the amount of evaporation that takes place from storages or the seepage that takes place as well. Yes, there is a great

deal of cost involved; a lot of that is sometimes very difficult for the individual farmer to bear, but some of those organisations have done some good work as far as increasing the—

**The Hon. Dr PETER PHELPS:** But, Mr Moore, is this not really a case of competing large costs? In other words, it is very expensive to build a dam and to build the associated infrastructure with it; is it not really a matter of having an analysis as to whether the final result of demand management and supply increase is where you get the best bang for your buck, and that cannot be done just as a blanket requirement for an increase in storage facility, surely that has to be done on a catchment-by-catchment and, in some cases, a case-by-case basis?

**Mr MOORE:** Absolutely. There are big differences between the two but you are also talking about utilisation of that water. An individual with water on farm is only looking at their individual use of that and the savings that can be generated. So any savings that were generated were potentially turned into an entitlement that was given to water for rivers or even the Commonwealth Government when they are trying to get some efficiency savings. If you are talking about a large storage, a dam, yes it is very expensive but it has the potential to capture a great deal more water and use it more efficiently with less evaporation. The benefits are not only for industrial purposes—agriculture—but for the environment and the public as well. So different usages, and as an organisation we support a dam that has shared utilisation.

**Ms SCHULTE:** If I may add to that? In preparing this submission we found that there is not sufficient enough modelling for those water resources going into the future so we are not talking here about the next couple of years. The question of whether we need the construction of a new dam or whether we need more on-farm infrastructure to be able to mitigate seepage and evaporation, I think comes down to the fundamental question of how much water will we actually need within the State. What we have found so far is that there has not really been enough modelling done on that to answer that particular question in the first instance, and then to go into how do we get the best bang for our buck and how we should be sharing those costs on-farm and potentially to larger-scale constructions as well.

**The Hon. Dr Peter Phelps:** However much we need, there will certainly be a hell of a lot less given the Federal Government's demand for certain environmental flows.

**The Hon. CHARLIE LYNN:** Your submission observes the increasing entitlement to environmental water has the potential to severely impact on other users due to the varying times at which the water is used. What has been the impact of environmental flow allocations for your members and how can those concerns be addressed?

**Mr MOORE:** The increase in environmental flows is dependent on when they are actually doing it. The strategy, unfortunately, for the Commonwealth Environmental Water Holder is still yet to be fully understood and known as far as how they are going to utilise that environmental water allocation. So at the times they have utilised it there have been a couple of flooding events in New South Wales recently—not necessarily due to the use of environmental water in those instances—but we have concerns especially around something like shepherding. They are looking at the process of shepherding water down through something like the Darling system where there are potential impacts to our members who extract from the river. We are not fully aware I guess at this particular stage of how exactly it will impact on all of the users but there is a potential for it to greatly impact.

**Ms SCHULTE:** If I may add to that? The Commonwealth Environmental Water Holder is still finalising its trading framework. In the initial discussion paper it was indicated that the carryover of environmental water and the sheer size of the holdings of the Commonwealth Environmental Water Holder could impact quite severely on the allocation announcement made within particular catchments or particular valleys and, of course, for certain industries like the rice industry it would be quite detrimental if those allocation announcements were late or later within the season. Since we do not have a finalised trading framework, based on the fact that we have not even seen a finalised Basin plan, or the current draft, I guess that still remains a considerable concern for us and our constituency.

**The Hon. CHARLIE LYNN:** While your submission acknowledges the role that dams can play in flood mitigation, your submission continues to observe that the majority of dams in New South Wales were not built for flood mitigation and that any capacity for flood mitigation must be new capacity and not impact on existing users. Why do you consider that existing storages should not play a role in flood mitigation?

**Mr MOORE:** The original purpose when they were built was not for flood mitigation, so the management strategy that is in place does not take that into consideration. The entitlements and allocations are held within those particular dams and there would be detrimental third-party impacts if you then started to utilise space within those dams for flood mitigation. Should there be, say, an extreme flood coming down and everybody has identified that there is a potential for it to negative impact on landholders in all of the area, would everybody disagree to a dam being used for flood mitigation in an emergency situation? Absolutely not, but on a regular basis where entitlements and allocations are held there would be direct third party impacts by changing the management regulations and the management of those dams. So the entitlements in New South Wales are all currently allocated and to change where or how you are holding some water would have a definite impact on our members.

**The Hon. CHARLIE LYNN:** Your submission also states that storage management practices to minimise losses should be a primary objective and highlights the Menindee Lakes as an area of particular concern. What storage management practices do you consider should be implemented to minimise losses, especially from evaporation?

**Mr MOORE:** If you take Menindee, for example, we have put a reference group together actually and have been out to Menindee recently to look at what the options are. Because of the way the lakes are managed and how they are situated, they are drawn down in parallel so the actual space that is exposed never really changes so there is a great deal of evaporation that takes place. .There is discussion about putting in a stop between Menindee and Cawndilla, reducing the amount of water that would then come into Cawndilla but maximising the usage of Menindee.

**The Hon. Dr PETER PHELPS:** Is that the sort of thing that you guys would support?

**Mr MOORE:** That discussion still continues. We have not put a policy together yet. A discussion took place at our last council meeting, which was on 1 November.

**The Hon. Dr PETER PHELPS:** Unfortunately we will need another drought before those works can take place.

**Mr MOORE:** Exactly. We kind of missed a big opportunity to do any of that work. The debate about Menindee has carried on for a very long time and there has been nothing of particular consequence really done with it. There are obviously a lot of issues that surround Menindee and the management of it not only within New South Wales but in South Australia as well. To be able to come to a workable solution that everybody will be happy with is still going to take a bit of work. We have agreed to continue the work that we are doing on that group and hopefully include the New South Wales Office of Water in our reference group. Our members have a vested interest in making sure that any changes result in the most efficient storage.

**The Hon. Dr PETER PHELPS:** I think everyone does, except maybe for a few Green extremists who are quite happy to waste water to make sure the pelicans on Lake Alexandrina are happy.

**Mr MOORE:** The breeding events seem to be quite a big topic for some organisations.

**Ms SCHULTE:** This brings us to another very fundamental point in the sense that it is not only the construction of any new dams but also the management that is very important. Whatever needs to be done needs to be not only done in conjunction with the New South Wales Office of Water but also the individuals that live within the particular valleys and catchments that derive water from the storage facilities because the local knowledge will go a very long way in potentially optimising the management of those dams. There is a lot of knowledge within New South Wales to potentially utilise and optimise the use of water when it comes to the storage facilities as well.

**CHAIR:** Mr Moore, in your submission you talk about three proposals; at Murray Gates, Chowilla and Bethanga Bridge. Given your comments on large, flat storages, surely the Chowilla proposal would be knocked out on the basis that it is such a huge area and a relatively shallow dam.

**Mr MOORE:** I will be honest, a lot of our members who assisted in putting this together are the experts in the background of the research that was done to identify that as a possible site. I would probably need to consult with them to understand exactly their ideas of how that was to be used. We were just identifying a possibility of something that has been identified in the past and potentially could be expanded into the future. With any large, flat storage space that is one of the biggest issues we have. You can look at the lower lakes, you

can look at Menindee: evaporation is a huge issue for each one of those areas. To create another area where you are just holding water to evaporate is maybe not necessarily the best, but there might be other options that they have identified that could expand or develop that idea further.

**CHAIR:** In relation to your comments about on-farm storages in the north-west and replacing those individual private storages with strategically placed deep storages, how do you see that it would operate? Would we be looking at some sort of water cooperative where a single deep storage would supply a number of irrigation properties in the vicinity?

**Mr MOORE:** It depends on the size of storage you are able to create. This is not to necessarily increase any water that is in storage but just to maximise the water that is already in storage and make more efficient use of it. There would be different ways you could look at it. If you could create the storage capacity to be larger than the storages it is replacing there could be multiple benefits. There could be environmental water held there and town water and something else held as well. If it is a direct one to one, then possibly a model like a cooperative would potentially work where you call in and ask for your allocation or the amount of water that you want to get.

I guess one of the biggest factors would be the cost in building and running and maintaining that. Where we propose the development of new dams one of the reasons why we suggest they have a shared usage is that there is a benefit to everybody and therefore the cost could be borne by everybody as well. For irrigators to bear the cost of building a dam and running it and maintaining it would potentially be unviable. It would also potentially open up a large area of property for development or increased crop planting. In some cases where they have got some of the best soils is where they have had to put their water storage due to the topography or the fact that it is going to have the least amount of seepage and therefore the least amount of losses. Because of the value of water some of them have made those big changes. So it could also open up some good production capacity on those properties as well.

**The Hon. PAUL GREEN:** Carrying on from that subject, during the Committee's recent visit to areas in Griffith and Wagga Wagga we inspected projects to improve on-farm water efficiency, including bankless channels and lateral move irrigation. What changes to irrigation practices have your members made and what role has the Department of Primary Industries played in encouraging irrigators to explore these new practices?

**Mr MOORE:** A great deal of change has taken place. Our members are looking at everything, with the value of water as it is right now, and participating in any of the government programs to assist in improving their on-farm efficiency. They are looking at everything from drip irrigation to lateral moves, centre pivots—anything that will be a more efficient use of the water resource. However, one of the consequences of that which has been highlighted in recent times is the cost of running those particular operations. Where you have some water savings you have now got increased energy costs. That is one thing that for some of our members is making a big change to how they allocate where their funding goes. It is now paying for energy costs and some are in some ways questioning whether it was an appropriate move to make, seeing what their water savings are compared to what their bills will be going forward and the increased costs potentially associated with that.

The Department of Primary Industries has been very helpful in identifying fit-for-purpose solutions in particular areas. There is no one-size-fits-all solution when it comes to irrigation. It depends on where you are or the area that you are located in. For some open channels and bankless channels are the most efficient instead of piping everything and doing things that way. In New South Wales we have got some of the best furrow irrigators in the country and the land matches that particular use quite well so there are some that are very good at it. In other areas looking at changing that to something like a drip or subsurface or lateral move is also an option.

**Ms SCHULTE:** What we are seeing over the last couple of years—or ever since irrigation in Australia or New South Wales—is that there has been constant innovation either way. If it is on farm through infrastructure, all of the projects were oversubscribed by the Commonwealth, so there is a definite interest from irrigators across the country to pick up or change their operation in some ways. However, as Mr Moore has indicated, it does come with substantial costs in other forms which some of them might not have necessarily been aware of when they first implemented it. But irrigators know the value of their water resources and without this water resource they would not be able to produce, so to be more water efficient will be at the centre of their attention of course.

