

REPORT OF PROCEEDINGS BEFORE

STANDING COMMITTEE ON STATE DEVELOPMENT

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

At Moree on Wednesday 6 March 2013

The Committee met at 9.00 a.m.

PRESENT

The Hon. R. H. Colless (Chair)

The Hon. P. Green

The Hon. Dr P. R. Phelps

The Hon. M. S. Veitch (Deputy Chair)

CHAIR: I declare the fourth hearing of the Standing Committee on State Development inquiry into the adequacy of water storages in New South Wales open. I acknowledge the Kamilaroi people and thank them for their custodianship of this land. I pay respect to elders past and present of the Kamilaroi people and I extend that respect also to other Aboriginals present. The terms of reference of this inquiry require the Committee to inquire into and report on a range of issues, including the capacity of existing water storages and models for determining water requirements for agricultural, urban, industrial and environmental needs. The inquiry will also examine proposals for the construction and/or augmentation of water storages in New South Wales.

Today the Committee will be hearing from representatives from Cotton Australia, Moree Plains Shire Council, Namoi Water and Gwydir Valley Irrigators Association. Before we commence I would like to 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. For any media present, the Committee has previously resolved to authorise the media to broadcast sound and video excerpts of this public proceeding. Copies of guidelines governing broadcast of the proceedings are available from Committee staff. 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 and for what interpretation is placed on anything that is said before the Committee.

MICHAEL BERNARD MURRAY, National Water Policy Manager, Cotton Australia, before the Committee via teleconference, sworn and examined:

CHAIR: Welcome, Michael. Thank you for appearing before the Committee via link-up. It is rather incongruous that you are at Parliament House today while the Committee is at Moree.

Mr MURRAY: Yes, we were having a bit of a chuckle about that earlier.

CHAIR: Should you consider at any stage that certain evidence you wish to give or documents you may wish to tender should be heard or seen only by the Committee, will you please indicate that fact and the Committee will consider your request.

Mr MURRAY: Thank you.

CHAIR: Would you like to make a brief opening statement?

Mr MURRAY: Yes. With all due respect, I think the focus of this inquiry, or at least its terms of reference, are possibly slightly off the mark. I think the bigger question is: Do we have adequate balancing of our use of water for productive use and environmental use? That is the key question and our submission largely focuses on that but, as the Committee would be well aware, under the water sharing plan framework in New South Wales all water is basically already allocated towards one form or another of extracted use or environmental use. Therefore, that issue needs to be addressed before and above we seriously talk about additional storages. I am sure there are many options for additional storages in New South Wales but if you are going to place water in it, the first thing we have to resolve is whether that water is being collected and stored for the environment or for productive use. I will leave it there for my opening statement.

CHAIR: Before commencing questions, I make the comment that that has been a focus of the inquiry deliberations had so far. The Committee is very aware of the impact that the removal of water from the industry for environmental flows has had on the productive capacity. The Hon. Mick Veitch, from the Australian Labor Party, will ask the first series of questions.

The Hon. MICK VEITCH: Michael, I am unsure whether you have a copy of Cotton Australia's submission with you but on page 4 it states:

However, unless it once again becomes the policy of the NSW Government to significantly subsidise the cost of water storage and distribution systems' capital and operational costs, then Cotton Australia could only support proposals that could clearly demonstrate that they were cost effective in both the short and long term.

One of the things about new storages and water delivery systems is that they are quite expensive. Does Cotton Australia have any views about the way governments could fund either new storages or more efficient delivery systems?

Mr MURRAY: If you can resolve any third party impact, and I have said basically all water is currently allocated to either extracted use or environment, but if you can go around that position and you have effectively got new water that you are going to make entitlements available for, I think in the world that we live in that it is fair and reasonable that at least some, if not all, of the capital costs of the new development is recouped by the sale of those new entitlements.

The Hon. MICK VEITCH: The up-front initial cost would be borne by government?

Mr MURRAY: They might have to provide the seed money or maybe if it saves people paying up front but effectively if, for instance, I was an irrigator and I was seeking a thousand megalitres of entitlement from a new dam, I may well have to commit to purchase that entitlement at the going rate, whatever that may be—that will vary depending on the reliability of the water and the value that that water can be putting it. You are currently in Moree, an entitlement there—not any annual charges—sells for around about \$2,200 a megalitre for something that is around about 38 per cent reliable. In southern New South Wales, say on the Murrumbidgee, you can buy water entitlement for somewhere between \$700 and \$800 a megalitre and I believe that their reliability is probably in the order of 70 per cent to 75 per cent at this present point in time.

The Hon. MICK VEITCH: Also on page 4 of your submission it states that Cotton Australia would only support development proposals that are proven to be environmentally sustainable. So what sort of environmental criteria would you suggest need to be considered?

Mr MURRAY: As the Committee would be well aware, we have all gone through a lot of pain over the past 10 years making decisions to divert water away from productive use and back towards the environment. To be perfectly honest, I do not think there is a right answer at all as to how much water you can allocate to the environment versus productive use. If you got 20 people in a room and asked them that question on some sort of continuum, I am sure you would get 20 different answers. I am sure also that if you went back to the same 20 people in five years time and asked where the right spot was, you would get again 20 different answers to the ones that they provided five years before. That changes with society and what priorities are at any particular time.

But having said that, there is a general rule of thumb by a lot of fresh water ecologists that if you only remove up to or less than a third of the water out of a natural system then you are unlikely to be causing any significant damage to the environment. I am not saying that does not cause any damage—if you take one drop of water out of a system then you are making a change, just as it does if you chop one tree down or build one house or one road. As of society we do those things all the time in our effort to balance things out.

The Hon. PAUL GREEN: Michael, yesterday we heard about supplementary flows. It was mentioned that about 50 per cent of supplementary flows go to the environment. Do you think that is a wise use of that water?

Mr MURRAY: That is an interesting question and, again, it is a matter of just making that decision as to where the balance goes. You are currently in the Gwydir Valley—which I was fortunate enough to live in for eight years—certainly over the last two years many would argue that far too much water has been going to the environment, even to the environment's detriment. During the middle of the drought there would have been those people who strongly argued that not enough was going to the environment. What we do have in that valley is a system that I think most people are generally happy with in terms of having a balance between the environment and extracted use as far as that supplementary water goes. Water sharing plans tend to be designed on averages, and maybe there needs to be some flexibility in these extremely wet and extremely dry years, but that is a lot harder to put in writing and have good rules around something like that.

The Hon. PAUL GREEN: One of the other things we heard about yesterday was the expressions of interest process for supplementary water. Are you happy with that process and how it is progressing?

Mr MURRAY: It appears to be me to be a little bit clunky. It comes under my understanding that the Water Management Act requires all water to be effectively ordered and that is the way of ordering supplementary water. The fact that we have no control of when the supplementary water arrives means that is a fairly clunky system. But I think that growers over the past four or five years—in fact, it is probably longer than that now—have grown used to it and can work with it. The development of the online water ordering system by State Water for at least their regulated flows, if that can be extended if it has not already—I know the plan was to have it extended to supplementary water but I am not sure whether it has made it that far yet—it would probably make the process even simpler.

The Hon. PAUL GREEN: Page 6 of Cotton Australia's submission refers to a design to improve the efficiency of current water use rather than allow for increased extraction. The example is given of a dam in Dumaresq River. From your experience, what designs or features would you recommend for a new dam and—the other pivotal point of this question—where would you suggest a new dam would go?

Mr MURRAY: My understanding is that there has been a proposal in an area known as Mingoola for some time; the concept being that you could then store that water up in the higher reaches, reduce evaporation and therefore do away with or reduce the amount of storage on-farm where there seem to be higher rates of evaporation in shallower storages lower in the valley. The feasibility of Mingoola I think needs further investigation. I am told that there is a large amount of silt that would have to be cleared—some tens of meters of silt—whether that would make it cost prohibitive or not remains to be seen. I do understand that State Water is actively looking at it as an alternative but whether it will stack up financially remains to be seen.

CHAIR: Are you referring to the Mole River dam proposal or is there a separate one on the Dumaresq itself?

Mr MURRAY: That is a good question. I am not super familiar with it myself. I had it referred to me as the one on the Dumaresq. It is certainly near Mingoola, so whether that is close to the joining of the two, to be honest, I am not sure.

CHAIR: I think it might be the proposed Mole River dam, which is just upstream from Mingoola.

The Hon. Dr PETER PHELPS: I want to continue with the line of questioning in relation to on-farm and off-farm storage. We heard yesterday from a cotton farmer who indicated that he would be happy for more dams because it allows through the process of continuous accounting for him to have less water sitting in the poorer on-farm storages that he has and to be able to draw down and put into his better on-farm storages. Do you think that would be a view held by most cotton farmers?

Mr MURRAY: In theory it would be a view held by most cotton farmers; the question would be at what cost? Basically, with the development of irrigation in the north-west in the 1970s and 1980s there were numerous proposals for additional dams, including the Gwydir Valley on the Horton River, or just below the Houghton at Gravesend, a couple of proposals there. Basically, the capture is the water that is now available as supplementary flows and now stored in on-farm storages. Effectively, the proposals were put forward and the Government made a decision that it would not invest in further head water storages, so the investment shifted from public investment to private investment and the on-farm storages were built. Obviously those are already in place.

If you could come up with a cost-effective proposal that allowed the new storages to be built higher up and deeper storages—and that no doubt would then require some decommissioning of the on-farm storages—as they were cost effective I am sure it would be something that growers would look at. Dams are very expensive. The running costs for a dam whether big or small seem largely similar; therefore, costs basically are how many megalitres of storage can you share those costs across? It makes it very difficult to see how a smallish dam could actually be cost effective. I have not crunched any numbers and I would be certainly happy to see people look at that exercise. I offer a bit of a word of caution that the acceptability of such a proposal would depend very much on the costs, both capital and ongoing.

The Hon. Dr PETER PHELPS: Is there also an argument to be made that for the amount of money it would cost to build a new dam or a new series of dams, which are acting essentially as reservoirs, that money could be better applied, if it were available, to improving the quality of on-farm storage—in other words, to have deeper, smaller surface area dams?

Mr MURRAY: Certainly that would be well worth pursuing. You are probably aware that as part of the whole Murray-Darling Basin plan there are a number of programs available for on-farm irrigation efficiency work. The one in the north has certainly had, from the growers' point of view, some attraction to use that money to make their on-farm storages more efficient. There does appear to have been some reluctance by the people managing those programs to invest in more efficient on-farm storages.

The Hon. Dr PETER PHELPS: Why do you think that is?

Mr MURRAY: I am aware of some projects being approved and other projects apparently being knocked back.

The Hon. Dr PETER PHELPS: Were any reasons given? What was the golden touchstone which said one project should go ahead and another should not?

Mr MURRAY: One of the frustrations of these projects is a shortage of feedback from the people making the decisions as to why one project was approved and one knocked back. So it is hard to answer that. I suspect if someone puts in a proposal and say I want to increase the dam walls on my storage and put some shelves in, I want to go from four metres to eight metres, counter intuitively the people who are making these assessments are thinking, "Gosh, here we are, trying to provide more water for the environment and we are funding what in effect could be argued to be a bigger dam." The truth of the matter is that I understand if people are going to do that they either have to decommission some other storage or they are limited by their licences and how much water they can take. So it is not actually a valid argument but, as I said to someone yesterday, if we all followed logic we could run the world with a computer. Fortunately or unfortunately, people are not as logical as we would like.