**The Hon. PAUL GREEN:** The thought that I am getting to is what else can be done from the Government's point of view to encourage the farmers to, for instance, move towards bankless channels? I do not know the ratio of the use of energy from a lateral irrigation to a bankless channel. Is there a ratio in terms of energy use? The bankless channels seem to run with gravity-fed water systems as opposed to the lateral irrigation, which needs to be driven by electricity or some other sort of driver for big irrigations. Is there a ratio of energy towards those, like 70 per cent of energy use as opposed to 30 per cent on a bankless channel thing?

**Mr MOORE:** Ms Schulte might be able to answer this because we have tried to get some information.

**Ms SCHULTE:** It depends on the operation as such because they are all different. However, it is difficult to generalise that. I probably would have to consult with our member or constituency and take this question on notice.

**The Hon. PAUL GREEN:** I guess my point is just to note that all sites are different; it is not one size fits all. I appreciate that. But obviously if there are 70 per cent of those that could be changed into a bankless channel, should the Government be playing some sort of role in encouraging and helping that?, as you said earlier, at the end of the day the value of water is for everyone's sake, not just the farmer. Obviously upstream and downstream there are benefits. So could more be done to encourage or help foster that bankless channel, for instance, because of the use of less energy, which also a good thing?

**Mr MOORE:** Just a quick point on the bankless channel, I think one of the biggest savings you get from a bankless channel is that it is a system that can be utilised and run by a much smaller number of people. So the labour savings are quite big. There is a trial going on up in Keytah near Moree where they have a cotton crop that has been grown with bankless channels for irrigation, sub-surface drip and lateral move. I have not seen the results.

**The Hon. Dr PETER PHELPS:** They have gone for the whole package.

**Mr MOORE:** Yes, and it was a funded trial but they have now, I think, completed two full years of results. So they would have some really good comparisons as to comparing everything from energy usage to crop production to yields and labour as well.

**Ms SCHULTE:** And there is also an intention to continue that program going into the future to get a better time series out of that, rather than having two sets of data points, to be able to compare between years over a longer time period as well.

**CHAIR:** I just ask a point of clarification on your comments about the trial at Keytah. How was that funded?

**Mr MOORE:** I would have to check, to be honest with you. I think it was funded by one of the programs that was funded by the Government but off the top of my head I am not sure which program did fund that.

**CHAIR:** The reason I am interested is that we are planning a trip to Moree to look at some of the issues up there so we might take time to go and have a look at that. Perhaps the Committee might liaise with you in relation to the contact details and so on for those people.

**Mr MOORE:** Yes, absolutely. Gwydir Valley irrigators are the ones.

**The Hon. PAUL GREEN:** Your submission suggests that consideration should be given to the use of en-route storages where water could be parked if the ordered water is no longer required. What would be the benefits of such an arrangement and where should such en-route storage facilities be located?

**Mr MOORE:** There have been instances in the past where somebody has ordered water and it has been delivered and then there is a rain event or something happens—

**The Hon. PAUL GREEN:** Yes, we have heard about this.

**Mr MOORE:** —and all of a sudden it is not required. Instead of that water just flowing down, if there was capacity to have en-route storage now, I guess where the sites would be developed or how large they would

need to be and the management arrangements for those, we did not identify any particular spots that could be utilised but I am sure there are spots that could be utilised nearer or close to the river that would give you the ability to park that water and then fulfil another order that is coming up.

**The Hon. PAUL GREEN:** So you have done no research of where that could be. You have no draft.

**Mr MOORE:** No, I have not. Again, with the assistance of our members, we did have that discussion point and I am sure—

**The Hon. Dr PETER PHELPS:** Would you be able to take that on notice?

**Mr MOORE:** Yes.

**CHAIR:** It would be fair to say in that regard—

**The Hon. Dr PETER PHELPS:** I have to say I am sceptical. Only one Barren Box Swamp comes along in your lifetime. The ability to have large-scale efficient storage areas which do not just become giant evaporation points, if there are locations then they should be identified. But I have to say I am sceptical on this.

**CHAIR:** Would it be fair to say that the efficiency of those en-route storages, as you describe them, is a lot less critical than it would be if it was a proper long-term storage?

**Mr MOORE:** Yes.

**CHAIR:** The water might only be there for a few weeks.

**Mr MOORE:** Potentially. I guess as part of the submission that we were putting forward we were putting forward some ideas of things that could be looked at as possible solutions and it would only be a short term. It would not be something that would be utilised as a long-term storage. But ordering of water is something that happens on a constant basis so it might not take very long for that water to be moved on and fulfil another order. It is not that there would not be any benefit at all. There would be a benefit to the environment, I am sure, of it flowing down through the river but it is not the most efficient use of our water and the storage facility. I am definitely happy to discuss that with some of our members and see if there are any identified sites or possible operations that they think they can give us.

**The Hon. PAUL GREEN:** I note that we talk about evaporation all the time. But if evaporation is 10 per cent of a pond, you still have 90 per cent to play with and use for emergency purposes or environmental purposes or whatever purpose it is. It just does not make sense that we constantly throw out the baby with the bath water because of evaporation. One would think if you got water and it is of such high value it is there to use.

**The Hon. MICK VEITCH:** Can I pose to you one of the possible en-route storages could well be the network of billabongs for the short term? Is that something you would be looking at?

**Mr MOORE:** That could very well be a possibility. I guess it would depend on the ability to move it into there and move it out, but absolutely. There could be a short-term environmental benefit from that water being there as well, plus a better usage of the water. But again there would be a lot more work that would need to be done to actually analyse that idea further. Because we sit in Sydney, we rely on our members who are on ground, who know the area, who know how the water is used and they would be the best ones to identify such a thing but we are happy to follow that up.

**The Hon. MICK VEITCH:** In your submission you talk about the need for flexibility around the management of water storages and water flows. In particular you talk about the September 2010 Snowy Hydro releases at the same time as the flooding event in the Murrumbidgee. Can you talk through what happened there and what has been the resolution to that issue to ensure it does not happen again?

**Mr MOORE:** That particular issue was a licence requirement that Snowy had in place, where they had to repay their required annual release [RAR]. Due to the amount of water they could release in a particular time period they were forced, at that particular stage, to make the decision that they just needed to release in order to

meet the requirements of that licence condition, in which case if they did not they would be in breach of that licence. They had no choice but to make the decision to continue releasing. At that particular time that water was of absolutely no use to the environment or anybody at that stage, so that was purely based on the way their licence was structured and the way they needed to repay that water under those licence conditions.

The way they have changed that now is they have come up with a drought account. A drought account means they can increase, hold back that RAR, the required annual release, at a time if the water does not need to be released. So they have increased the ability to store more water under an accounting system and repay that water at a more appropriate time. The full details—again, I do not know if you have had anything to do with the Snowy licence and how they operate but it is not exactly the easiest thing—

**The Hon. STEVE WHAN:** It is not exactly transparent.

**Mr MOORE:** I would hate to give wrong information as to exactly how that change has taken place. Our CEO, Andrew Gregson, is probably one of the most across how Snowy Hydro operates and how that licence change has taken place but it was a positive change for everybody—for the environment, for irrigators, for Snowy Hydro itself. So it was a better change for everybody.

**The Hon. MICK VEITCH:** We heard earlier from a previous witness that measuring the capacity of water is not just about volume; it is also about things such as water quality. Is it an accurate assessment that there are other things that we need to take into consideration when we talk about the capacity of water storages and facilities in New South Wales? It is not just volume.

**Mr MOORE:** I am not sure, I guess. To me, the idea of capacity is volume, but if you are storing water that cannot be used anywhere, then that is not really capacity. It is not water that is going to have any beneficial use, even sometimes to the environment, with some of the salinity issues that are involved in some of the water, especially underground water. So, yes, I guess that could be a consideration, and there is definitely the quality of the water as well. Going forward, you would not want to create water storage in an area where potentially you put good water in and it became saline water. That would definitely be something, I guess, that could be put as part and parcel of looking at volume or capacity. Sorry, I have a feeling you want to say something.

**Ms SCHULTE:** I was just wondering if you might be referring to maybe structural adjustment to existing dams such as where the actual release is taking place—if it is from the bottom part or the top part of the dam. That of course will make a difference to, for example, the temperature of the dams, which could negatively impact environmental outcomes, I guess, when it is released from the bottom of the dam and having these cold flushes coming through.

**Mr MOORE:** Cold-water pollution.

**The Hon. MICK VEITCH:** That is the sort of thing, yes.

**Ms SCHULTE:** That is again something in relation to structural adjustment from an existing dam, which comes under, I guess for us, part of the management of those existing dams as well.

**Mr MOORE:** I think there have been some changes in where they are releasing water from, to accommodate a cold flush of the water, which will have a devastating effect on marine.

**The Hon. MICK VEITCH:** In our most recent sitting, we heard from people about Blowering Dam and the releases of the really cold water through the Tumut River and downstream. I think there are plans at some stage to change the way in which water is released there. My last question is more about innovative water-saving practices from around the world. If we were to look at some really innovative things that we are not doing in Australia that we could do, can you point us in that direction? Where should we look? For example, we heard about Israel.

**Mr MOORE:** Funny you should mention Israel. Actually, our chief executive officer is on a trip and has taken some irrigators to Israel.

**The Hon. Dr Peter Phelps:** Good timing.

**Mr MOORE:** Yes, how appropriate. So there is definitely some technology there. In some of the notes I have had a very brief skim of, from some of the updates he has put out, the use of the water is from recycling facilities and human waste and everything else: They use every single drop. One of our members is Allan White, who is somebody who plays with ion manipulation. He uses very low-quality water to keep his citrus trees running by utilising this technology. So there are opportunities, definitely, for looking at technology that can assist.

**The Hon. MICK VEITCH:** Could you take the question on notice, and if there is anything, could you get back to us about some of the things we should be looking at?

**Mr MOORE:** Yes. I might have some very good information from Andrew when he comes back, so definitely.

**The Hon. MICK VEITCH:** Yes. Thank you.

**The Hon. PAUL GREEN:** Could you include where he visited? There is a parliamentary team going over, and it would not be bad to visit those locations too.

**Mr MOORE:** Oh, right, okay. A lot of that work where he went to was assisted through Netafim and its manufacturing head office is actually located there. But we can include that.

**The Hon. MICK VEITCH:** If you could look at that, that would be great.

**Mr MOORE:** Yes, we can.

**The Hon. STEVE WHAN:** I wish to come back to a point you made earlier about sharing the cost of new water storage. If you accept that the pricing models that the Independent Pricing and Regulatory Tribunal has been putting in place over the last few years will stay the same—essentially, full costs recovery from the irrigators of the cost of the infrastructure—have you done any modelling on whether or not that essentially rules out new major water storages, or at least how that compares to the cost of on-farm and system-wide savings?