The Hon. Dr PETER PHELPS: Let me go a step further and that is putting on my strict economic rationalist hat, which sits very comfortably on my head. A farmer who has an inefficient on-farm water storage regime is basically squandering his or her own money, are they not?

Mr MURRAY: To a degree, yes.

The Hon. Dr PETER PHELPS: And the only reason the State should be interfering with that—well, there is no reason the State should be interfering in the private practices of a business other than by imposing some sort of external requirement for environmental flows. In other words, by rights the State should not be interfering in what ordinary farmers are doing but they have done so because they have now put this additional burden on catchment areas to provide for environmental flows. So, as a consequence of that, they have to find water which means they have to start telling farmers what they should be doing with the water which they have on farm.

Mr MURRAY: To be fair, I guess they are suggesting to farmers what they may do but there is no compulsion in this. At the end of the day you are largely right, and farmers probably for the past 25 years or thereabouts have been moving more and more to efficient storages. Efficiency in their own work for some storages on a whole range of things. It is a major driver for them. If you are a Gwydir Valley irrigator and you are paying \$2,200 a megalitre for an entitlement that is only 38 per cent reliable, you have a lot of economic incentive to be as efficient as possible. I am not sure which properties you visited while you were there, but there is certainly an example in Moree where they spent over \$1.6 million to completely decommission without any government money.

They completely decommissioned a storage, built a brand-new state-of-the-art storage and believe they have effectively saved themselves 900 megalitres of real water year in, year out. What the Murray-Darling Basin programs do, I suppose, is provide that little bit of extra incentive to push people along and possibly bring some marginal projects just over the line. But in terms of the bigger question as to whether governments should be investing in water storages at all, certainly in the past there has been an argument that irrigation boosts regional economic development, and I think that is still a valid argument within reasonable bounds.

The Hon. Dr PETER PHELPS: That leads to my final question to you. Are you concerned, as some farmers have been, that there is a current misallocation, an overallocation, of water in the existing systems to environmental purposes? We had stories of water flooding into privately held lands at the end of the Gwydir River where it moves into wetlands—such an overallocation that this water does not merely stay in the wetlands area but actually overflows into surrounding private lands. That would tend to indicate there is an overallocation of water to environmental purposes.

Mr MURRAY: I would very much agree with that, particularly in the fact that the Government, both New South Wales and Federal, have not been able to adequately demonstrate via a sound environmental watering plan or even sound environmental watering objectives as to what they want the water for. Particularly with the Murray-Darling Basin plan, the Gwydir example, they actually admitted that the New South Wales water sharing plan arrangement provided adequate water for the Gwydir wetlands as such and then went on to argue that they then needed the additional water for other unspecified environmental targets. They said they want to restore flows to the 80 percentile down river systems. In doing that we will improve the number of native fish or reduce the amount of turbidity or whatever you may like it as an environmental target. Effectively, they have now bought 20 per cent of the regulated water—it is more than that; 22 per cent or 23 per cent of that regulated water—without any clear plan as to how it should be used, how to use it, what will be the benefit to the environment?

The Hon. Dr PETER PHELPS: Do you think there is an institutional bias against cotton amongst the State and Federal environment departments?

Mr MURRAY: I think generally across the community there has been poor understanding of cotton and its use of water. I guess that is reflected to a degree within government departments. Having said that, when you deal with bureaucrats and policies on the whole they appear to have a better understanding and realise the fact that cotton is an annual crop and therefore it is much better capable of dealing with the stresses of variable allocations than permanent planning crops. Certainly in terms of water usage there has always been a perception that cotton is a thirsty crop. If you plant a cotton crop and a corn crop side by side in the same climatic area and they are all going to basically use the same amount of water per hectare growing as irrigated crops over summer.

The Hon. Dr PETER PHELPS: So you think they have a better understanding now than they did a decade ago when the water sharing plans were devised?

Mr MURRAY: Yes, certainly, that has improved. It is nowhere near perfect but they certainly have improved their understanding.

The Hon. Dr PETER PHELPS: Is that not an argument for reconsideration of the plans?

Mr MURRAY: I think the Gwydir water sharing plan in itself is probably not a bad document. The local irrigators, who you will hear from later in the day, will be better placed to provide comment on any particular tweaking that they may like. But over and above the plan there have been purchases by both New South Wales Riverbank and the Murray-Darling Basin plan or the Commonwealth department, but it is questionable how that level of purchasing can be justified through unspecified environmental outcomes.

CHAIR: The property we visited was Keytah. I am sure you are familiar with that place.

Mr MURRAY: Yes.

CHAIR: We were very impressed yesterday with the research that they are doing in conjunction with the Gwydir Valley irrigators into water use efficiency from different irrigation techniques. What is Cotton Australia's view of changing the methodologies of irrigation if it can be clearly shown that there are substantial water savings to be made?

Mr MURRAY: We would certainly support it and irrigators will do that anyway. As mentioned before, there is a great and strong economic argument, given the importance of it and the expense of an irrigation entitlement to make sure that is used as most efficiently as possible. I was fortunate enough to be around for the inception of that trial and I am certainly familiar with the first year results, but have a reasonable understanding of the second year results. What that showed out there on those particular soils was that in terms of efficiency there was virtually no difference between the efficiency of those four systems on those particular soils and certainly no economic argument that would mean that on the basis of those results you would shift from an efficient thorough irrigation system to either drip or lateral move in that case.

Not only are there significant capital costs involved in that shift but also, and increasingly so, there is a huge annual energy cost involved in that. Having said that, it is on that particular property with that particular soil. If you go down to the Macquarie Valley where they tend to have redder soils, there is probably very much an economic argument for moving over to a drip or lateral system. Even in the Gwydir Valley a number of farmers have invested on their soil type and their particular layout on lateral move systems. The lateral move systems in the Gwydir have been particularly cost effective in greenfield irrigation development but not so cost effective if you are having to convert an existing efficient furrow system across to a lateral move system.

CHAIR: The results that they gave us yesterday showed that a normal furrow irrigation system used 6.14 megalitres per hectare to grow 11.6 bales, compared to the lateral system which used 4.32 megalitres per hectare to grow 13.4 bales. I take on board what you are saying about the cost of land redesign and the energy requirement and so on. But as the price of water increases, and, as we are led to believe by the global warming fraternity, that water may well become more constrained in future years, surely the industry needs to be looking to some of those systems which can effect two megalitres per hectare savings?

Mr MURRAY: Yes and they will. But I strongly caution about the exploding cost of energy and what effect that has on the profitability of making that sort of switch. It will be one of the great balancing acts as far as irrigation is concerned over the next decade is balancing pressurised systems and potential water savings from them compared with the gravity-fed furrow systems and it will be interesting to see how that pans out. I have just been heavily involved in electricity pricing arguments in Queensland, which is not dissimilar to the same situation in New South Wales, and the movement away from basically just straight unit charges on existing use to the requirements for demand charges to cover overall network costs, it has the potential to blow pressurised systems completely out of economic reality.

We are looking at situations, to use one example, we are currently using the equivalent of I think \$22,000 of electricity per year without using one kilowatt more of electricity but being forced on to a demand charge tariff system, we will be looking at \$76,000 worth of electricity. Those are the sort of impacts that are

currently being felt or about to be felt by many irrigators and will significantly impact on the cost-effective argument for moving to pressurised systems.

CHAIR: I take on board the comments you make in your paper about the urbanisation of water and the taking of irrigation water for urban uses. Is there any potential for large-scale recycling of urbanised water on the eastern seaboard and bringing it west? At what stage in the energy and water price structures would that become a reality?

Mr MURRAY: Moving west if you have to lift it or drill through the Great Divide is almost certainly going to be cost prohibitive unless you can come up with a very cheap energy source to do it. There must be opportunities though to use recycled water within, say, the Sydney Basin to a greater extent. Also, I believe areas where there are opportunities for more dams would be within that Sydney Basin catchment area to provide the requirements of Sydney and some of the other parts of the eastern seaboard. I guess my concern is that the easy option for a city like Sydney would be to say, "Well, let's build a pipeline up from Burrinjuck or Blowering Dam and tap into that supply." In terms of what a city can pay for water compared to what irrigation and agriculture can pay for water, there is no comparison. It just is a risk to be an easy option and a relatively short-term fix option rather than serious planning to meeting the requirements by increasing storage.

CHAIR: On page 8 of your paper you comment:

The key constraint to increasing water storage in NSW is not engineering and it is not finance, it is the policy positions of the NSW Government and the Federal Government ...

Can you make any further comments on that?

Mr MURRAY: The key thing started off saying that at the moment effectively with the water sharing plan framework all water is allocated either to environment or extractive use. So you have to make a decision, as the Government's saying, "We believe our future requirements are going to be for both urban use and irrigation industrial. We need to increase the amount of water that is available to those sectors." That will come at a cost to the environment. Hopefully, it comes at an acceptable cost to the environment. And as I started off, you really have two extremes. You can have a system where you take no water out of it at all and it is a completely natural system to the extreme where you take every drop of water out of a system and use it for other uses. The happy medium is somewhere in between. As I mentioned, most fresh water ecologists talk about round about one-third mark that will not result in any significant damage. Certainly in the northern part of the State we operate largely at below that one-third mark. Knowing the different volumes of water that flow down coastal rivers, it is probably very much below that one-third mark. There are opportunities to do it, but it does take that decision that you are prepared to rebalance. We have had at least 25 years or more of moving water away from extractive use back to the environment.

The time will come at some stage where that process will have to be reversed to some degree. Engineering solutions will be found. They have to be cost effective. I am not a great fan when people talk about re-diverting the Clarence and things like that. Effectively, if irrigators have to pay for that in its entirety, it will not be cost effective. Now government may decide for a whole range of reasons—for economic and regional development—that something like that might be worthwhile and they might be prepared to share the cost, but today we are in an environment where, effectively, there is some sharing of water storage costs, those costs can be sheeted home to irrigators, have been met by irrigators and in many cases those costs were just getting lineball as to whether irrigation is economic. If those costs were to increase significantly, there would be no doubt that people would say, "Well, it's not worth us doing it." It is a matter of getting that balance right.

CHAIR: Thank you. I turn now to Mr Veitch again for some more questions.

The Hon. MICK VEITCH: This Committee has had the opportunity to observe a number of on-farm trials in the southern and northern inland river systems that actually were aimed at deriving greater water efficiencies on on-farm usage. Keytah is conducting a number of trials. Essentially, it is self-funding its R and D. Does the Government have a need to increase its funding levels for research and development around on-farm water efficiencies?

Mr MURRAY: I think the area mainly to have funding increased is not so much research and development but extension. There is a lot of knowledge out there across the industry that has not been fully taken up. Like any industry, you have early adopters who jump on board. Or when they jump on board they make a few mistakes, but at least they are prepared to have a go. You have the next wave that sees the benefit

and then it is always a lot harder to bring the bottom 40 per cent to 50 per cent along. We are seeing less and less government investment in extension. I think that is possibly where an emphasis needs to be placed. That is not to say that the R and D is not very important and needs to continue to be funded, but if someone said, "Look, I've got X extra amount of money to be spent on either research, development or extension" my suggestion would be that that X extra goes into extension.

The Hon. MICK VEITCH: In a number of submissions and much testimony we have obtained across the State there are mixed views about whether some State-owned dams have a role in flood mitigation. There are a couple of stray reviews around maybe the flood mitigation roles of our water storages or whether there is any flood mitigation?

Mr MURRAY: I think those dams that have been built for flood mitigation certainly have an ongoing role and, therefore, they have to be managed accordingly to allow that mitigation to occur. If any pose the risk for any particular reason, there may be arguments to say that dams that do not currently have genuine flood mitigation capacity may need to be modified to provide that capacity. But, honestly, it is not an area that I have given a lot of thought or detail to.

CHAIR: I turn now to the Hon. Paul Green for a few final questions.

The Hon. PAUL GREEN: On page 5 your submission talks about the availability of water for irrigated agriculture sectors and basically suggests that new dams be built on the coast to meet urban and industrial demand. Could you comment on how competition from urban and industrial users impacts the water supply available to your agriculture sectors and the environment?

Mr MURRAY: As I outlined earlier, I think the easy option to meet urban and industrial demand along the coast is simply to put pipelines back across to the head water storages on the western side that currently are supplying water from an extractive point of view primarily to agriculture. Therefore, that will further diminish the amount of water available to irrigated agriculture. Certainly, there are large water flows along the coastal rivers. It would seem to me to be a fair and reasonable option to build dams and storages on some of those rivers again in an environmentally sustainable manner to meet that urban and industrial demand along the coast, rather than just taking the option of drawing water from the west and taking away from irrigated agriculture.

The Hon. PAUL GREEN: Do you have any suggestions of where you would start on the coast if you were building a new dam?

Mr MURRAY: Again, I am not an engineer. I have not seriously looked at that. Obviously, there was the Tiliga Dam proposal. There certainly are proposals on the Shoalhaven River. I would be suggesting that those are starting points to be either ruled in or ruled out before looking at other options. But there are people much better placed to talk about the engineering and hydrology advantages of one site over another than myself.

The Hon. PAUL GREEN: Thank you.

CHAIR: Mr Murray, that concludes our questions to you. Thank you very much for attending this hearing. The Committee has resolved that answers to questions taken on notice be returned within 21 days. The secretariat will contact you in that regard, but if we have any further questions of you as we proceed through the transcript, are you prepared to return answers to any further questions 21 days after receiving them?

Mr MURRAY: Yes, I would be delighted to.

CHAIR: Again, thank you very much for appearing before us. I am sorry that we could not meet in person. Once again, the incongruity of you being in Sydney and us being in Moree has astounded us all. Thank you all the same.

(The witness withdrew)

(Short adjournment)

DAVID JOHN ABER, Moree Plains Shire Council, General Manager, and

DAVID LLEWELLYN WOLFENDEN, Moree Plains Shire Council, Water and Waste Manager, sworn and examined:

CHAIR: If at any stage you consider that any information you want to give to us should be kept confidential, could you let the Committee know that and we will go in camera and take such information from you. Would one or both of you like to start by making a short opening statement?

Mr ABER: Thank you for the opportunity to give a statement to this group. One of the things that we have been focusing on, probably for the past 10 years, is looking at the sustainability of the local government area and the community within the area. So that a lot of the information we are about to give you is about how we are actually looking at that, what are the issues coming out of that and the issues, policies and plans we are putting in place to try to address the issues. We will not be able to address them all, but we are looking at things. A lot of that centres around water and the supply of water to the community. It is something that I noticed in my career: I spend 10 years fixing the problems created in the last 10 years of policies and programs.

It is a cycle we move through, but in respect of this last decade, for us it has been a decade of looking at the financial situation, looking at the sustainability of the community and looking forward to putting in place the strategic plans we have in place to address those issues. Water storage and water usage is a significant part of it. You are aware of the geographic location of the river source, but one of the interesting things about living and working on the Moree plains is you are in the middle of a river delta system. That river delta system is what makes such a great irrigation area. A lot of the old streams and creeks have been used for the delivery of water for irrigation properties throughout the shire. It is probably not insignificant that when I arrived here in 98 about 70 per cent of the shire was under water because of the floods. Water and this shire have a close and intimate relationship.

Certainly storage in respect of the Moree council and the urban supply are not significantly an issue for us. Primarily, they are used by the irrigation industry. I know you have been talking to the irrigation industry about that, and I would rather let them speak for themselves, I will not speak on behalf of them. I will stick to what our interests are. We have public water supplies. You can appreciate in 17,500 square kilometres there are a number of villages and towns we have to service. We provide public water supplies to the towns of Moree, Mungindi, Boggabilla, Toomelah village, Boomi, Weemelah, Gurley and Pallamallawa. They are urban supplies. We have the challenge of having one main centre of around 9,500 people, 10,000 depending on the circumstances and how you calculate it. We have that as a main economic driver but then subsidise urban supplies to a number of towns and villages right throughout the shire.

Of those sources, we use surface water, groundwater and we also use our own natural catchments to capture the water and use it for urban supply. The surface water we use for three communities and that means we have to pull treatment plants in. For smaller towns of 600 people and less it is a significant and costly exercise to do that. Frankly, the people would not be able to pay unless we subsidised it with Moree town water supply. Groundwater is used for six communities; we are using shallow aquifers and the deeper aquifers of the Great Artesian Basin as well as the subartesian basin for Moree. The Border Rivers, Gwydir River and Copeland dam catchments are all a significant part of that supply.

One of the things we are concerned about is if you look at the pattern of urban consolidation that goes on in rural regional areas you start to see a pattern, particularly with the smaller villages, of fairly rapid decline. The major towns are holding their own, or sometimes the major cities outside of these areas are continuing to grow at a slower rate. The issue that we are facing is that while we have such high production going on here, and there is a significant production around 750 million to 1,000 million in GDP coming out of the agriculture areas here, sustaining that activity actually needs an urban population around it to provide the base for the workers and their families. The challenges, of course, are increased mechanisation, the higher dollar and all the things that are higher prices for inputs that are driving a higher level of mechanisation within the shire that is making it more difficult in terms of people staying here.

We are losing rural population. About 3,500 people left the rural area of the shire over the past ten years because of drought, the difficulties of living there and primarily because partners do not want to be left 70 kilometres out of town with nothing around and no support. One of the things that is quite noticeable are areas where there were four families living in a two to three kilometre radius but now there is only one house with

someone living in it. Farms are bought up and consolidated into companies or large family holdings. You are seeing that move and it is becoming more of a fly-in fly-out workforce, where they do the job and move on to the next one. It is a contracting thing. That is evident in simple things like the need to provide mobile phone coverage because all the coordination happens through mobile phones and the amount of traffic that gets generated from that is significant. In fact, I remember when we first put the tower in at Mungindi in 2000. The council sponsored it to go in there and were told it will never get enough usage, you are wasting your money and wasting your time, but One week into the first trial of it operating it was actually reaching its capacity.

The Hon. Dr PETER PHELPS: I Hope Telstra gave you a finder's fee for that one.

Mr ABER: They were partners in it, which was good. It did highlight the need and since then we have been able to cover most of the shire. There is only a small part of the shire that does not have direct mobile coverage with hand-held phones. If you have aerials, you are right. We live and die on mobile technology around here. Back to the water, groundwater essentially for the Moree area is a significant supply source for us. It has taken us through the worst drought in the millennium without any issues about supply. We continued to maintain supply right through the drought. In fact a lot of Sydney visitors were complaining we were watering our gardens and lawns and they could not and we were wasting water. We see it as one of the issues of sustainability, how do we grow? This community supports the agriculture industry. The burden on us is that we have a transport network of around 3,000 kilometres of road. We need to maintain that. With a population base of around 15,500 people, it is a very tall order.

Yes, we rely on government grants, and the FAGs grants and the Road to Recovery grants. But increasingly we are finding that grants tend to be pegged and held back and we are losing the growth structure behind that to support the infrastructure. We had a \$7 million to \$8 million shortfall about two years ago—it is probably more now—in the road maintenance budget. We are classed as moderately sustainable and we have done a fair bit of work with the rate increases to address the problem, what we have done is sustain the bitumen road network within the shire. We have drawn up the funding to ensure that the bitumen road network is maintained, but we are neglecting the gravel section and the sealed section primarily because, one, it is damaged every time it floods, which is regularly up here, and two, it is a significant cost to keep that network going. How do we actually run an economy with a declining resource? We have seen that we need an economy that starts to value-add to what is going on in the rural sector, value-add with the artesian basin and the marvellous access to hot water and development of the spa baths. I hope you get to enjoy it.

CHAIR: One of our number did.

The Hon. MICK VEITCH: The relaxed one.

Mr ABER: She looks five years younger already.

The Hon. Dr PETER PHELPS: Sixteen.

Mr ABER: They are all important things to us. If we double the population in Moree that is equivalent to around—I worked it out to be a 10 per cent increase in our rates. We went through a lot of pain over two years to get a three by three per cent increase out of our community to sustain the bitumen roadwork. The primary thing is if we keep losing population we are losing rate numbers because what consolidation is doing is turning the burden into smaller numbers of notices. The rural sector is saying we are paying too much in rates because they have three properties amalgamating into one and suddenly they are paying three times as much. We already pay three times as many rates. You get all the stories. We have to find a way of saying we need this for this economy, we need to match our income to provide the transport network needed to do it, and that is the dilemma we are facing. One of the platforms has to be maintaining the population in Moree, but also increasing it.

We know we have the water supply and reserves to do that. We have the economy base in respect of the turnover with the rural sector, the ability to do that and look at value-adding in terms of what we could do with things in there. Maintaining the water supply is one of the crucial things. We have the basis, particularly with the sewage treatment works and supply network, to take 5,000 people in town without having to upgrade the infrastructure. That is the sort of situation we can deal with.

CHAIR: What is the population of Moree?

Mr ABER: It is about 9,500, 10,000. To be frank, if you look at the treatment works it is probably 10,500 people. The old engineer in me tells me the sewage treatment works are a better guide of the population than the census and there are a lot of people in Moree who do not fill in the census form. That is a problem for us because all the State Government services in respect of hospitals are based on population. The demand is there but there is no basis or backup to meet the demand through the census and the planning mechanisms used for that. We are particularly looking at tourism as a major thing in terms of baths. We have had to update the pool because it was an aging piece of infrastructure that needed replacing and fixing, so we have done that. We are looking at a business method that re-establishes the spa industry, particularly around the wellness and the luxury spa industry where we could double the turnover.

One thing about tourism, for every \$1 million you will generate four to five times the jobs than in the rural sector. It is jobs we need to create. We need to create entry level employment with the Aboriginal community to deal with the social problems and we need to provide a support base for professional families who are coming here by providing the services and things they need to remain in town and feel safe and welcome so they can raise their families and continue their professional association with the rural industry. Those things are important for us. Sustainability is really about moving into that economic role, ensuring that we have the supplies that we need to do that and then doing whatever we can to facilitate that.

I must comment that one of the problems we face is that when what we are doing does not fit in with the Federal Government plans or State Government plans it is hard to get assistance. It may be because we are moving in areas that are not the current flavour or direction that the governments are moving into. Quality is important to us. Surface water is an issue, primarily because you need treatment works there. The rivers do not flow clear out here, they flow turbid. We have a fair bit of chemical stuff we have to watch and settlement deposition over the intakes. A couple of times we had to dig out the intakes because the deposition closed them off and we lost supply. Groundwater is a convenient resource for us, because it comes out clean. All we do is chlorinate and fluoridate and basically it runs through the system. It is very cheap. That also compensates us because we realise we are flat. A lot of pumping goes on to move water around where you would not need to if you had gravity on your side as in the coastal areas.