**Ms SCHULTE:** I guess that comes back to a completely different question. The Independent Pricing and Regulatory Tribunal will not determine cost for bulk water in the future. This will be determined or regulated through the Australian Competition and Consumer Commission: Hence the cost-recovery process and the tariff structure might be quite different. What the NSW Irrigators Council has proposed for quite some time is a potential re-evaluation of what is the user base. Especially our members up in the north have been indicating that certain environmental contingency allowances and stock and domestic waterholders currently use storage capacity up in the north, and to a quite large percentage However, they do not pay any charges for deriving those services from State water. So I guess it comes back to a different question of whether or not there is willingness to potentially re-evaluate the user base: Hence the cost could be borne by more individuals, which then would make sharing the cost for everyone possible.

**The Hon. STEVE WHAN:** How would you then put in place a new billing method or regime that brought in those users who are not actually directly purchasing water from the water provider?

**Ms SCHULTE:** They are still deriving benefits from the storage capacity.

**The Hon. STEVE WHAN:** Yes. I am not arguing that they are not deriving.

**Ms SCHULTE:** So I guess that would be something that we would strongly recommend the NSW Office of Water look into because they would be the ones who would be able to determine how much of the capacity of those dams is being utilised by not only irrigators, who are currently licensed, but also through those environmental contingency allowances. As far as we know, so far this has not been done.

**Mr MOORE:** How would we implement a charging regime for people who are utilising or getting benefits from it?

**The Hon. STEVE WHAN:** Yes.

**Mr MOORE:** That would definitely be an interesting process of, I guess, working with the regulators or the people who put out the billing.

**The Hon. Dr Peter Phelps:** Courageous, Minister.

**Mr MOORE:** Some of that could be, and I guess it is in some areas, absorbed by a community service obligation that is paid by government, I guess. It is not something we are looking to say that government needs to continue to look at doing that for other dams in the future, but there should be some way of recovering the cost from all benefactors of dam storage or utilisers of the water within it. For the most part, it would be almost impossible for irrigators, I would say, in most areas to be able to bear the cost of additional charges, with increased energy prices, with the fluctuating commodity prices, based on the building and maintenance of a new dam. There are probably very few who would take that up, but that is not to say that there is not an opportunity there to increase the storage capacity of the State and improve our efficiency and our security going forward, or that it is not worth looking at.

**The Hon. STEVE WHAN:** Yes, and I think that is a bit of a contradiction. The challenge is that you are advocating that there should be water storage or potentially dams built, but on the current user-pays models, that would be pretty much cost-prohibitive for those users, would it not?

**Mr MOORE:** Yes, if it is going to be borne only by irrigators. If that is the model that is wanted to be put forward, then it is going to be very difficult.

**The Hon. STEVE WHAN:** Recently the Government released a response to the Independent Pricing and Regulatory Tribunal's latest pricing decisions. Does the NSW Irrigators Council have a view on that?

**Ms SCHULTE:** Yes, I guess. We have evaluated the recommendation that the State Government has made to the Independent Pricing and Regulatory Tribunal in relation to their final report. The final report itself did not deviate substantially from the current framework under which the Independent Pricing and Regulatory Tribunal is operating in New South Wales. However, our concern, I guess, lies very much with the proposals put forward of the cost or the tariff structures perhaps not aligning with the underlying pricing principles that the Australian Competition and Consumer Commission will put forward.

We have been always strongly advocating for a tariff structure that resembles more of a 60-40 fixed-variable charges, or 40-60s depending on the values. However, under the Australian Competition and Consumer Commission price regulations, having a 40-60 approach would mean substantial price fluctuation between years, from one year to the next, just because costs have to be recovered within a determination period. So it kind of moves opposite to actual demand: When there is very little water, hence low demand, the charges would be exorbitantly high, and vice versa. So there would be a lot of fluctuation.

From what we have seen so far from the response, that has not necessarily been addressed as such. Whether or not there is opportunity to extend the recovery process of having not cost-recovered within a determination period, but potentially having recoveries over multiple determination periods which might then alleviate those large price fluctuations between years, that certainly would be something that we would have liked to see further addressed in the response.

**The Hon. STEVE WHAN:** Is the Irrigators Council clear on what the Government's policy is about fixed charges in drought years?

**Mr MOORE:** We have received positive advice that two years of zero allocation would mean a waiving of fixed charges.

**The Hon. STEVE WHAN:** That is different from the response to the Independent Pricing and Regulatory Tribunal report, though, is it not?

**Mr MOORE:** It is, and we sought clarification when that response came out. We were still given assurances that two years of zero allocation would mean a waiving of fixed charges. It has not changed its position.

**The Hon. STEVE WHAN:** On a different topic, there have been around the State quite a few different schemes that have funded on-farm savings for irrigators, quite a few different models. In the Northern Rivers

there was a federally funded program where the irrigator kept half the savings and half went to the environment. There were some done by Waters for Rivers where they did on-farm piping and things like that. I am not asking a question about the technologies that have been used or the methods that have been used. Do you have a view on what sort of model of funding is most effective for on-farm savings? Which model of funding provides the most incentive for it to happen?

**Mr MOORE:** I think every operation is different. Farmers have now been exposed to so many different programs they are able to identify the costs involved, what are the savings and what does that mean to my overall business. Farmers will make that individual assessment as to what is best for them and what they will be changing to. The 50:50 model seems to be quite supported.

**The Hon. STEVE WHAN:** That is the Northern Rivers one?

**Mr MOORE:** Yes. Where there are savings retained within their operations which gives them some leeway to move and still has that benefit for the environment. That model has worked and seems to work quite well. There are other models that potentially have not been probably as successful. The 50:50 model seems to be the one that people subscribe to and potentially some of the programs that have been oversubscribed have been that 50:50 model.

**The Hon. STEVE WHAN:** Are there any that you can nominate as being less successful than others or not successful?

**Mr MOORE:** No. I could probably find that out for you.

**The Hon. STEVE WHAN:** Could you take that on notice?

**Mr MOORE:** Yes.

**(The witnesses withdrew)**

**DEBBIE BULLER,** President, Murrumbidgee Valley Food and Fibre Association, and

**VIRGINIA TROPEANO,** Committee member, Murrumbidgee Valley Food and Fibre Association, sworn and examined:

**CHAIR:** If you consider at any time during your evidence there are issues you would like to discuss in private with the Committee, if you let us know we will consider that request. Would one or both of you like to make a short opening statement?

**Ms BULLER:** Yes, we will both make a short statement. The Murrumbidgee Valley Food and Fibre Association represents business owners in the Murrumbidgee Valley. Many of our members are directly engaged in irrigated agriculture, producing a wide range of agricultural commodities. Also the associated supply industries. We have members from those people as well. We would like to thank the Committee for the opportunity to present today and reiterate that this particular subject is dear to the hearts of our core membership. We are members of a productive, purpose-built irrigation community and we are presently celebrating 100 years of irrigated agriculture, and that is a direct result of building water storages and irrigation systems last century.

Both Virginia and I are irrigation agricultural producers. Between us we produce a variety of food and fibre and proteins, including wheat, oats, canola, corn, hay, livestock, rice, grapes and prunes, and they are just the main ones. Our neighbours and family and friends produce a huge variety of other produce. It is quite an awesome area. It includes cotton, many different types of fruit and citrus and vegetables. All of it depends on secure and reasonable access to water.

Because of where we come from and our generational backgrounds we are highly aware of the benefits and the pitfalls associated with the building of storage capacity and storage management. We congratulate this Committee for looking into water storages and their adequacy. Water management has become severely tangled up with bipartisan—or perhaps bipolar—politics, which has probably made it a bit more complicated than it needs to be. It is good to see your terms of reference as an honest attempt to look at some sensible planning for the future—congratulations for that—and in particular in regard to access to water resources.

One of the major concerns we would like to highlight to this Committee is that food, fibre and protein production is becoming more important on the federal scale. The Federal Government has recently put out a green paper and a White Paper that discusses our place in the so-called Asian century. From our perspective and experience we definitely understand that New South Wales is sitting in the box seat in this respect—the infrastructure, the expertise, the logistics, they are all here. New South Wales can take great advantage of that from its ability to produce food, fibre and proteins for the growing Asian market.

From our perspective there are no shortages of possibilities and no shortages of ideas to upgrade some of our tired infrastructure and improve our ability to store and manage water in New South Wales. If nothing else, the recent drought, the millennium drought, and then the subsequent floods, which both of us have copped big-time, have taught us that our systems have started to go past what we would call their use by dates. It is time to recognise the big population and production demands have begun to outstrip them.

My burning question from the start of the Murray-Darling Basin process has been why were their terms of reference so extremely limited? Why were they not given the ability to go down the pathway of thinking about the possibilities? If they had been directed to use the best available science to source new environmentally responsible ways of securing water storage for the good of all, my feeling is we would be looking at a very different plan from the one we are looking at right now. I think your terms of reference look way more practical and possible than theirs.

**Ms TROPEANO:** The question of whether New South Wales has adequate water storage was overwhelmingly obvious during the millennium drought we have just endured. Irrigated agriculture was stopped in its tracks. General security irrigators had no water to grow crops and high security irrigators only had sufficient water to keep their permanent plantings alive. We all had to dig in our heels and live off our reserves in order to survive. The impacts of the Murray-Darling Basin Plan are going to have an enormous detrimental effect on the Murrumbidgee Irrigation Area [MIA] in particular. We are a purpose-built community. We are totally dependent on water and it would be like a permanent drought to which there was no end unless we can build more water storage.

If Australia is to become the food bowl of Asia and New South Wales is to participate in the opportunities that are expected to arise we must have more water storage so irrigated agriculture can grow. If we do not it will stagnate and die. The MIA covers an area of 660,000 hectares, of which an average of 120,000 hectares is irrigated. It is home to more than 50,000 people, with the majority of jobs tied to the water supplied to farms and industry. The area supplies revenue for New South Wales in excess of $3 billion. The vision and courage of those who designed and built the Snowy Mountains Scheme was outstanding. There should be no reason why this vision cannot be continued as originally planned.