We are probably looking for protection from future resource development. We need to maintain a level of extraction so the groundwater resource is not worked out. We need to maintain that and maintain the access to it. If we move into using river sources as a back-up then you need to talk about more expensive treatments and other stuff that goes with that. Turning to quantity, we have had a sustained a drought. We are not worried about quantity. We are pretty comfortable with what we have. Our projection is that the licences we have can handle the significant population growth with what we have as well. Drought, the biggest test was up to 2011 and we have come through that well and continued supply without being in any difficulty. One of our outcomes—

Mr WOLFENDEN: We had to lower one of the pumps.

Mr ABER: The aquifer dropped a bit.

Mr WOLFENDEN: There was competition from some of the irrigators and the water level dropped. We had to chase it down.

Mr ABER: The other thing for us is if we are right on river sources. One of the problems we do have is if you get a release from the dam when you are in the middle of the grips of a major drought you may not get the water because you have to deliver a fair bit of water to get a small amount at your pump site. It is driving a lot of the policies within the region of piggybacking releases so you are reducing the losses to deliver your water.

Mr WOLFENDEN: It is critical for us in all towns, you need the water, you are sweating on it and it does not turn up and then you have got none.

Mr ABER: The consumers we are competing with are the irrigation and farming industry. I heard Mike talking about the industrial uses, things like that. There are industrial uses here, but we are looking at—with our water supply—focusing on beneficial reuse. One of our programs has 100 per cent of our treated sewage water being reused for the growing of cotton, sustaining one of the best inland golf courses around, irrigating the playing fields such as Harborne oval and maintaining the cemetery. We are putting a strong emphasis on beneficial reuse. That has been our motto over the last few years—whatever we can turn into a product that is waste is what we have been trying to push.

That is driving some of the thinking behind a project we are calling the Green Precinct in the waste management facility. We are aiming to take what we call spent spa water, the water that flows through the pools, from the artesian basin. There have been concerns about the salt flow going into the Murray Darling Basin. We are looking at creating a water storage area for water skiing, but then using that storage as a holding pond for taking on further industrial use as well. We are looking at industrial partners, who will take that water and use it for economic use as well. We are not trying to waste anything, we want to make sure it has that multiplier effect and moves on. So, in a sense, the water skiing club is borrowing the water on the way to some other use and it provides a recreation that has been denied to the community for some time. The local weirs have been held too low for water skiing any more. That is the main point.

Primarily, from our point of view, yes, we have adequate supply. If you are thinking about more supply for urban areas, we can cope with double our Moree population with the licence we have and what access we have. At a pinch, we may need to increase licences depending on water use, but current policies and current driving of urban water use, I think, are maintaining the point where we can do that. Then, really, the focus for us is how we generate an economy and maintain an economy here that will maintain a population base that can look after the infrastructure that supports it. That is the dilemma we are facing.

CHAIR: Thank you. Before I continue, I welcome the member for Barwon, the Hon. Kevin Humphries. Welcome, Minister. It is great to have you along at our hearing and thank you for hosting us in your wonderful town.

The Hon. Dr PETER PHELPS: Just proving that upper House members do work.

CHAIR: Is there anything you would like to add, Mr Wolfenden, or should we go straight to questions?

Mr WOLFENDEN: Straight to questions.

The Hon. Dr PETER PHELPS: I would like to take you to the recent experience you had during the drought period when Copeton Dam was down to 5 per cent. What level of water restriction did you have to go to in town during that period?

Mr ABER: The only time we applied water restrictions was when the pump failed.

The Hon. Dr PETER PHELPS: Essentially, you are not as dependent upon the water storage facility as other towns around western New South Wales which rely upon that downstream for dams for their town water supplies. You mentioned the aquifers were under a bit of pressure during that time. Can you detail more about that?

Mr ABER: We experienced that. David said one of the outer pumps—there is basin under Moree—on the edge of the basin, we had to drop it down further to get a reliable supply. In other words, the top of the water level had dropped a little bit.

The Hon. Dr PETER PHELPS: So, you were confident that if you doubled the size of the town the recharge for that aquifer would be enough to keep the town without having to draw upon Copeton's resources?

Mr ABER: The cynic in me says every time they run an irrigation supply down near the aquifer it is recharging. It got to be interconnected between the river system and underneath here. Certainly it is not just that simple. There is a very large resource and it is not overallocated. Provided the current levels of allocation are maintained, we are pretty confident.

CHAIR: There are irrigation extractions out of that as well?

Mr ABER: There are irrigation extractions out of it as well.

Mr WOLFENDEN: And nearby.

Mr ABER: And it may well have been some irrigation extractions affecting them.

The Hon. Dr PETER PHELPS: Would they be regular extractions? Surely they would only be for use during particularly tough periods when they could not get the general allocation fulfilled?

Mr ABER: I know irrigation farmers are relying on the groundwater resource.

CHAIR: Some irrigators actually have surface water entitlements as well as groundwater entitlements, and use them both?

Mr ABER: Yes.

The Hon. Dr PETER PHELPS: You are saying some rely solely on groundwater?

Mr ABER: I know one who relies on it, but he is not a big farmer. That's the thing. There are areas around some of the urban areas like Biniguy that have individual pumpers. If the irrigator draws too much, the pumps run out for a couple of days until they are recharged.

The Hon. Dr PETER PHELPS: Just as a reminder?

Mr ABER: Yes.

The Hon. Dr PETER PHELPS: Just in relation to your sewage reuse, you say 100 per cent sewage is treated for reuse. To what level is that treated, to near potable?

Mr WOLFENDEN: It goes through a tertiary pond, tertiary treated. It is not near potable, but—

The Hon. Dr PETER PHELPS: But it is up to industrial use quality?

Mr WOLFENDEN: It is okay for putting on playing fields, irrigation farms, okay for that level use.

The Hon. Dr PETER PHELPS: How much water would that involve?

Mr WOLFENDEN: It has gone down in recent years. People are getting more conservative with the amount of water they are using and less people in town. It has dropped off—less than a megalitre a day.

The Hon. Dr PETER PHELPS: Do you find that experience was thrust upon you, or was that an initiative? Did it come through necessity or because you wanted to improve your green credentials, if I can put it that bluntly?

Mr ABER: No, we do not think about improving green credentials so much as it was a way of reducing the cost, because we are selling the water. We are making a small profit.

Mr WOLFENDEN: It addresses the load-based licensing fees as well. It pulls that down.

The Hon. Dr PETER PHELPS: What about the smaller towns in your shire? You have got the economies of scale here in Moree. What systems are they on, is it tertiary treatment and then into the local creek?

Mr ABER: It is not tertiary.

The Hon. Dr PETER PHELPS: Maybe even secondary.

Mr ABER: Mungindi is probably the closest to that where we treat. Some of them have a water supply and their own individual treatment, septic or bio-treatment. Ashley is just a holding point, an evaporation pond.

Mr WOLFENDEN: It goes to the evaporation pond, holding pond. They are small communities. Boggabilla goes to a holding pond and it evaporates. It is not a large volume. If you had a nearby user, you could talk business, but you have to have someone with the commercial capacity and ability to use it.

CHAIR: We are only talking a few megalitres a year?

Mr WOLFENDEN: Not a lot, that is right. Whereas, Moree is significant. It is significant property taking in the majority of the water for agricultural purposes, which is terrific.

The Hon. Dr PETER PHELPS: Essentially, from our perspective, we are looking at water storage. It is not as crucial an issue for Moree, for your shire, in respect of urban and industrial, because you can meet that demand through existing things?

Mr ABER: Yes.

The Hon. PAUL GREEN: What are your biggest industrial uses?

Mr ABER: That is a good question.

Mr WOLFENDEN: There is ice production.

Mr ABER: Ice production is probably—

The Hon. MICK VEITCH: Not crystal meth?

Mr WOLFENDEN: No.

CHAIR: They do not know about that stuff up here, Mick.

Mr ABER: I think they do. I think they may have been importing it from somewhere else, though. I hope we are.

The Hon. MICK VEITCH: Sorry, I could not resist.

The Hon. PAUL GREEN: Is that all?

Mr ABER: Industrially, most of the industry around here is about the manufacturing of steel works, so it is your pump gates, your structures and sheds, things like that. There is a fair bit of that around.

Mr WOLFENDEN: The biggest use is schools and probably motel based.

Mr ABER: Motels, concrete plant.

The Hon. Dr PETER PHELPS: Just on that point, someone was saying tourism is now your second-biggest money spinner. Would that be right for Moree?

Mr ABER: No. Tourism is worth about \$50 million a year to our local economy.

The Hon. Dr PETER PHELPS: What would be bigger than that? Of course you have the agriculture productions.

Mr ABER: Probably even beef production in this area would be bigger than that. The wheat and the cotton are the key ones that drive the economy.

The Hon. PAUL GREEN: We talked a little bit about environmental uses, but some submissions have been critical of the influence of the environmental groups on water storages and water diversion schemes. What has been your experience of environmental requirements and groups in regard to water storage?

Mr ABER: Certainly there is pressure on us to conform. Although, I suppose we are enough over the sandstone curtain to want to ignore it a bit. We are probably more driven by getting the best use of what resources we have. A council in these areas basically is driven by getting the best out of whatever resources you can get, because you frankly do not have the money to do what everyone wishes or desires. Even though you are hearing that stuff and people saying you have to conserve water, as we said earlier, during the drought, we were able to water our gardens because we were not under pressure. One of the things we were conscious of was that our tourism industry, okay, it is only of small value, but in respect of the employment sector within the town, like the things it drives—restaurants, accommodation, things that people enjoy here—it is a major influence.

I can understand the comments come that way, but keeping the place looking green, keeping the playing fields green, and keeping people active, they are all important. That is what is driving us more. You get the criticism, and you are getting people saying you are wasting water. Primarily, we are controlling fairly effectively through our pricing structures water demand. We are not charging Sydney prices for our water because, primarily, we are in a region that is competing against each other in a number of factors. You cannot overprice your water and sewer supplies in relation to the bigger neighbours around us. Basically why would we set up here, we can go over there. It is a balance we have to maintain all the way through in doing that. The hardest part for us is that we have invested \$3 million in the reuse scheme of the spa water and that has probably been driven by environmental concerns and the environmental things, because, frankly we discharge about a megalitre a day into the Mehi River, and that is probably what keeps it going sometimes. We will take it out, and basically the Mehi will tend to dry if we stop doing that.

The Hon. Dr PETER PHELPS: The Mehi is not permanent?

Mr ABER: No, it is not.

The Hon. Dr PETER PHELPS: It gets down to a trickle.

Mr ABER: It gets down to a trickle and the water that is diverted is being diverted to supply irrigators further downstream.

CHAIR: But that applies to a lot of urban communities along the river, does it not? They all put their megalitre or two, whatever it is, into the river and that is really the base flow for the river during dry periods?

Mr ABER: Yes. We have to think about in the future and how much we provide a base flow that continues and reflects what has been there before.

CHAIR: Maybe that flow should contribute to the environmental flow?

Mr ABER: Yes. But then we are looking at potential growth going from 400 megalitres a year to probably 800 for us in the hotel and other industries that people can take up licences. Certainly there is a base load that can stay there. We can use it, and we can use it economically for other areas. Primarily, we can supply it cheaper than Sydney for some industrial uses linked to our agricultural production. Why should not we have the plant here and provide a high security water supply that people cannot have in some of the other areas? Because day in, day out that water is going to be coming out of the artesian basin to be available for use.

The Hon. PAUL GREEN: What water are you supplying over your sporting ovals?

Mr ABER: Treated effluent. In town, in some of the other ovals we are using urban water. We have the option of using effluent if we need to.

The Hon. PAUL GREEN: One of the other terms of reference is about augmentation of water. This question is to do with that. Do you consider there is a need to augment any of the existing storages or conduct new storages?

Mr ABER: Augment or construct new? One of the things we are noticing with the Murray-Darling Basin and the allocations in terms of the environment and the discussion around that is that we are the first port of call in terms of purchase of licences. We have already basically had the drawdown. It has effectively taken the bounce-back out of this last two years that we would normally have got from an irrigation bounce-back after resupply. So instead of bouncing up and then activity dropping as the drought drops we have gone up and will probably try to maintain more of a steady flow.

The Hon. Dr PETER PHELPS: All the lows, but none of the highs.

Mr ABER: Yes. If you look at Moree's population, the highs bring the people back. You get three-quarters of the people back that left and then it is gradual. This time we will not get the population back that we would have expected. That has been driven by not only the water availability, but also the mechanisation and the degree of mechanisation that has been going on. It is becoming highly skilled. It is not the sort of sector anymore where people can go in untrained and start working. People have very expensive machinery.

The Hon. Dr PETER PHELPS: And the mines offer better money and stable employment, no matter whether it is drought or flood.

Mr ABER: Yes, but we have an Aboriginal community that is wedded to the area who do not move and who desperately need, from our point of view, entry level employment to get their lives re-established and start to get social norms back into the community. It is important for us. We see entry level employment creation as a major driver in dealing with the social issues that we are facing here.

The Hon. MICK VEITCH: Orange City Council provided the Committee with a presentation that highlighted their very detailed analysis of historic water use patterns in their city, and then they used that detailed analysis to extrapolate 50 years in advance their city's water requirements. They then developed a strategy to secure their water needs for those 50 years. It would be fair to say that in that part of the State that strategy is a bit contentious, but they have done quite a significant amount of detailed work. In fact, I was impressed with the detailed work they have done. Has Moree council done anything to that extent?

Mr WOLFENDEN: It is early days for us. It is something we are currently looking at and doing some base work on, particularly on the availability side, but with the population reduction it is interesting to work out what the population curve might look like. If we plan to double our population, say, which is what we are working towards at the moment, the question is: Do we have the infrastructure to support that in terms of sewerage, water and waste, and can we make sure we can accommodate that at fairly short notice?

Mr ABER: Our preliminary research suggests we are not into the major capitalisation needs that other areas would need to accommodate that. We have the land stocks, which we have reviewed through the local environmental plan [LEP] process we have just completed and we have access to resources. There is some tweaking in respect of the projects and the things we will do, but the indications we are getting are that it is not a significant problem to this community and we would have to invest significant loan funds or something else to achieve. That is one of the dilemmas you face when living in these areas: you look at the pressures on Sydney in terms of the capitalisation needed to absorb people when there are areas where for minimal investment you could do it. It is one of the challenges Australia faces.

The Hon. Dr PETER PHELPS: We have heard that story from here to Broken Hill and down south as well—

Mr ABER: I bet you have.

The Hon. Dr PETER PHELPS: —and that is, "We have existing stock that just needs to be re-energised."

The Hon. MICK VEITCH: Professor Khan in his submission to this inquiry discusses the dual role of water storages—not just irrigation, but the potential for flood mitigation. We are keen to hear your views about whether you think that flood mitigation is an active consideration for our water storages.

Mr ABER: After last year, definitely.

The Hon. MICK VEITCH: I should say that there are some people who are clearly against that. We have heard testimony from people who have said there is no flood mitigation role for our water storages, they were constructed for irrigation and that is what should happen.

Mr ABER: My experience goes back to the Shoalhaven and flood mitigation works, which I was actively involved in as an engineer. There is always a role for storage in flood mitigation, even if it is not active, depending on what the situation of the storage is. Out here we are significantly downstream, particularly of the Copeton Dam, for the Gwydir system. It would have to be a peculiar set of circumstances where the flood mitigation role would happen for a storage like that. I am aware that, with State Water, during flooding—depending on the weirs and availability—we are diverting water north or south away from Moree to mitigate the effects within town and things like that. I do not particularly want to say that too loudly for some people, but there is a limit to that, and it is a matter of balancing action to get time to do things like pulling the rails off bridges and to get prepared. With mitigation, out here the volumes are so great and the catchments are so great. For example, Tycannah Creek to the south of here probably has a catchment bigger than the Clarence River on the coast.

CHAIR: The percentage of the catchment above Copeton Dam is almost insignificant compared—.

Mr ABER: Yes, the Horton River and that sort of thing. You would need to have a storage that is pretty close to the area that we have for flood mitigation. Probably there are benefits from some of the other flood mitigation measures, such as house raising and things like that that we need to think about in this area, because they are more economic for us. It is just that the distance is too far. You have catchments that can drive flooding. Last week it affected the Washpool; the road was closed to Inverell to the east of the town by a local flood generated by local rainfall. Even though there was a minor flood in the river it was the local rainfall runoff that caused that road to close.

You are talking about some fairly big local catchments and some fairly big areas. One of the interesting things here is how a storm 60 kilometres north-east of town could actually cause road closures that go all the way through to the Whalan Creek closing at Boomi. It closed causeways and things like that a week later. There are still those effects. This is not a simple situation here. In terms of the benefits of storage, the only comment I would make is that maybe there is an opportunity to create an additional storage to provide the water that has been taken away for the environmental uses, but that is probably being flippant.

The Hon. MICK VEITCH: As a matter of interest, how many hectares of sporting fields do you have?

Mr ABER: I would have to get back to you on that.

The Hon. MICK VEITCH: It is just as a matter of interest.

Mr ABER: I will tell you what the area is: two soccer fields, one large cricket oval area, plus a series of grass netball courts in one field, plus a couple of hockey fields. That is the one that has effluent reuse. Then there are two standard rugby league fields coupled together. There is another one at Jankovich oval, a rugby league field, and we have another that is cricket field size.

Mr WOLFENDEN: Then you have the cemetery and the golf course and general park areas.

The Hon. MICK VEITCH: I spent 12 years in local government and one of the things I have noticed is that some councils seem more able, usually for financial reasons, to conduct innovative water reuse schemes. It is almost like research, and that information then flows into the sector across the State and others will gradually take it up. Do you think there is sufficient research or trialling of water reuse programs or harvesting or whatever processes in local government and do you think the State Government has a role in funding some of those as well?

Mr WOLFENDEN: I am trying to think. I have seen some of the applications.

Mr ABER: I think there is a role. I think there is a lot we can do, especially when you think about what we are doing with stormwater and the capture of stormwater. One of the issues is that we probably have eight outlets into the river system here for stormwater. There is the whole litter collection issue. They are issues we have to deal with. We certainly have litter traps on the main outlets, but we have to think about some of the smaller outlets. There are issues in respect of that. One of the problems around here is that we have 0.1 per cent grades. How you actually drain and maintain drainage in these areas is a major challenge.

Mr WOLFENDEN: And they move. You build drainage, then it moves and with 0.1 per cent it stops flowing.

Mr ABER: You remember the old design rules, Mick, of 0.3 per cent minimum grade. Basically we are way beyond that. No matter what happens there is swelling and shrinkage, and in some areas here the ground level between wet and dry can be 0.3 of a metre difference. It just moves all the time. It is even a challenge to provide a road pavement. We have to design a pavement so they are not too big to be brittle, but not too thin to be moving too much. That is the sort of thing we are doing. It is flat, there are options for detention storage, maybe reuse and things like that, but it is all stuff we need to research. That has to be coupled with the issues that are coming around in maintaining the streams: how much water are you diverting away from the stream flows and how do you maintain the base flows to keep it looking attractive and useful and maintain a reasonable environment through it?

The Hon. MICK VEITCH: Again, as a matter of interest for me, how much is your load-based licence fee?

Mr WOLFENDEN: We only pay the access fee and we do not pay any load-based fee. We could be paying in the order of \$30,000, but we are not.

The Hon. MICK VEITCH: Is that because of the scheme?

Mr WOLFENDEN: Yes. None of it goes into the river.

The Hon. MICK VEITCH: Therefore, your reuse on sporting ovals—

Mr WOLFENDEN: Is beneficial from an economic point of view and it helps us. On the other hand, there are some management costs in terms of the environmental sampling and testing and programs you need to put together and all those things you have to do in dealing with the Environment Protection Authority. We have costs to do that.

CHAIR: We are out of time. Thank you very much for appearing before us today. If we have any further questions, would you be prepared to submit answers to us within 21 days of receiving those questions?

Mr ABER: Of course.

CHAIR: Thank you very much for attending.

(The witnesses withdrew)

(Short adjournment)

JON-MAREE BAKER, Executive Officer, Namoi Water, affirmed and examined:

JONATHAN PHELPS, Chairman, Namoi Water, sworn and examined:

CHAIR: If at any stage during the hearing you consider that there is evidence you wish to give or documents you wish to tender that should only be seen or heard by the Committee, please advise us of that, and we will consider your request. Would one or both of you like to start by making a short opening statement?

Ms BAKER: Good morning and welcome to Moree. Thank you for taking the time to come and visit some of the rural areas. I believe you had a good tour yesterday.

CHAIR: We did indeed.

Ms BAKER: You saw some irrigation efficiency measures. In respect of the Namoi, we have recently completed a socioeconomic study titled "The Value of Water". We have tabled a copy with our submission. Agricultural employees make up 15 per cent of employed persons in our valley. The study particularly looked at what would happen in respect of rainfall and climate change and also the basin plan. By 2030, we will have 0.4 per cent lower rainfall and 13 per cent access to our entitlement based on the potential changes in the basin plan. This leads to an annual decline in agricultural production of 23.6 million by 2013, and gross regional production (GRP) will fall by 38 million in the prediction. For every dollar that we produce in agriculture, it is 60¢ value-added and this multiplier is approximately 2.3. The flow-on effects are experienced across the local economy. In respect of this inquiry, I believe it is critical to look at the future of water and the challenges that will be faced by the time frame in respect of water storage. We are open to you for some questions.

CHAIR: Is there anything you would like to add, Mr Phelps?

Mr PHELPS: Just another welcome. It is good to see the Committee or the New South Wales Government taking an interest in this. Welcome. I look forward to your questions.

CHAIR: Thank you very much.

The Hon. Dr PETER PHELPS: You say you are expecting only 13 per cent access to your entitlement in the future. What has been the average over the past decade?

Ms BAKER: No, 13 per cent reduction in access, based on the basin plan.

The Hon. Dr PETER PHELPS: What has been the fulfilment of the general allocations? Of course we have just gone through a big drought.

Ms BAKER: In the Namoi, water is worth between \$2,000 and \$2,500 a megalitre. Regulated water user accounts are limited to two megs per unit share, but it is limited to 125 per cent of usage in any one year. We have a maximum of three megs per unit share over a three-year period. We have a reliability of about 64 per cent and an average available water determination of 76 per cent.

The Hon. Dr PETER PHELPS: That would take you down to roughly 50 per cent under your projections?