In 1975 the Minister for Public Works at the time, Mr Leon Punch, said in a letter to Mr Terry Sheahan, the member for Burrinjuck at that time, that 14 dam sites had been examined on the Murrumbidgee River and its major tributaries, and investigation of the proposed Lake Mejum storage had already been adopted in principle as the next stage of development to be implemented when the demand on Murrumbidgee water could be seen as likely to exceed the available regulated flow of the system. He went on to say that other dam sites would receive further consideration as the need arose. This was almost 40 years ago. No dams have been built and that need, in my opinion and I am sure in the opinion of everyone in the MIA, is now desperate. The New South Wales Government's action in setting up this inquiry is a definite step in the right direction and shows positive leadership for our State. I hope it results in more water storage being constructed.

**CHAIR:** Thank you for those opening comments.

**The Hon. PAUL GREEN:** I notice that you both reacted when I was talking about en-route storages so my first question is: Your submission argues that there is currently insufficient storage capacity to encourage agriculture development and to meet the needs of industry and the environment. Why do you consider this to be the case and do you have any proposals about how to increase storage capacity?

**Ms TROPEANO:** There are virtually no en-route storages under Burrinjuck, apart from Tom Bullen. In discussions with various people in preparing to come here, people who have a lot of knowledge, the general agreement was that we need to construct a dam east of Wagga and another one east of Narrandera. They are the most critical and urgent ones. As far as flood mitigation goes, we have 12 major creeks and lots of minor creeks coming off those which can have a lot of storage constructed on them as well. There are people available with lots of knowledge who can be consulted and are willing to say where they think the storages should be.

**Ms BULLER:** I was wriggling a bit when you mentioned en-route storage but Mark Moore and Stefanie Schulte did a great job. We are the sort of people who are living with this situation every day. The issue of how far away the water is released and the time it takes to get to our valley is a big problem. It can be problematical in both respects. Last year, even though everything was full and flooding there was not enough water released for the demand and we all ran short, which is crazy because everything was so full. There were a few hiccups, but then the opposite also happens where water is released and then it rains and it cannot be used. The two areas Virginia mentioned would be excellent areas for en-route storage for our valley. As you pointed out, it is not really wasted. The little bit that is lost in evaporation is well and truly mitigated by, firstly, losing the whole lot, which the State would not be able to account for, and, secondly, it makes it a lot easier to manage things along that part of the river.

**CHAIR:** On a point of clarification, have the two sites you referred to been identified?

**Ms TROPEANO:** They have.

**CHAIR:** Can you tell us where they are?

**Ms TROPEANO:** We can take that on notice and get back to you.

**Ms BULLER:** We can get the information. A lot of that information has been around for about 30 years but it has been archived. The focus has not been there for at least that long.

**The Hon. PAUL GREEN:** Can you give us the names of creeks or anything you have?

**Ms TROPEANO:** We can supply that.

**The Hon. PAUL GREEN:** Anything on that would be very helpful. The March 2012 floods had a significant impact on many areas in New South Wales including the southern region. What lessons were learnt from this flood and how do you consider the impact of future floods could be minimised or taken advantage of?

**Ms TROPEANO:** We consider flood mitigation needs to be done on a whole-of-valley basis with various constructions on the way down. If a flood is happening it takes a fair while for the water to come down and water can be released from other storages if you have smaller storages on the way down. That will create air space for the floodwater as it comes down and will slow it down. Instead of the floodwater racing down it will be slowed down and the storages would allow it to be dealt with and managed more successfully.

**Ms BULLER:** Those floods were quite dramatic. Although the Murrumbidgee River flooded that is not what Virginia and I and another lady sitting behind us got flooded by. We got flooded by the Mirrool Creek. That is another area where possibly some flood mitigation could be done. Some quite serious damage was done further down the system around Yenda and those sorts of places, For a lot of different reasons I do not think any of us had been focusing on that area for such a long time and some of the work that should have been done was not done, and now we have learnt that lesson. One of my properties was underwater for a month. It got an awesome pre-watering—that was good, and I did not have to pay for it—but it made a lot of mess too. It knocked down fences. In general the floods in our area are not like the floods we saw in Toowoomba and those sorts of places because it is much flatter. We do get warning and we can do something about that if we have the works in place. If you do not have the works in place it is just going to flood.

**The Hon. PAUL GREEN:** During evidence to the inquiry Tumut Shire Council observed that highly variable river flows are resulting in bank collapse, which can reduce the amount of usable land available to landholders. Have any of your members experienced issues with fluctuations in river flows and bank collapse?

**Ms BULLER:** I know a fair bit about that. More of that happens downstream from us. I have also seen what has happened at Tumut and seen the problem developing there. En-route storages would help with that problem at Tumut. I think you have already been told that. If I remember rightly I read that in the transcripts. That will help mitigate the problem because not so much water will have to be sent down straight out of Blowering in massive amounts. In a lot of ways the lower Murrumbidgee and parts of the Murray are damaged even more seriously than the Tumut River has been by exactly the same thing—high flows and sudden low flows and the banks collapse, the red gums fall in and that creates more problems and it just goes on and on. It is created by severe fluctuations. If you do not have en-route mitigations to look after those situations the problem will keep happening.

**Ms TROPEANO:** If there is en-route storage the water will not take so long. It takes five to six days for water that is released from Burrinjuck to get to the MIA, which is a fair length of time and anything can happen weather-wise in the meantime. If water can be parked on the way it will have less distance to travel and the management would be better.

**The Hon. STEVE WHAN:** On a slightly different direction, are you familiar with the CARM project?

**Ms BULLER:** Yes.

**The Hon. STEVE WHAN:** As landholders and users are you part of that project—electronic monitoring and delivery? What are your views on it?

**Ms BULLER:** That has not happened much inside the MIA.

**The Hon. STEVE WHAN:** Not yet?

**Ms BULLER:** No, it is more on the river and with private operators. It has benefits because they can start to meter where losses are and all that sort of stuff. It has some benefits in that it helps to show where extra work needs to be done.

**The Hon. STEVE WHAN:** I think it addresses that delivery issue about which you talked earlier, particularly too much or not enough being released?

**Ms BULLER:** It can, yes. On its own it cannot do it, but it can help to monitor that, definitely. Just on its own it cannot do it.

**The Hon. STEVE WHAN:** It is a bit early yet?

**Ms BULLER:** Yes.

**Ms TROPEANO:** I do not think it can take the place of more storage. It definitely cannot.

**Ms BULLER:** Or en route stuff.

**The Hon. STEVE WHAN:** I am not trying to get an either/or solution.

**Ms BULLER:** No. It does have a bonus.

**The Hon. STEVE WHAN:** All I am asking is whether or not—

**Ms TROPEANO:** It is another tool that would be valuable, I would imagine. I have not had a lot to do with it.

**Ms BULLER:** No, because we are metered to death anyway. Every single drop is metered inside the MIA.

**The Hon. STEVE WHAN:** Do you have electronic meters now?

**Ms BULLER:** Yes.

**The Hon. STEVE WHAN:** You have moved from the others?

**Ms BULLER:** Yes. They have all gone.

**Ms TROPEANO:** Yes, there are not many of them left.

**Ms BULLER:** Virginia is on drip irrigation and all that sort of stuff as well. Virginia is a horticulturist. We use bankless channels. I started to wriggle around when you started talking about that.

**The Hon. STEVE WHAN:** My next question is similar to the one I asked of the previous witness about on-farm savings measures. Do you have an opinion as to the most effective way of getting funding systems for on-farm savings?

**Ms BULLER:** It is probably a more complicated question than you realise. Mark pointed that out earlier because every property and business is a little different. Virginia's and my businesses are very different, and we farm differently. In our area we also have the fifty-fifty set up. A lot of people were able to do work that they have been wanting to do for quite some time with the assistance of that. It was things like putting in laterals and bankless channels and all that sort of stuff. They have been valuable for that reason because a lot of farmers want to do those efficiency works and know that they can be valuable, but the upfront costs, especially when we have been through a very vulnerable time, were too prohibitive. That was helpful. I will also add that that sort of stuff has been happening and will happen in the future anyway because farmers do that anyway.

**The Hon. STEVE WHAN:** I recognise that it has been happening and there is also an economic comparative for farmers to do that, but many of us are advocating that the savings in the system should be achieved through efficiencies on the system and on-farm. I guess the question is: What is the best way for government to deliver its funding to do that?

**Ms TROPEANO:** A lot of horticultural farmers put in for each of the calls for on-farm infrastructure funding in trade-off with them giving water. We put in for some ourselves, but it has not happened. Nothing has been approved. There are farmers willing to do that. Now with wine grapes in the MIA, 76 per cent are now on drip irrigation. But that still leaves a lot that have not got it. The wine grape industry at the moment is not doing very well. It is on one of its down cycles. We are hoping one day that it will come back up, and it probably will, but at the moment it is very low. Farmers do not have a lot of money available to them to do a lot of the work that they probably would like to, especially after coming through the drought. If there is that funding available

and it actually happens, there are lots of people who would, I believe, give up megalitres of water in return for assistance with that.

**Ms BULLER:** The New South Wales State Government through RAA (Rural Assistance Authority) for many years has helped fund land forming and all that sort of stuff. They are not so much straight-out funding and giving back water, but it is more low-interest loans. A lot of people have taken advantage of those as well. That also has been quite successful.

**The Hon. STEVE WHAN:** In other words, you are saying that a mix of models is fine?

**Ms BULLER:** It is, and some will suit some farmers better than others.

**The Hon. MICK VEITCH:** The Chair did not allow me to ask this question of our friends from the NSW Irrigators Council, so they will receive it in writing. Your submission is equally critical—in fact, you say you are concerned— that very little information is available from the relevant State departments about the modelling determining water requirements?

**Ms BULLER:** Yes, that was very concerning as we all started to look into this and ask questions. The determination for future needs for the cities was reasonably easy to find and source, but for the future needs for inland agriculture it was a little bit like, how are you going, trying to do get that information, especially for future use.

**Ms TROPEANO:** Some of it seems to have been archived in the pre-computer days. Therefore, it means that you have to physically get it out of files and people are reluctant to do that.

**The Hon. MICK VEITCH:** The Government submission also did not contain a lot of detail about the actual methods of modelling?

**Ms TROPEANO:** No.

**Ms BULLER:** Probably for the same reason; it probably is not on the computer.

**The Hon. MICK VEITCH:** Other world jurisdictions must have processes for modelling water usage and future water requirements. Are you aware of any?

**Ms BULLER:** There are some very well-known figures about how many litres of water per person you use.

**The Hon. MICK VEITCH:** One pint for—

**Ms BULLER:** I guess for agriculture and its future needs and actually for the environment, especially in Australia, it is so ephemeral. It is a more variable figure and depends on things other than just volume. We have such a drought-prone climate, but then, as we have just recently learned, it can do the exact opposite as well. It makes modelling it a little more difficult, I guess, but you need to have some more of that done, definitely, and looking as well at the model benefits from that.