Ms BAKER: Potentially.

The Hon. Dr PETER PHELPS: I presume you operate on a monthly accounting system for your water, or do you have an annual allocation?

Mr PHELPS: Continuous accounting. Yes, monthly.

The Hon. Dr PETER PHELPS: How do you users find that system? Do you think it is a good system? Are you happy with it? Do you believe it offers too much flexibility?

Mr PHELPS: As a water user myself, continuous accounting is a very good idea. It lets you know month by month where you stand. The only issue we have with the system is the restriction of 125 per cent usage in any one year.

Ms BAKER: And also the water year.

Mr PHELPS: Yes. Many moons ago, when Bob Smith was the commissioner, a deal was done in Moree that we would forego the water year, which was to be transferred from virtually a crop year to a financial year, and that helped everything else run smoothly in their department, on the proviso that we could have 150 per cent access, which gave us the flexibility that we lost through the water year change, so there was only one part of the deal that was closed.

CHAIR: But they did give the 150 per cent to the Gwydir people?

Mr PHELPS: Yes.

Ms BAKER: But the change in water year means you would open up on—1 September or 1 October?

Mr PHELPS: 1 October.

Ms BAKER: It closes 30 September, so 1 October. You would have the additional time to know what your planning requirements might be. The flexibility that we lost in that change to a financial year was not fully covered by the 125 per cent usage.

CHAIR: You believe you should still have access to that 150 per cent?

Ms BAKER: Correct, yes.

CHAIR: We will take that on board.

Mr PHELPS: In this past year it would have been beneficial to some growers because of the hot and dry conditions that we suffered in January.

The Hon. Dr PETER PHELPS: Within the Namoi system, have you identified areas where you believe additional storage capacity could be constructed?

Mr PHELPS: We have not identified that specifically, but in years gone by there have been studies done. There was one location in Boggabri that they found may well have been a very good place to put it, but then it came under political pressure.

Ms BAKER: The proposal was tabled as Blue Hole as a dam site, but in the Namoi we currently have two dams, Split Rock and Keepit. We pay double the water charges, so we are significantly burdened in respect of the cost structure of those two dams.

The Hon. Dr PETER PHELPS: You say double. Compared with what?

Ms BAKER: To everyone. In respect of the northern valleys, we would pay double the water charges. Essentially we have two dams so we are paying twice the fees on maintaining those structures. The decision to build Split Rock in its current location was obviously a political decision. Its capacity to fill and its catchment area is quite small, so the benefit of that storage is limited in respect of what water it might provide to the valley long term over a cropping period. Essentially, in one out of ten years that storage provides an additional crop. Is that economically viable in respect of the fact that we pay double the water charges over that ten-year period?

The Hon. Dr PETER PHELPS: For every year.

Ms BAKER: In hindsight, if we knew what it would cost us to have the two storages, would we have opted for an enlarged Keepit over a second storage? We probably would have.

The Hon. Dr PETER PHELPS: Is Split Rock enlargeable?

Ms BAKER: Keepit.

The Hon. Dr PETER PHELPS: No, is Split Rock—

Mr PHELPS: It would not be feasible because it does not have the catchment.

Ms BAKER: Split Rock does not.

Mr PHELPS: Yes, Split Rock does not. It has only spilt twice since it has been built.

Ms BAKER: In respect of other suggested areas—

The Hon. Dr PETER PHELPS: Is that an argument for decommissioning Split Rock?

Mr PHELPS: I would not have thought so. In some ways it is a very good dam because it has only spilt twice in the past 20 years. In respect of its capacity to catch water, it has a very small catchment. Keepit Dam is only a small way downstream, but it has opened into a much bigger catchment. The Macdonald runs into Keepit, but not into Split Rock.

CHAIR: Following up on one comment you made, you mentioned a site called the Blue Hole. Whereabouts is that?

Ms BAKER: That is the name of the storage that was to be at Boggabri. State Water would have the information on the Blue Hole site.

The Hon. PAUL GREEN: Your submission supported the argument for the use of public funds to increase storage capacity. How do you rate the current water storage capacity and do you have any suggestions on how we could increase the storage capacities?

Ms BAKER: I guess the question is, is the current storage adequate to meet current needs? In respect of our valley, we obviously have an expanding extractive industry, so potentially we will have 27 coal mines, eight coal seam gas fields that will result in a drawdown of groundwater systems above five metres and potentially 2 to 4 per cent reduction in surface water flow as at Narrabri gauge. The impact of those expanding industries is of concern as to whether or not we have adequate water storage in the valley. It probably needs further assessment as to how industrialised activities impact on water quality in respect of making sure that the water that we currently have access to is protected in respect of no third-party impacts from those other industries expanding.

In respect of the legacy issues of Split Rock and perhaps some of the storage construction costs, the case could be made for further sharing of costs in respect of recreational users, and it highlights that if you could demonstrate that by augmenting or increasing Keepit Dam, should we be continuing to pay the legacy costs for an inefficient storage such as Split Rock?

CHAIR: Following on from that, I know the answer is going to be highly variable, but how much water is contributed to the irrigation industry from Split Rock, despite the fact it is inefficient and it has not spilt? Have there been substantial amounts of water coming from Split Rock into the system?

Mr PHELPS: In this past year Split Rock got up to 85 per cent. That has allowed 200 per cent access to water over two years. It has allowed full accounts for irrigators, so it gives some security for the next year. This year it has worked very well; it has caught the water and it has not spilt. Split Rock Dam is used in combination with Keepit Dam. You will find that Keepit Dam is something like 40-odd per cent now. That is often the number that is publicised. The 80 per cent that is sitting in Split Rock, which they will let down as they need to, is never publicised.

The Hon. Dr PETER PHELPS: To evaporate.

Mr PHELPS: Not so much to evaporate but to take up space that might—

CHAIR: Come down the Namoi system, yes.

Mr PHELPS: Keepit is in a better catchment. In terms of that, State Water runs that as efficiently as they can. What happens is when Keepit Dam is publicised as being down 40 per cent, it rings alarm bells with all different sorts of people—environmentalists, recreational users, Fisheries and all those sorts of things. So we are actually going to write to State Water and ask them if they can make those announcements—

CHAIR: In conjunction with the Split Rock Dam announcements?

Mr PHELPS: Yes.

CHAIR: The storage efficiency in Split Rock would be higher than in Keepit—Split Rock is a deeper dam than Keepit?

Mr PHELPS: I do not know of any numbers on that. I do not think there would be too much difference to tell you the truth. Split Rock may actually be better because it maybe a smaller surface area, deeper.

CHAIR: Keepit has quite a large surface area compared with its depth, does it not?

Mr PHELPS: Yes.

The Hon. PAUL GREEN: How many megalitres does Split Rock Dam hold at full capacity as compared with Keepit Dam at full capacity?

Mr PHELPS: I think Split Rock is about 380 or so.

Ms BAKER: Combined storage is 822.

Mr PHELPS: So it is about 380 and 420, roughly.

The Hon. PAUL GREEN: In your submission it states: "How the downstream requirement is met must be focused on using works and measures." What are those works and measures?

Ms BAKER: Attached to our submission was a proposal for a weir in the Talyawalka system. Essentially in the Basin Plan environmental requirements, as far as northern water goes the Talyawalka system is where our environmental water is targeted at. One of the things that would contribute to that efficiency would potentially be putting a weir in that system.

The Hon. MICK VEITCH: This is the anabranch, is it?

Ms BAKER: No, the Talyawalka/Teryaweynya Creek system. The submission states:

It is possible to increase the proportion of flows into the system by constructed infrastructure such as:

- a weir that is used solely for the purpose of inducing above bank flow levels at lower flows currently required to cause inflows. It should then be possible to provide similar volumes of flows into the Talyawalka with less flow in the Darling River ...
- a low level diversion channel that allows flows to leave the river without the need for a weir ...

I guess each one of those has pros and cons in terms of its construction, but in terms of the actual aim of the Basin Plan downstream requirement that is quite a feasible option to deliver environmental requirements with less water.

The Hon. PAUL GREEN: Who would construct those?

Ms BAKER: Funding at the moment is through the Commonwealth to provide, I guess, infrastructure works and measures.

The Hon. PAUL GREEN: So Federal?

Ms BAKER: Yes.

The Hon. MICK VEITCH: Does the continuous accounting and the cap also use the three-year rolling average?

Mr PHELPS: Yes, 300 per cent over three years.

The Hon. MICK VEITCH: The parts that you see in the scheme as being flawed are your cap and the three-year rolling average or—

Mr PHELPS: Not so much the three-year rolling average—we could live with that—it is getting access to water that entitlement owners actually have access to in terms of a number on their entitlement sheet. It is very tough if you have got a crop that is desperate for water and you have got an allocation sitting up in the dam and you cannot get access to it. The most important crop is the one that is growing—this year's, not next year's. It is more or less forgoing a bit of water for next year. You just make it a grower's choice at the end of the day.

The Hon. MICK VEITCH: That would be one of the improvements that you would suggest?

Mr PHELPS: Certainly, yes. We actually wrote a letter this year to Katrina asking for permission to take that extra 25 per cent but, thankfully, it rained. Thankfully, we got out of jail.

The Hon. MICK VEITCH: When the Committee visited the southern rivers inland system we had a look at computer aided river management [CARM]—the computerised measurement systems down there that they are progressively putting in. The Committee heard from someone yesterday that there was a bit of angst about that occurring in the northern inland rivers. Have you had a look at CARM? If so, does it have a role to play in the northern inland rivers?

Mr PHELPS: I am not sure. What do you know about CARM?

Ms BAKER: The CARM project really as a concept certainly offers a lot of benefits and we would be supportive of technology that can probably take us through to the next level. I think the issue with CARM is that it needs to be demonstrated that for the savings that they are proposing in northern system that they can actually be generated. Because, like the metering project at the moment, the Government has essentially signed us up to savings that may not necessarily eventuate in terms of a business case. What we would like to see with CARM is perhaps further investigation of that in the northern system to see whether or not those savings are actually feasible.

The Hon. MICK VEITCH: Do you have a suggestion as to which of the northern inland river systems would be the best to trial CARM?

Ms BAKER: I think any one of them.

The Hon. MICK VEITCH: It does not matter?

Ms BAKER: No. I think essentially the rivers are run quite similarly. Obviously we are not on a snow-melt system or ephemeral so those differences I think need to be further explored in that investigative process. So what works on the Murrumbidgee is not necessarily going to be as effective in the Namoi.

The Hon. MICK VEITCH: In response to a question by the Hon. Paul Green you mentioned overbank flows. Is that a regular occurrence on the Namoi?

Mr PHELPS: It is in some places more so than others, it just depends on the lay of the land. In 2001, 2000 and 1998 there were significant overbank flows.

The Hon. MICK VEITCH: What issues arise along the Namoi with overbank flows?

Mr PHELPS: The pressing issue is floodplain harvesting. That is licensing, we believe, to allow people to continue to do what they have been doing in the past. Because that does supplement some production, which I think is a very important factor in the local economy. It is very important that we be able to continue to do what we have been doing, and that is what we are told that we are going to be allowed to do—it has just got to be licensed. The things that people are doing today are basically legal but if they do not front up and articulate

that through the floodplain licensing thing that is going on at the moment, in two years it will not be legal. People are better off fronting up and admitting to what they have been doing because it is not illegal and it becomes a licence then and you should be able to continue to do what you have been doing.

The Hon. MICK VEITCH: Professor Khan in his submission to the inquiry spoke about the dual role of a number of the storages in New South Wales for not only irrigation but also flood mitigation. To be fair, as the Committee has travelled around the State there have been differing views expressed as to whether or not water storages actually have a flood mitigation role—some are in favour and some are against the proposal. I am keen to hear the views of Namoi Water on that?

Mr PHELPS: In terms of Keepit Dam it is certainly run like that. We do not have any issues with that at all. Back in the 1950s one of the biggest floods was basically caused through the construction of Keepit Dam. They did have to let some water go and, unfortunately, that caused a bit of a flood. My understanding is that they run it as efficiently as they can. So it is a two-tiered thing: It is for irrigation water and for flood mitigation.

The Hon. Dr PETER PHELPS: There is a clear opportunity cost in having dams operate as flood mitigators—that is, the significant amount of the air space that is required as opposed to keeping it topped up as high as you can for irrigation purposes. It is interesting that you as an irrigator would say that you are happy with that arrangement. I would have thought that keeping as much water retained as possible would be advantageous to the occasional flood that comes through.

Mr PHELPS: When there is an event that is starting there is usually a bit of time. If they see water coming in, they start letting it out before they have to basically and that creates the air space. Operationally you can take those things into account and actually create air space in a very short time. Most irrigators are on a floodplain anyway or round local communities. I have not heard anyone say they have an issue from that aspect.

Ms BAKER: I think by the nature itself the dam acts as a flood mitigator anyway. So I think in recognising that whilst the storage was not built for that purpose, it already fulfils that role. I guess the operational management undertaken by State Water in the recent flooding events demonstrates that they have got a good handle in terms of actually monitoring inflow and outflow and making sure at the end of the flood event that the storage is full.

The Hon. MICK VEITCH: As the Committee has travelled around the State we have seen a number of southern and northern inland river systems—yesterday the Committee visited Keytah—and the committee has had the opportunity to observe some really wonderful trials on water efficiencies and water savings on-farm. What has triggered my mind is that most of those are funded by the irrigator, particularly the research around the trials. Do you think the Government has a role to play in that research for on-farm trialling of water-saving projects?

Mr PHELPS: Not only do they have an obligation, I think it is very necessary that they continue the research into that sort of thing. But, I think more importantly, they need to also be funding those sorts of projects as well, helping farmers get into that sort of infrastructure that they would not normally do because of constraints with their own budgets. But if you can encourage it through a financial incentive to actually upgrade works, at the end of the day that should turn into extra production for the local economies. There are things that have been going on recently, and down in the south, where people are foregoing water for money—there is a financial incentive there to do that—so that is a trade-off. That way you keep the actual production. By trading water and increasing efficiency you are at least keeping production as it is, and hopefully increasing it. So that is an environmental trade-off, efficiency gain and hopefully no loss in production.

Ms BAKER: I think we have had a number of examples in this valley where through the Achieving Sustainable Groundwater Entitlements program there was funding made available for irrigators to actually fund infrastructure, which was highly successful. That was through a structural adjustment process—even though they did not actually had water back, they actually retained that water because they were losing so much in terms of their groundwater system. That had a high level of uptake. So in terms of the current program that has been rolled out in the northern basin, the uptake in terms of the lower and upper Namoi has been nil in the first tender round. So that indicates that either the value that is prepared to be paid for the actual water is not high enough or that the criteria is actually restricting growers from participating in that program. There are some issues in terms of the current infrastructure.

The Hon. MICK VEITCH: Do you have a view as to which it is or is it both?

Ms BAKER: I think it is both.

The Hon. MICK VEITCH: You were asked a question about the funding of dam construction augmentation projects. Governments have finite budgets and it would be fair to say that a new dam is a significant spend; do you think there is a place for private capital in this process?

Mr PHELPS: I think there is a place for partnerships between government and the private sector. That way both sections have got ownership of it. If that helps to get a project up and running it is all well and good. The biggest barrier is the red tape to get through and the political will to do it.

The Hon. MICK VEITCH: How would you see it working out? How would a private public partnership [PPP] or some other process work? How would you see the mix work?

Mr PHELPS: I think there is already an example of that in—what is the name of the dam?

Ms BAKER: Border Rivers.

The Hon. Dr PETER PHELPS: Pindari.

Mr PHELPS: Yes, there is already an example of that. I do not know the detail of that but I have not heard any complaints about that, and it is running. Do you have anything to add?

Ms BAKER: My understanding was that it was cheaper for the growers to pay up front than actually to have it charged it out through an IPART or ongoing usage and entitlement charge through the various cost structures that we are actually paying for our two dams. I think in terms of cost efficiency for the grower, the partnership probably offers quite a few advantages over perhaps what we have here in the Namoi. In saying that, there is certainly opportunity in the Namoi for perhaps some of the lower end of the system such as the Pian, where we actually have a current constraint. Whether or not moving towards delivering that through a channel might be a partnership project that we could look at in terms of feasibility in the future. A third of the entitlement for the Namoi in the regulated system is in that section of the river. So in terms of delivering it, there are a number of constraint issues and that is something that we could actually look at the feasibility of delivering that water more effectively through a channel system and leaving the river or the creek system to go back to its natural state.

The Hon. Dr PETER PHELPS: I just want to ask a quick question. It has been raised with us by Gwydir people that there is an apparent, it appears to them, overallocation of water for environmental purposes. In other words, when the water sharing plans were drawn up the environment was given more than events have shown it actually needed. Has that been the experience of Namoi?

Ms BAKER: The major impact in the Namoi in terms of the environmental allocation is the 90:10 rule, which limits supplementary access in the months of July, August, September, October, for four months of the year. I think in that regard the agreed river management committee, their agreement within the water sharing plan originally was a 50:50 split—

Mr PHELPS: Yes, all the way through the year.

Ms BAKER: So it came back from the Minister at 90/10. I think that is a rule that could be looked at in more detail in terms of its significant impact while not actually overall impacting on the environmental outcomes. I think that is something we would like looked at through the water sharing plan review process. In terms of the end-of-system flow requirement that was put in the water sharing plan, there has been no assessment as to whether the environmental benefit was actually reached for those arrangements put into the water sharing plan. I think it is important to say: If we are delivering water to the environment through these mechanisms, are we measuring its efficiency and are we measuring how that has achieved the outcome it set out to achieve?

The Hon. Dr PETER PHELPS: How much is being reserved for those environmental flows?

Ms BAKER: Of the total water that goes through the Namoi?

The Hon. Dr PETER PHELPS: Yes.

Ms BAKER: Eighty-three per cent flows through for the environment.

Mr PHELPS: Can I add to the supplementary access? All the agencies were represented at the committee level, which most of the time met in Tamworth. When that agreement and that water sharing plan left Tamworth it was agreed that it would be 50:50 access to supplementary. As I said, all the agencies were consulted, agreed, discussed at that level. It then goes from that point down to the Minister's office and gets changed for whatever reason, and we were never told, as far as I am aware, as to the reason why.

CHAIR: Did that happen at the same time as the reduction of your storage from 150 to 125?

Mr PHELPS: Yes, it did. In both situations there was an agreed outcome at the local level. It goes down to Sydney and just gets changed for whatever reason.

The Hon. Dr PETER PHELPS: For you, is the supplementary so important? If you are getting 64 per cent of your general allocation is that additional component for those four months—

Mr PHELPS: Supplementary is another licence, basically. It is a totally separate licence, and there are varying views about the reliability of that but it is also around that 60 per cent, 70 per cent reliability. It is part of the irrigators planning process to look at the reliability of that and to use the supplementary, which flows from the downstream side of the dam, you need to have your own infrastructure. But it is taken into the calculations when people are planning their next cropping.

CHAIR: To make sure the Committee has that perfectly clear, of that supplementary water it was agreed that it would be 50:50 environment to irrigators?

Mr PHELPS: Yes.

Ms BAKER: For the whole year, yes.

CHAIR: And it ended up 83 per cent—no, 90:10.

Ms BAKER: No, it ended up 90:10 in four months of the year and the rest of the time—

Mr PHELPS: It is 50:50 and that is access to each particular event.

CHAIR: So 90:10 for four months of the year, did you say?

Mr PHELPS: Yes.

Ms BAKER: So 90 is with the environment.

CHAIR: What are those months where that applies?

Ms BAKER: July, August, September—

Mr PHELPS: October.

Ms BAKER: So it is in a key time.

CHAIR: The irrigation time.

Mr PHELPS: There have been events that have gone down the river during that period where you could have had access to it and there is already flooding going on down the system. It is just a crazy rule.

CHAIR: Changing tack slightly, you mentioned the coal seam gas industry and the mining industry. Is there any potential for agricultural use of some of the water that is coming out of those sources?

Ms BAKER: That issue with the reuse of water comes down to treatment: What requirements are put in place by legislation that requires that water to be treated to a certain standard to enable it to be used? I think that is the key. If the legislation requires that that water is treated not only for just salt content but all parameters to ensure that the water quality is equal to or greater than the receiving environment, then yes there is a place for it. But I think at this stage we are underwhelmed in terms of the capacity for compliance. So the Namoi has had a number of spills and issues in terms through our existing coal seam gas extraction so I think we would like to see perhaps some legislative changes that are occurring in this space take time to have effect so that we can have confidence in that treatment process. The industry best practice and standards actually result in outcomes that enable that water to be reused. So obviously we are looking closely at Queensland to see how they are progressing.

I think the interesting thing is that in the Namoi we have Federation Farm where they reuse waste water on our locally held cotton farm. The proceeds of that are distributed amongst the schools. So that is a good example of how that sort of win-win situation can result in an outcome. But long term do we have enough data to ensure that the application of that waste water is not changing the micro nutrients within the soils, within the water, within all the different systems to make sure that there will not be any real lasting impact or change in the system that is detrimental? So I think we are open to looking at more information in that regard.

CHAIR: Certainly the industry in Queensland, as you mentioned, I have been up to one of Santos' operations at Injune, where they are desalinating the water and irrigating with it. So it is not beyond the realms of possibility that the industry itself will be willing to cooperate in that regard if we can come to the right legislative framework and agreement between both industries, between agriculture and the coal seam gas industry. In the Namoi Valley, what is the percentage of irrigation water that comes from groundwater and surface water sources? Do you have any figures on that?

Mr PHELPS: The allocation is around 240,000 megalitres for the river system and the allocation for groundwater is 86 plus the upper—

Ms BAKER: One hundred and twenty-two.

Mr PHELPS: Yes, 220.

CHAIR: Two hundred and twenty altogether?

Mr PHELPS: Yes. That includes the upper and the lower, which is the Gunnedah region and the Wee Waa region. I guess in terms of entitlement, it is sort of 60:40. When you convert that into reliability, 64 per cent reliability, and then when you add supplementary back into that, it changes the mix a little bit, but 60:40, 50:50, in that region.

CHAIR: The reliability of the groundwater sources would be higher than the surface water?

Mr PHELPS: Yes. From 1996 until the water sharing plan there was a reduction in access to groundwater, which was about 50 per cent on average when you cover the two parts of the valley. That is a significant reduction that the groundwater users took on board to promote their own reliability. In fact, there was a voluntary reduction in 1996-97 of 35 per cent that the water users agreed to; then there is another 15 per cent through the water sharing plan. Basically, science drove that. We agreed with the science.