**The Hon. MICK VEITCH:** That then leads to the next question. How reliable are the estimates of what water is in the system at the moment? If we are unable to model the future, how sure are we about the current?

**Ms BULLER:** I think the drought and some of the things that happened in the drought and what happened with the New South Wales Office of Water and all that sort of stuff has made it very difficult for everybody. Do you understand the difference between high security and general security irrigation?

**The Hon. MICK VEITCH:** Yes.

**Ms BULLER:** That is good. I am glad I do not have to explain it. At the moment, in my type of farming, general security irrigation, even though everything is full—the dams have been spilling, the rivers have been flooding—we are on 64 per cent allocation. I guess it has all become overcautious, and perhaps overcomplicated. I do not know how to fix that.

**CHAIR:** Essentially, the reason for that is that the water delivery mechanism cannot keep up. Is that the case?

**Ms BULLER:** One of the things that have come back to us is that we were told that everything is too full of other water to allocate to you.

**Ms TROPEANO:** Do you want me to read this?

**Ms BULLER:** We might give that to you later.

**The Hon. MICK VEITCH:** You can table that.

**CHAIR:** You can table any document.

**Ms BULLER:** Okay. That was a little bit concerning and a little hard to understand.

**The Hon. MICK VEITCH:** There also were other constraints, particularly with the Murrumbidgee River, for the delivery of water.

**Ms BULLER:** Yes, but that is not the issue at the moment. That is not a problem. It is just that we do not have an allocation. We will probably get one on 1 December, but that is a little bit late. One of the questions you asked earlier about issues other than volume, that is the biggie for people like us.

**The Hon. MICK VEITCH:** That is my question.

**Ms BULLER:** I will wait for it then.

**The Hon. MICK VEITCH:** No, keep going.

**Ms BULLER:** That is the biggie for us. The best way of explaining that is we have planting windows. When spring hits, especially out there—it used to be semi-arid, that is why it has got irrigation there—if it does not rain, farmers like both of us need to have water to water our crops. For the broadacre irrigators to start off with, that is our winter crops like wheat, canola, oats, hay crops and our pastures. If you do not have an allocation, you cannot do that, and you have to watch them die. The next thing, but not very long after that, is when we have to do planting and work out how much summer crop we are putting in. The only thing we can grow with that water allocation in December is Bathurst burr.

**The Hon. MICK VEITCH:** As an old shearer I know they are not good.

**Ms BULLER:** No, they are not. If we had a good market for Bathurst burrs, paddy melons, bindiis, and stuff like that, that would be really cool, but we do not. We need to have the water earlier than that and have a clear indication otherwise it is very difficult for us to plant.

**The Hon. Dr PETER PHELPS:** What would be your recommendation? Are you talking about different timings? If you were in charge on that point, what would you do?

**Ms BULLER:** One of the things that a lot of our members say is that we seem to have lost the plot a little bit because we have forgotten to link it to productivity. That is not just agricultural productivity, that is environmental productivity, ecological productivity—all of it. If I was in charge, I would look more at the cost benefits analysis and what the productivity needs are and think a bit more clearly about that. It is not just about prioritising it; it needs to be linked to productivity. People cannot produce if they do not have some sort of secure access. Does that make sense?

**The Hon. MICK VEITCH:** Yes, it does. You have got some criticisms of the way our water storages are being managed but also the delivery of the water as well.

**Ms BULLER:** It has become very complicated. I am not completely critical, but it has become overcomplicated. I guess the best way of putting that is I do not know if we have learned the lessons we need to learn. There is a lot more that needs to be done in that area.

**The Hon. MICK VEITCH:** Following on from Paul's questions, I want to go back to the issue of Blowering Dam and the Tumut River. The release of the water is quite significant; it has completely changed the Tumut River and also the temperature of the water. We have clearly got the impression that after Tumut Shire Council representatives came and gave evidence there was essentially no love for Tumut in the room. They had to accept that they were going to take the pain so others could obtain the gain further down the system. Do you think their criticisms and their complaints are justified?

**Ms BULLER:** I was up there maybe two and a half months ago. At that stage a minimum of 8,000 megs a day were belting out of Blowering down that river. A lot of them are reasonable up there; they just need some extra work done on the corners. It is more of that bipolar politics: Some people say that is a good thing, some say it is bad. Remember there is another dam on the river, and that is Burrinjuck Dam. There are management decisions that could help fix that as well, because most of the Murrumbidgee Irrigation Area's water is belting down that river and it did not used to do that. That is definitely a delivery constraint, because there is only so much of peak demand they can put down there. It is a big problem for the people along there. I am quite sure it can be solved, but upstream always hates downstream.

**The Hon. MICK VEITCH:** They were not saying you could not have your water.

**Ms BULLER:** No, they just wanted it better managed, which is quite reasonable. Those en route storages will help with that.

**Ms TROPEANO:** Perhaps what also would help is if they do put in a mid-level offtake, whatever you call them, instead of coming from the bottom. That might address the temperature issues.

**Ms BULLER:** I think it can be done.

**The Hon. Dr PETER PHELPS:** I want to get back to the issue of the problem of your allocation. Is it a timing issue? Are you talking about a greater number of opportunities to vary that allocation, or just timing it at different times of the year?

**Ms BULLER:** It is a really sticky question. I would be very willing to perhaps give you a long written answer to that. It is way more complicated than you realise, but it most definitely is a timing issue. It has got a bit to do with some of the things that happened during the drought as well.

**Ms TROPEANO:** If you cannot get your full allocation at the moment, there has to be something wrong. The dams are full and they are saying—

**The Hon. Dr PETER PHELPS:** But your allocation will vary. You said on 1 December you are expecting a variation, and that is too late.

**Ms TROPEANO:** And that is too late.

**Ms BULLER:** Yes, and some of the things that have happened during the drought has caused that to happen. We will probably need to have another look at that. You have to look at the state of the catchment. There are variable things that go on there that are not being looked at at the moment.

**The Hon. Dr PETER PHELPS:** Excuse my ignorance, but how often can you have a variation in your allocation?

**Ms BULLER:** Every month, especially for my type of allocation. There are the water-sharing plans. I think they should be called the water priority plans; that is a better name. Our type of general security water is quite low on that list. All the others have to be filled first. Basically what is happening at the moment is the dams are full of all these other classifications of water that are not using them because they do not need them, including river flows and end-of-system flows, and all those things, but the water is still in there.

**The Hon. Dr PETER PHELPS:** Are you entirely on general allocation?

**Ms BULLER:** We are, yes.

**The Hon. Dr PETER PHELPS:** No wonder. It must be hard.

**Ms TROPEANO:** Because the dams are full there is nowhere to put the inflows, so that is why they are not giving allocations. I can understand it in years when there is a low availability of water and everybody understands we have to save the water and we have to be careful, but when dams are 100 per cent full, I cannot understand only giving them a 64 per cent allocation. It does not make sense to me.

**The Hon. Dr PETER PHELPS:** Unless there was an over-allocation of general water in the first place and they are trying to use this as an administrative tool to correct poor decisions?

**Ms BULLER:** That is a complicated question as well. I am happy to write it up.

**The Hon. Dr PETER PHELPS:** I note that in your submission you say:

> There are competing demands on our existing storages that are presently squeezing out irrigated agriculture in NSW.

Is "competing demands" a nice way of saying urban, industrial, mining, environmental? What are these competing demands?

**Ms BULLER:** They are the competing demands.

**The Hon. Dr PETER PHELPS:** Who is the culprit?

**Ms BULLER:** There is no one culprit. Obviously holding environmental water when the environment does not need it looks a bit shonky to me, but that is because I am an irrigator. That may not be the same for everybody else. If you come out to the Murrumbidgee Valley, it is blooming with health at the moment, absolutely blooming. I am not too sure why we would be holding water for the environment under the current circumstances. I cannot see the point of that.

**The Hon. Dr PETER PHELPS:** Griffith looks very healthy economically, but it is hardly expanding for thousands of new people every year.

**Ms TROPEANO:** I do not think Griffith is looking very healthy economically. I think you might have it wrong.

**Ms BULLER:** It is certainly bouncing back. Our whole area has been through a pretty rough time.

**The Hon. Dr PETER PHELPS:** I only counted four vacant shops on the main drag, so that is not bad.

**The Hon. STEVE WHAN:** Did you walk around the back?

**The Hon. Dr PETER PHELPS:** No, I did not go around the back.

**Ms BULLER:** Retail is suffering everywhere, though. It is not just out our way. Retail in the city is suffering, too.

**Ms TROPEANO:** Did you have a look at real estate and the price of houses, how many houses are up for sale, and why the rental market is so good? It is because people are not game to buy. That is what is happening.

**The Hon. Dr PETER PHELPS:** What I am basically saying is that it is not the demand for urban water, not the demand for industrial or mining, so essentially what you are saying is that there is a problem with environmental water?

**Ms BULLER:** I would add a little bit to what Mark was saying in answer to a question earlier. The dams were built as a human and community resource. They were clearly built for that and they were built to store water in times of excess so that they could be wisely managed in the invariable low inflows. That is the history and the basics of it. They were not designed to put water on the back of floods. They were not designed to do that. Therefore, they are not performing that function very well at all and that is a competing problem. If that water is getting released as river flows and end-of-system flows at the same time that we need our

allocations that is a further issue, because that is a competing demand in the actual rivers and waterways themselves. I have no objection to environmental water and that stuff. The infrastructure that is there at present was not designed to do that and it is not performing that function very well at all.

**The Hon. CHARLIE LYNN:** Your submission suggests that greater emphasis should be placed on finding new sources for urban and industrial water needs such as recycling, desalination and private storages. Why do you consider this to be the case and what would be the outcomes of a diversified approach to water supply?

**Ms BULLER:** Because we are water managers and we live on farms we already do a lot of that stuff on our properties and we know it is not hard to do. All our houses are run by rain water, for instance. We recycle all our sewerage water, not back into our houses, but we re-use it in other areas.

**The Hon. Dr PETER PHELPS:** Griffith is still unmetered, isn't it?

**Ms BULLER:** I am talking about on the farms.

**Ms TROPEANO:** Town water is metered.

**Ms BULLER:** I do not think there is very much that is not metered, trust me. We are paying for it all. It is probably just the rain water tanks that are not metered and if they figure out a way to charge us for that they probably will. We do all that sort of stuff already and I am a part city girl, I grew up in Sydney and come back here quite often. I look at the concrete areas and the roof areas in heavy rain events and watch it all run off. You would never catch a farmer allowing that to happen. We would never allow that to happen, not in a million years. That was the basis of that comment. It is very practical but that is who we are, practical people.

**The Hon. Dr PETER PHELPS:** Is that going to have a major effect? We saw an excellent example of this at Orange with the stormwater project, it is nice but is that going to have a material effect on the water available in your area?

**Ms BULLER:** no, but it would help the city area. It would certainly help you guys, which is just as important. Perhaps it will make you less inclined to do something like Melbourne did and build a pipe from an irrigation dam down to the city. At the end of the day good water management is good water management wherever it is. Farmers know that every single day.

**The Hon. CHARLIE LYNN:** During evidence to the inquiry the Riverina Eastern Regional Organisation Council suggested the construction of deep water weirs along the Murrumbidgee would assist and provide additional storage capacity and alleviate some of the damage caused by floods in the valley. What comments do you have on that?

**Ms TROPEANO:** I do not necessarily think they have to be deep water. There seems to be a thing that evaporation is a dirty word. It is not. It is very necessary. Water that evaporates—I am not an expert—but it goes up into the atmosphere and falls somewhere else as rain. I know that after the construction of the Coleambally irrigation area the rainfall at Lockhart went up 100 millilitres because you have that extra area of rice paddocks for the evaporation to come off. I do not think that evaporation is necessarily water lost. If there are no deep water sites I still think sites need to be considered because evaporation is not lost, you get rain somewhere else. That is my opinion.

**Ms BULLER:** It is the degree of evaporation. For instance, if you had a 140,000 megalitre storage facility and you lost 40,000 megalitres to evaporation, you would still have 100,000 megalitres of water that you can wisely use. No-one likes to lose any but that is still 100,000 megalitres better than zero.

**Ms TROPEANO:** If we are looking at evaporation, what we need to look at is evaporation from the lower lakes, which is where all the water taken away from irrigation is ending up.

**The Hon. Dr PETER PHELPS:** No arguments here about that.

**Ms TROPEANO:** that is fresh water and it is a waste. If it was an estuary, like it is supposed to be, we would still have evaporation but it would not be wasted fresh water.

**The Hon. Dr PETER PHELPS:** the chair worked out that the evaporation from Lake Alexandrina, South Australia, was worse than the evaporation from the Menindee lakes.

**Ms TROPEANO:** My personal opinion is that there needs to be an inquiry conducted into the lower lakes because they are so important to the whole issue of the Murray-Darling basin. The lower lakes are crucial. What is happening down there needs to be looked at carefully.

**The Hon. Dr PETER PHELPS:** Short of us invading South Australia it is a little outside our jurisdiction.

**Ms TROPEANO:** There are people down there that know. There are a lot of people in South Australia that do not have the view that is portrayed in the media.

**The Hon. Dr PETER PHELPS:** It is Adelaide.

**Ms TROPEANO:** The people on the lakes—not the one's living in the waterfront places that need to be 0.75 metres above sea level and it is held there so they can have waterfront—but there are people down there that do believe that it should be an estuary.

**The Hon. Dr PETER PHELPS:** What it historically was for thousands and thousands of years.

**Ms TROPEANO:** Yes, 6,000 years.

**Ms BULLER:** It is another dam. They have built another dam and they do need some help. There have been mistakes made all through the system and that is one of them but it is not the only one.

**Ms TROPEANO:** It is full of carp.

**CHAIR:** I gather there is not a lot of support for maintaining Lake Alexandrina?

**Ms BULLER:** No, not in the Murrumbidgee irrigation area. It is another of those upstream and downstream things.

**The Hon. PAUL GREEN:** I love hearing the ladies talk about evaporation.

**CHAIR:** Could you comment on evaporation? The issue is that water is going to evaporate somewhere.

**Ms BULLER:** It evaporates off you as well. Evaporation is part of the natural cycle.

**Ms TROPEANO:** And it can have benefits.

**Ms BULLER:** This is my personal opinion because we are in the same situation with dams on the farm: I do not think using evaporation as an excuse not to do something is a good idea because that means you are not doing anything.

**CHAIR:** We are still losing 1,500 gigalitres of water from Lake Alexandrina through evaporation.

**Ms BULLER:** Yes. We would not let water evaporate and disappear down the bottom of our farms. That is silly. When you are storing it up the top do you re-use? That is a different story.

**The Hon. PAUL GREEN:** What goes up must come down.

**Ms BULLER:** That is right, water does run down hill.

**CHAIR:** We are out of time. I thank you for your submission and your succinct evidence today. There have been some issues taken on notice regarding the 14 potential dam sites east of Wagga Wagga and east of Narrandera.

**Ms BULLER:** This newspaper article is from 1975, this has been going on forever, all this stuff. It is not new. It is a wonderful story about looking at the 14 sites.

**CHAIR:** Are you able to table that?

**Ms TROPEANO:** Yes.

**Document tabled.**

**Ms BULLER:** We will source some of the archive information.

**CHAIR:** If the Committee has any other questions once it goes through the transcript would you be prepared to answer those questions as well?

**Ms TROPEANO:** Definitely.

**Ms BULLER:** Of course.

**CHAIR:** The Committee secretariat will be in touch with you regarding the issues you took on notice and any other questions the Committee may have. Would you be able to get your answers back to the Committee within 21 days of receiving that advice from the secretariat?

**Ms BULLER:** Yes. Thank you for the opportunity and good on you for looking into this.

**(The witnesses withdrew)**

**PHYLLIS MILLER**, Chair, Central NSW Councils, and Councillor, Forbes Shire Council,

**GARRY STYLE**, Executive Member, Central NSW Councils, and General Manager, Orange City Council, and

**TONY PERRY**, General Manager, Central Tablelands Water County Council, sworn and examined:

**JENNIFER BENNETT**, Executive Officer, Central NSW Councils, affirmed and examined:

**CHAIR:** I welcome witnesses from Central NSW Councils, which is known as "Centroc". If at any stage you feel that evidence you wish to give should be heard in camera, please indicate that and your request will be considered. Would you like to make a short opening statement?

**Ms MILLER:** We appreciate the opportunity to give evidence and we are very excited that someone is looking at water security across New South Wales. Centroc has 17 member councils and the organisation has done a great deal of work on water security. Members would be aware of the water security study we did in 2009, for which we received a national award. Subsequently, we have been trying to get help from both the State and Federal governments to improve water security in the Central West. The Central West is experiencing a mining boom—I believe we are almost the Kalgoorlie of western New South Wales. Of course, that presents challenges in ensuring that water is available for urban use because we have rapidly growing populations and, of course, for irrigation and the mining sector.

I draw the attention of the Committee to the water security study. It determined that in 50 years 29 towns will require water security improvements. That is pretty major. We have always been supportive of extra storage. We would certainly love to receive extra water storage in the area. One of our issues is the consultation process. We sometimes find that local government gets left out. It is really important that the work we have done is taken into consideration in any findings of this Committee and in State Water's plans. We would really appreciate the opportunity to be closely involved going forward.

**Mr STYLES:** The Centroc study clearly shows that even with high-level demand management there will be a shortage of water in the towns of our region. Additional storage would certainly help to sustain our future. The study identified a range of options for pipes, extra storage, demand management, best practice and collaboration. We encourage the Committee to examine that from a regional perspective, and we would be happy to respond. Our view is that even with demand management of up to about 5,000 megalitres, which is a lot for an urban population, there will still be a gap in the future.

The study also talks sensibly about some of the efficiency gains that can be made as trade-offs with irrigators and things like that. That would be a win-win. We would be very keen for that to be considered. Tony Perry will talk about Lake Rowlands. Along with some pipelines, Lake Rowlands was the feature of the Centroc study. From the Orange City Council's point of view, the Committee should consider how Lake Rowlands, urban water supply and other dams might interact. We have done quite a bit with demand management. As members know, a pipeline is being built from Macquarie to Orange and another one has been built from Lake Cargelligo. In addition to the study, we have come up with some good ideas about off-line storage on the Lachlan to assist with economic activity in that region. We think that should all be considered.

**Mr PERRY:** Lake Rowlands dam, which was built in 1951, has a capacity of only 4,500 megalitres, but it is in an extremely good catchment. One of the things we have been advocating for the past 16 years is to enlarge it with the augmentation of a new dam wall about 2.5 kilometres downstream, which is the site of a very deep natural gorge. In fact, a Minister in the former Government went to the location and said it was an extremely very good site and was very encouraging about the proposal. The proposal is to augment Lake Rowlands from 4,500 megalitres to 26,500 megalitres.

One of the encouraging aspects of this location, which is also identified in the Centroc water security study, is that the dam is 882 metres above sea level. Apart from Orange, which has a difference of only about 15 metres, it gravitates everywhere. From and environmental and energy point of view, it is extremely well located. It is an extremely good catchment. Over the seven or eight years of the last record drought, our consumers across the central county council area, which is supplied from Lake Rowlands, were on restrictions for six months between November 2006 and April 2007.

By June 2007 we were back to 100 per cent full. So in the whole seven or eight year period of that drought our consumers only experienced restrictions for only six months in that whole period, which was quite remarkable. So it is an extremely good catchment and, as I say, it gravitates everywhere and it was identified as the best option to provide water security for the whole of the Central West. You just cannot carry on supplying the Central West without extra water storages. As Councillor Miller pointed out, the Centroc study points out that 29 towns and villages by 2059 will be desperate for water. Not only that, as Councillor Miller also pointed out, to use her language, the Central West looks like becoming the Kalgoorlie of New South Wales, and that is not a stupid statement to make. It is actually quite feasible.

**The Hon. STEVE WHAN:** She would have been upset if you said it was.

**Mr PERRY:** Yes. There is a very good goldmining facility that looks like coming into operation sometime in the next 12 or 18 months or two years at Blayney and they are going to be desperate for water, not only for urban irrigation and environmental needs but for the mining industry in this State; they need water. I am probably putting the cat among the pigeons, but I do not know where the State Water proposal is going to fit into the picture and whether that ever comes to reality or not but I know that we were approached by State Water and they are talking about three locations for dams—you gentlemen probably know—and one of them is on the Belubula River at a place call the Needles. Now they are talking 90,000 megalitres.

Our biggest concern is extra water storage in the Central West to drought proof the Central West. The Central West cannot operate any longer over the next 40 to 50 years without extra water storage. We are encouraged by this State Government's view that they have overturned that no new dams policy because I think it is recognised that you just cannot carry on with conservation measures. As good as they are, we need more water storage.

**CHAIR:** Do you wish to add anything, Ms Bennett?

**Ms BENNETT:** No.

**CHAIR:** Before I pass over to Dr Phelps, Mr Perry, can I ask you to expand on your comments about Lake Rowlands and the expansion to take it up to 26,000 megalitres? Is that the optimum size of that storage or is there opportunity to make it bigger than that?

**Mr PERRY:** There is an opportunity to make it bigger. The reason to settle on 26,500 megalitres—and that was a decision made about 12 or 15 years ago when we did our first lot of foundation investigation studies—was to minimise disruption to local infrastructure. We felt that by going to 26,500 megalitres it made no interruption to the Blayney-Neville Road. There is a bridge that goes across—the Darrington Bridge, which is on the Blayney-Neville Road–and that would not be impacted. Basically with a 26,500 megalitre dam there is very little impact on good agricultural land because most of it is captured in a very, very deep gorge. The higher you go, then you start to encroach on rural land.

**The Hon. Dr PETER PHELPS:** Flood areas?

**Mr PERRY:** Yes, and also Blayney Shire Council road infrastructure. They are not insurmountable things that you have to face; it just adds extra cost. Yes, you can go 30,000 or probably even a bit better than 30,000 but that was the reason the 26,500 was set upon.

**CHAIR:** The other issue I wanted to ask you about was Carcoar Dam. The catchment yield characteristics of that dam are not as good as the Lake Rowlands catchment, is that correct?

**Mr PERRY:** That is correct. It is on the other side of the hill. Carcoar Dam is fed, as you probably know, on the Belubula River. It has got a very, very small catchment. It is not far out of Blayney; it is between Blayney and Carcoar and actually the headwaters of the Belubula River are not far out of Blayney so it has very little catchment and it always has a great deal of difficulty in maintaining a level, even though it is a 32,000 megalitre dam. Officers from State Water have told me that the current Carcoar Dam was actually built on the wrong spot and it was only just through political persuasion that they put it where it is. It was actually originally designed at this location that they are talking about now.

**CHAIR:** At Needles?

**Mr PERRY:** Yes.

**CHAIR:** Is there a possibility that if Lake Rowlands is not going to exceed the 26,500 megalitres, that the two storages could be linked following the construction of Lake Rowlands?

**Mr PERRY:** They can be linked, very easily linked. You are talking about the existing Carcoar Dam?

**CHAIR:** Yes, some of the extra storage that could have gone into Lake Rowlands could be, in fact, piped around to Lake Carcoar?

**Mr PERRY:** Exactly, yes.

**The Hon. MICK VEITCH:** To then better utilise Lake Carcoar?

**Mr PERRY:** Yes, exactly.

**The Hon. Dr PETER PHELPS:** I just want to make it clear: You said that you need more storage. Is it the case that you need more storage or is it simply the case that you need better movement of water in existing storages in Centroc's area?

**Mr STYLES:** There are some options for movement. If you look at the Centroc study it proposes a whole network of pipes. The idea of a harvesting operation to top up Carcoar is an example of what can happen, so it will be a mix of what you pick for your storages and what network linkages you put in place.

**The Hon. Dr PETER PHELPS:** My question really relates to the efficient use of dollars, that is, that we have a limited amount of dollars and dams are very, very expensive. Could the same long-term security outcome be achieved through the implementation of better piping arrangements and better linkages with existing reservoirs?

**Mr STYLES:** I do not think you are going to get around the need for additional storages. I think you are going to need to do both in terms of making it efficient. What you are talking about is the dollars per secure yield megalitre and you need to mix the two to try to get it to its most efficient point to get the best result there. You will need to build in the operating cost because if you are going to start pumping it everywhere, there is going to be a cost there. You are going to need to head to a net present value per megalitre, both capital and operating, for a life cycle to get to the most efficient point. Some of the analysis in the Centroc study does go to that. It talks about the cost of things. You are very, very right; dams are expensive things, but I do not think they are something that you can exclude. You need to have the whole system together.

**The Hon. Dr PETER PHELPS:** I am not suggesting that they be excluded. What I am saying is: has the study really delved down into the cost per megalitre of transportation as opposed to actual storage?

**Mr STYLES:** There is some net present value analysis in that that does include the operating rules, as we see it, with the mix of storage and pipes, as we see it, so you can get a good grip. There is some low hanging fruit you can do with pipelines. There is going to be a point where the growth will be such that you do need the storages as well.

**The Hon. Dr PETER PHELPS:** So increased storage is a given?

**Mr STYLES:** Yes.

**The Hon. Dr PETER PHELPS:** Aside from Lake Rowlands are there any other priority projects, apart from the attendant piping that goes with it, which you see as important or which comes out of that study?

**Ms MILLER:** There are 80 options.

**Mr STYLES:** It is like the cart before the horse. To make the whole thing work you are going to need to be confident of your storage to put the pipe network in, but there are quite a few pipe networks that go with it. We have arranged them in sort of a priority order. The study is much more than that. There is no point doing that if you are not doing all that demand management and getting the rest of the low hanging fruit. You are sort

of drilling down, getting the low hanging fruit and at a point, you are going to need to do your dam and your pipe network as the growth takes up as well.

**Ms MILLER:** You would be all aware of how low the Lachlan got during the drought and certainly Condobolin was in dire straits. We did get the emergency money and got that pipeline in. South of Condobolin certainly needs perhaps storage upstream that will allow them to have enough water. They have got a weir 60 kilometres out of Condobolin that needs some form of regulation because what happened to them in the drought was very bad. I know all the councils on the Lachlan were putting ourselves on really big restrictions so that we could get water down to them. We really worked as a team and that is what we always do. But the Lachlan definitely needs further storage. If needles is an opportunity for that to flow into the Lachlan, that is what is required.

**The Hon. Dr PETER PHELPS:** Your submission talks about non-infrastructure collaboration between the councils in CENTROC. Was that essentially collaboration in relation to demand management?

**Ms MILLER:** It was demand management. We work very well together. We do not reinvent the wheel when we are doing our best practise guidelines; other councils that have done the work. All of the engineers get together and we share all our resources—human resources as well.

**The Hon. Dr PETER PHELPS:** Would that type of planning be advantageous to other ROCs around the State?

**Ms MILLER:** I do.

**The Hon. Dr PETER PHELPS:** I think it is remarkable. It is a wonderful display of co-operation. Normally, it's our water, you can't have it.

**Ms MILLER:** When we first started I must say it was like that, I am telling you. We were all in a room and all wanting to have a go at one another, but all of a sudden it started to work. It has worked on a whole range of issues, not just in relation to water security but also our environmental services people work together as do our tourism people. It has been amazing—with some direction from elected members, the staff right across the central west are doing excellent work.

**The Hon. Dr PETER PHELPS:** In relation to the broader strategic issue, how did we get to this point? Presumably it came to a head in the millennium drought but do you have some issue with the Office of Water and its predictive modelling for water needs in your area? Why did it get to this stage? Was it because the Office of Water did not model?

**Ms MILLER:** We fight with them all the time but I will let Mr Styles talk to that.

**Mr STYLES:** With the major drought a number of councils were in a pretty difficult spot. Orange was down to a level five and we had to invent level 5A to not go to six. The modelling that has emerged with the debate on climate change has—

**The Hon. Dr PETER PHELPS:** I am speaking more about predictive modelling in relation to urban growth, agriculture and mining. Do you believe there has been a failing to model those sorts of things effectively.

**Ms MILLER:** I do.

**Mr STYLES:** No, certainly from our point of view when you model your system you input all of those uses. So you are capable of putting in what mining you are servicing; you are capable of putting in what industrial and what growth and that sort of thing. The Office of Water has its secure yield model and it got updated for climate change and led to some major declines in what we thought our secure yield was. Orange went from around 7,000 down to about 3,500 so it was a fairly big drop. You are talking about a 26 per cent difference in run-off and things like that. Their predictive modelling has had an impact there.

In the broader scale across the region of how the water is carved up, what goes to mining, what goes to agriculture and all that sort of thing, there is a lot of stuff on record about how licences have been allocated and over-allocated. I think there are some issues there that would be fairly patent that the management of that

resource, and how it is allocated and carved up, has led to some problems. But at the micro-level of us sort of modelling our little bit of it with our systems and our dams and all of that, there have been some changes in predictive modelling that have impacted on it. Having said that, however, if you look at how our supply performed during that drought clearly there was no way in the world it was a 7,000 mega litre secure yield because otherwise we would not have entered into the restrictions we did. While it might be very harsh, I do not know if it is right nth degree but it is certainly right along that path, sort of thing.

**Ms MILLER:** I am not arguing with Gary, we are on a different tangent. I believe that as a group of councils, and knowing what is happening out there, that needs to be fed into State Water when it is doing some water studies. We know that we are growing out there but we are always on the back foot. A mine comes, and then we start to work out: how will we get the water to the mine. Instead of looking forward now, we have got hopefully a two-year gap, I suppose, before the new mine at Blayney gets underway. We should all be working on that now. How will we deliver water to this mine? That is the type of thing to which we are more reaction than proactive in how we are going forward. I was not arguing with Mr Styles, because we do agree mostly on everything, but that is where I find that State Water versus local government, we are all fighting to get development, we are gelling together properly.

**The Hon. Dr PETER PHELPS:** Do you have a regional policy amongst your councils of actually seeking a contribution from mining operations for the supply of water?

**Ms BENNETT:** Not regionally.

**The Hon. Dr PETER PHELPS:** It is on a council-by-council basis?

**Mr STYLES:** You do that individually.

**Ms MILLER:** Section 94.

**Mr STYLES:** You do that individually when the development consent comes up under a voluntary planning agreement.

**The Hon. Dr PETER PHELPS:** As 100 per cent full cost recovery?

**Mr STYLES:** It depends on the deal. There are no boundaries around voluntary planning agreements. Often in order to deliver the water, in our case effluent, the mining company has to put in a ton of money for the pipeline and all that sort of thing.

**The Hon. Dr PETER PHELPS:** Orange got a good outcome.

**Mr STYLES:** It was positive, yes.

**The Hon. MICK VEITCH:** The submission from NSW Irrigator's Council was very critical of State government departments for not having modelling into the future for the needs across the State. The Committee also heard from the Murrumbidgee Valley Food and Fibre Association that was equally critical of New South Wales departments for not having adequate or any adequate modelling of future needs for water. It appears that urban planning seems to be ahead of the game in predictive modelling. Are the comments of NSW Irrigator's Council are correct that there is insufficient adequate modelling?

**Ms MILLER:** Yes, but we are doing okay with urban, councils who are delivering the water. But it is 2 per cent of the resource. Let us put it into perspective—nationally 8 per cent and New South Wales about 2 per cent of the resource. We are not looking after a lot of water but planning to get that 2 per cent to get those other benefits with economic development, I believe there is a real hole.

**Ms BENNETT:** I think the Irrigators and probably our communities would say that State Water has run those dams as a business enterprise and there may or may not be a great deal of science behind that, it has more been about the economics than anything else.

**The Hon. MICK VEITCH:** The Committee had a very good look around Orange. The Committee received a good presentation on your pipeline project. Earlier I think Councillor Miller spoke about the need to work together. Clearly the pipeline project at Orange has got some people offside as well because after some

wonderful comments to the media from the Chair when we were there, the Committee was barraged with emails—

**CHAIR:** There were only about five emails.

**The Hon. MICK VEITCH:** Yes, to be fair about five emails. Clearly there are opponents to the pipeline project downstream and upstream. How do you bring everyone on board to get the security of water in Orange, for instance, across the line?

**Mr STYLES:** There is certainly strong support amongst the CENTROC. Dubbo and Bathurst councils did not put in submissions although the two State members did. The pipeline in Orange has been quite an eye opener in terms of the opposition. There are a number of groups and key environmental groups, some of whom cannot agree. The Fresh Water Anglers put in a submission that says the proposal for the extraction for the pipeline is top shelf, and another mob of fishermen put in a submission and are dead set against it. It has certainly attracted some attention.

The landowners in the area have been very strong in voicing their opposition. They clearly love their farms and their bit of the river and that sort of thing, so it has been quite controversial. I would suggest that had the drought continued, that pipeline would have been built now and there would not have been a whimper. It is a matter of horses for courses. When people think there is an abundance of time I guess they like to turn the stones over and look at everything. We have had multiple suggestions of alternatives that we have chased to the bottom so we could prove our concept.

So it is a tough job. The idea of water—there is no logic in some of the submissions. You would have to be 50, 60, 70 kilometres away from Chifley Dam but you have got people jumping up and down saying that it is going to have an impact on Chifley Dam. That is not going to happen. Claims that there will have to be water releases from Chifley Dam to feed it, in a dry time that would go nowhere except into the aquifer right near Bathurst, so that is pointless as well. It certainly has been fertile for a lot of the what-if scenarios and questions, but, unfortunately for us, we have found as we have knocked those questions over, they just keep getting asked the same way. It is a tough gig. I can only imagine if the State Government gets to the point of wanting to build further dams that you will face some of the same opposition we have had. What I pointed out in the Centroc thing about irrigation farmers and helping them with efficiency and then sharing the savings is probably a good way to go.

**The Hon. STEVE WHAN:** Can I ask further about Lake Rowlands? That also has copped a bit of criticism from people that we have spoken to as well about that as an option and particularly, Mr Perry, you talked about the quality of the catchment for Lake Rowlands and other people have mentioned, I think outside of the hearings, that it is essentially a spring-fed system and therefore you do not actually need a big storage capacity because it is a fairly consistent recharge. What is your response to that?

**Mr PERRY:** It is spring-fed but it is not only spring-fed; it is an extremely good rainfall area. Right through the drought we were copping rain situations that just kept topping the dam up. Sure, it is spring-fed but it cannot possibly just rely on being spring-fed. We have got modelling right back to 1916 that shows what the level of a 26,500 megalitre dam would have been on 1 January each year and what the lowest level would have been, and there are only about two or three periods during that—I think one was back in 1983 and one was back in about the 1930s or whatever—that showed that Lake Rowlands, if a 26,500 megalitre dam had been there, it would have been under a bit of stress, but the majority of the time it was not. I dispute the fact that it is solely spring-fed. We have got a number of creeks that run into Coombing Creek, which obviously is a tributary of the Belubula River and an internal tributary of the Lachlan, and we have just copped really good rainfall over that period.

**The Hon. STEVE WHAN:** During the 10-year drought your modelling shows that it would have stayed at a reasonable level?

**Mr PERRY:** Yes. As I said to the Committee earlier, November 2006 through to April 2007 we went from about 70 or 80 per cent in October 2006 down to 39 per cent in April 2007. We were back to 100 per cent in June 2007. But that six-month period was the only period when we turned to water restrictions to maintain storage.

**The Hon. STEVE WHAN:** You are building a new dam downstream and largely augmenting—

**The Hon. Dr PETER PHELPS:** Like the new Colless Dam.

**The Hon. STEVE WHAN:** The new Colless Dam. And you did it on the basis of cost recovery from your ratepayers. Could you afford that?

**Mr PERRY:** Central Tablelands Water does not need a new dam—I will spell that out now. We do not need a new dam. The reason for this new dam at Lake Rowlands is it is not to look after Central Tablelands County Council it is to look after water security for the Central West. We own Lake Rowlands and we are a party to trying to get it enlarged. There is no way in the world our consumers—and we have got 5,700 consumers—could facilitate the financing of a new dam; it has got to be a regional State and Commonwealth project.

We are basically supporting this dam. Originally, when we kicked off the idea of this dam probably 15, 16 years ago, we were approached by Cadia Mine, who were only just starting in the Orange area at the time, and a firm called Hargraves Resources that had a gold mine at Blayney, which eventually flooded. Both of those gold mines came to us with a view to getting water from Lake Rowlands. With the 4,500-megalitre dam we could not afford to start supplying gold mines with water and put at jeopardy the urban supplies, so we came up with the idea of expanding and enlarging Lake Rowlands, and we had their full support.

In the meantime, Hargrave Resources fell apart because the mine at Blayney flooded, so they walked away from that. We were not getting any encouragement from the State Government whatsoever to augment Lake Rowlands, and Cadia Mine actually walked away as well. They ended up turning up around and buying licences on the Lachlan and the Belubula. Then you progress a few years and the drought hit and Orange City Council became desperate for water. Cadia were also getting desperate for water because their storages were drying up as well. So Orange City Council, Central Tablelands Water and Cadia Mine entered into an arrangement where we would raise the flag to augment Lake Rowlands again.

It was not long after that that it then became a Centroc project. We said okay, if we are going to enlarge Lake Rowlands let us look at it from a Central West point of view, and all 17 councils on Centroc came on board to make it a Centroc project. That is when the State Government turned around and put half a million dollars into the Centroc Water Security Study, which, once again, we could have told them 15 years ago, after all the deliberations of all the other options—bringing Chifley up to Lake Rowlands and bringing Wyangala up to Lake Rowlands—the option that they recommended was the enlargement of the augmentation of Lake Rowlands because of its geographic location.

**The Hon. PAUL GREEN:** You have answered a few of the questions I was going to ask about mining there. You would know the terms of reference of this inquiry. What would you like to see in the recommendations? Is there some way we can help?

**Ms MILLER:** We would like you to have a really good read of our water security study because there are some good recommendations in there. I believe that a lot of the work in there, there are some interim measures that can assist councils in the Central West. For instance, Lachlan has got the weir six kilometres out of the town and has done all of the work. It is about regulating and raising the wall on this weir that will secure them reasonably well in future years—all of the things that are in our water security study, but certainly you can read that until the cows come home; we still need extra storage and we are reliant on getting extra storage because of what is happening out in the Central West.

**Mr STYLES:** We would also like you to look at how our study and how our proposal and all that networks in with whatever additional storage you consider. If you are considering urban water you need to think about what you are going to propose any additional storages for, because if they are going to be operated up and down, up and down, like irrigation dams, they are not going to fit the profile for high-security water for urban settlement and for high-end industrial users. You need to think about what you are doing: Is this an exercise to provide environmental water or agricultural water or is it for industrial and urban, because your operating parameters are going to be different.

You should not overlook the idea we have got with networks of pipes around the Central West to drought-proof it so that we can support whatever industry is out there. I think that is the key thing. With Lake Rowlands it should certainly be considered in the mix. One of you had an idea about a harvesting operation to integrate it with things. I think you should also think about how State Water has performed in this space,

because while we are all in the catchment I do not think there has been much interaction between the urban water use and State Water. I think Phyllis was spot on in saying that they have just operated it as a business for irrigation dams. The whole integration and being more sophisticated in how we use it I think is something that the Committee should look at.

**Mr PERRY:** I think another area that needs to be looked at in the mix is that there needs to be a complete review of licensing. One of the things that is of concern to me is that I got a letter from the Minister sometime ago—I am not sure if it was early this year or late last year—regardless if we got approval to increase Lake Rowlands, we would not get approval to increase our allocation. The allocation is completely locked across the whole of the Lachlan Valley. If we required further urban licensing—we have actually had our licence reduced from 4,500 megalitres to 3,150 megalitres—and we were to enlarge Lake Rowlands, any extra allocation for urban use would have to come at the expense of someone else in the valley. That is a bit of a problem.

Just going back to the mining issue, Orange City Council, Central Tablelands Water and Cadia Mines—this went in with our submission, by the way—this was a study done by the Western Research Institute at Bathurst on the economic needs for the enlargement of Lake Rowlands. It was a very good study that was done. It talks about regional development in New South Wales and says that water is the real constraint in regards to development in the Central West. As I said, that study was done by the Western Research Institute, funded by CTW, Orange and Cadia, with the assistance of engineering consultants GHD. I will leave this copy for the Committee.

**Document tabled.**

**Ms BENNETT:** If the Committee looks, for example, at the Centroc Water Security Study, there is a lot of science behind it, the modelling is stochastic. It took them, I think, two days every time they wanted to run the model. There was an enormous amount of work involved in it. There has been also a triple bottom line overlay, where we looked at the social, environmental and economic value over the top of that. I would be very keen to leave this message with the Committee: the Committee should take a similar sort of approach in looking at varying other options out there. I think it will be more compelling for the folk in the region if it has got that sort of science. There are a lot of people out there who have an idea in their back pocket. We certainly looked at all 80-plus options. Every single mayor has heard probably 10 different ideas in their LGA. We got all those ideas out and had a look at them too. We are aware that the goalposts are changing a bit because the climate change modelling has been reviewed. We are aware also that stuff is happening at the Office of Water at the moment. We would be very encouraging of the Committee after all that to come back and talk to us, and also to take that very scientific approach.

**CHAIR:** I thank each of you for your evidence and your very comprehensive submissions, which have given the Committee a lot of good food for thought. On our recent visit to Orange we did have exposure to the Centroc pipeline issue. I thank Mr Styles and his council for hosting us on that occasion. It was a very useful session. If the Committee has any further questions the secretariat will contact you. Are you prepared to answer any further questions the Committee might have? If so, would you please return your answers to the secretariat within 21 days of their receipt?

**Ms MILLER:** Yes.

**Mr STYLES:** Yes.

**Mr PERRY:** Yes.

**(The witnesses withdrew)**

**(The Committee adjourned at 1.05 p.m.)**