The Hon. Dr PETER PHELPS: Do you have a sustainable recharge?

Mr PHELPS: Yes. That is what it was based on. That is what the 86 in the lower Namoi and the 120 in the upper Namoi were basically based on. Access to water was equal to recharge.

CHAIR: Thank you for coming along today.

Mr PHELPS: Can I add something?

CHAIR: Certainly.

Mr PHELPS: I picked not so much a project but another example of politics and science, I guess. It annoys us upstream when we have been asked to be more efficient here, there, and everywhere else, that when you get down to Menindee—

The Hon. Dr PETER PHELPS: You know where you are going on this one.

Mr PHELPS: There are such losses down there. This year alone when the dams are full 770 gigalitres of water lost in evaporation. That is equivalent to basically our Split Rock and Keepit dam.

CHAIR: The further you go down, the worse it becomes. Lake Alexandrina is double that.

Mr PHELPS: Yes. On average it is 400 gigalitres a year. It hurts when politics overrules the science. That is the reality, I guess, but we would like to see something done down there.

Ms BAKER: The issue we would also like in a broader context is that the impacts on the northern system are taken into account when we are looking at a reform process of Menindee. I think often we look at the impacts directly at Menindee and the impacts for the southern irrigation systems but there is not much consideration on what those changes mean to the northern system. Does that mean that there is further call on northern water in terms of embargo on supplementary access? I think we need to consider that when we are moving to our reform and obviously the efficiency of that system and a secure water supply for Broken Hill in terms of drought sequences, that those all have impacts on northern systems. Our northern water is managed to make sure that we get the most to that system at certain times of the year, bearing in mind that there is an impact on the northern system that needs to be taken into account.

CHAIR: Thank you. We appreciate your attendance and your submission. We may have further questions as we go through our transcripts so if you do get some questions from the Secretariat would you be prepared to send an answer to us within 21 days?

Ms BAKER: Yes.

Mr PHELPS: Certainly.

(The witnesses withdrew)

DARREN FRANCIS HART, Regional Manager, PrimeAg Australia Ltd, Moree, Chairman, Gwydir Valley Irrigators Association, and

ZARA LOWIEN, Executive Officer, Gwydir Valley Irrigators Association, sworn and examined:

CHAIR: Welcome Ms Lowien and Mr Hart. In what capacity are you appearing today?

Mr HART: I am representing the Gwydir Valley Irrigators Association.

CHAIR: If at any stage you should consider that any evidence or documents you may wish to tender should be heard or seen only by the Committee, please advise us and we will consider that request. Would one or both of you like to make a short opening statement?

Ms LOWIEN: I will make a short opening statement and then we will go to questions. First and foremost we welcome you to our valley in the Gwydir. Thank you very much for coming to Moree to hold this inquiry. We think it is really important that inquiries like this do get the opportunity to tour northern regions as opposed to other areas in the State to get a good perspective of the policy for the whole State area. The Gwydir Valley Irrigators Association, whom we are representing today, represents irrigation entitlement holders in the valley, both regulated and unregulated in groundwater entitlement. We have around about 250 members who support the association on a voluntary basis—a levy per megalitre. Initially GVA welcomed the review based on the interest of maximising water use efficiency in our industry.

That is one of our core directions for our members as we try to make them as sustainable and profitable as possible. Hence, inquiries such as this are very intriguing in the sense that we try to encourage that within our own industry. So we believe that the State should also take that principle on board. With that in mind, our members have an acute interest in the management of Menindee Lakes and would like to raise that as an issue for the Committee today. We believe there are a number of criteria that should be taken on board for Menindee, the way it should be managed first and foremost, the principle of efficient capture, and storage and management of which we think there could be improvements.

We believe also that management of Menindee should take on board an negative third-party impacts to upstream, which is the northern valley irrigators, as well as downstream. To date there has been no modelling or cost-benefit analysis for the impacts upstream. We also believe that any works out there should be done in meaningful consultation with stakeholders who are impacted both upstream and downstream, and we think that information used to make the decision should be robust and transparent. In saying that, we say that the information can be available for others to independently review, whether that be our organisations or others that we may ask to do that on our behalf. While the GVA at this point does not have any specific proposals in our valley, we have made it very clear in our submission to the dams inquiry that we think there has been a lack of work done on forecasting and preparing for what water use might need to be in the future. In doing that, we think work should be done on assessing the complexity and the nexus between environmental demands as well as industrial and urban, and the need to meet our current and future food and fibre requirements.

Our final point is that for any future dam construction we also believe there should be proper assessment, cost-benefit analysis and that any proposals that are done, the cost of those are shared amongst all the beneficiaries rather than just a selection of them as such. The point being that Copeton Dam currently has a variety of beneficiaries and water users are the only ones who pay for that. Although it was originally built as an irrigation supply dam, there are now other uses for that dam and there is a limited share of how much they pay for that. That is our final point. We are open for questions.

CHAIR: Nothing further to add, Mr Hart?

Mr HART: No, thank you.

The Hon. MICK VEITCH: Your submission does not support the application of the current IQQM and how it works. I draw your attention to the comments of Cotton Australia about IQQM, which is the Integrated Quality and Quantity Model. Cotton Australia is reasonably comfortable with IQQM as the primary model for determining and managing water sharing plans. It says also that it was not designed as a model for forecasting future requirements, which draws on what you have said.

Mr HART: Yes.

Ms LOWIEN: Yes.

The Hon. MICK VEITCH: I am interested in the slight discrepancy of views about IQQM but also the emphasis that a predictive model could be used. Is there something we can recommend to Government to use to ascertain future water usage requirements?

Ms LOWIEN: I think, looking back to my submission, our point is definitely the fact that we do not think IQQM should be used as a future demand forecasting tool. We think it is actually a tool used to capture the current situation that can be tested on a number of scenarios. But for actually understanding demands, it does not have that capability. That has to be put in another mechanism. To my knowledge it is difficult to manage an increase in a significant urban demand for our valley. The Gwydir Valley Irrigators on IQQM as a separate issue to using for demand forecasting has issues with the modelling. We did a lot of work back when the water sharing plan was developed to actually have it reworked. There were changes made shortly before the water sharing plan was implemented.

The concerns we still have with IQQM is that there is a lack of investment in calibration of that model and in the last 10 years there have been significant improvements in not only on-farm efficiency, but also in the delivery of water in the valley. That is not captured in the current IQQM. So if we use it as a base to make decisions on, it is not actually currently capturing the reality of the way the system is at the moment. A significant point is the assumptions on irrigator behaviour, which have changed significantly since the drought. I think we have made a number of points in terms of the improvements in on-farm efficiency and water-use efficiency of irrigators are not captured in IQQM. Plus also the fact that IQQM in its current state does not account for the significant amount of environmental water that is held by the environment and the fact there are competing behavioural patterns between environmental users and irrigators, which IQQM does not capture at the moment.

The Hon. MICK VEITCH: What is the way forward? This is not the first time concerns raised about IQQM have been raised. Clearly, the Government needs some sort of predictive model for the future, otherwise how will we determine whether our water storages are adequate? Is there a model the Government can look to or should it be investing in developing its own predictive model?

Ms LOWIEN: I think that is what they did with IQQM. They integrated a couple of different off-the-shelf models into the one version. I think the key is investment and resources into making sure that it is not a stagnant model and that it can be calibrated and updated. The climate information apparently is put in it every year, but not any other behavioural changes or significant improvements over time. And my point will be that 10 years is a long time in development and efficiency gains in irrigators and we are very proud of those that have been made in our valley. Over the last 10 years we have improved our water use efficiency more than 40 per cent and that has been proved through benchmarking and it will continue to improve. Yet IQQM is still utilising 2002 benchmarking information for how much water and when irrigators might use water. That is not the reality of today.

The Hon. MICK VEITCH: Yesterday we visited Keytah. The Committee has been fortunate in observing in southern and northern inland rivers a number of trials on water efficiency projects and the like. We have seen some simply outstanding initiatives. It became quite evident to me yesterday, particularly when we were provided a detailed list of the number of trials and projects that have taken place at Keytah, that they were all funded, essentially, by Keytah. Has government funding for the research and development aspect of on-farm water efficiencies declined? Do you think it needs to increase?

Mr HART: I think the thing is to increase. Through the drought Keytah was the main force that implemented all these ideas. We had a lot of meetings through the drought because we had limited amount of water obviously to produce and we were using one to 1.2 megalitres per hectare to grow cotton. We are down to about 0.6, 0.7 now through all the work. We have done trials every year on our own ideas with no funding. We fund all our own earthworks, size of pipes, improvement in pumps, whatever. The northern irrigators here have done it off their own bat and to go forward like Keytah has been doing this trial for the last three or four years—it has been on the books for a long time—more funding is needed for exactly what Zara was saying, to make this IQQM more efficient and more up to date.

Ms LOWIEN: I think the reduction in research dollars and support is quite significant. Keytah is a bit of a research hub. That is its interest.

The Hon. MICK VEITCH: That was evident yesterday.

Ms LOWIEN: Yes, and a lot of valleys have an example of that in each of their areas. We are very lucky that we have ours. Sometimes we do source external funding, as we have done with the four system comparison trial. But there is a burden on irrigators, whether it is Darren with his business or Mick and Keytah, to put a lot of time and effort and that is often discounted. They are the ones who are driving the industry from the bottom up. If anything the four systems trial that we have done out there has been driven by the association and the members. The reason why it is so widely accepted and so popular amongst people is because it came from the growers, that is the research that they wanted to get done. They have invested a lot of time and resources to test that and I think it is evident in the success of it.

The Hon. MICK VEITCH: Yesterday we also heard some commentary around the Murrumbidgee Computer Aided River Management [CARM] Project, which is being rolled out across the Murrumbidgee at the moment and we were fortunate to see that when we were down on the southern inland rivers. I have asked a number of people this morning about the rollout of CARM into the northern inland rivers and if there are concerns about the rollout of CARM into the northern inland rivers. I would be keen to hear your organisation's views about CARM and about the rollout of it in the northern inland rivers?

Ms LOWIEN: I think in terms of CARM we do believe our river is operating fairly efficiently at the moment but there are opportunities for improvement through increased technology as well as management of some delivery constraint issues, weir upgrades and regulators. I think the important thing with CARM is that whilst it does provide a high level—my understanding of the rollout in the south is it is providing opportunity to better understand river dynamics, which I think is important, and potentially reduce delivery losses—which means that there could be reliability improvement for all users. I think it may have a role in managing and communicating flood risk and impacts. A big win that could come out of it is the possibility for real-time market activity. At the moment it is two or three days and we could have possible on-selling of water within a stream that has already been delivered and potential for reduced delivery times.

The big concern that our association has with CARM at the moment is that it is not even tried and tested in the south yet, the information is still being put together and the trial has not completed. Our system is highly variable and very different to the southern system and we are not sure that the savings and benefits are going to be as evident for the investment in the north because of the way our system naturally occurs. A significant point for that is that we have a low reliability, so we have a high variability of flow and in some cases State Water do not have the opportunity to deliver water, yet you have a huge investment in a river management system that may not get used for one or two years during a drought, for example. That needs to be considered. I think if we have the opportunity to look at the information and test the results and potentially pilot it there are some benefits there but at the same time we do not want to discount the good work that State Water do with currently running our river with the information they have got now.

The Hon. PAUL GREEN: Thank you for yesterday, it was very helpful and it gives some context to the questions that we are asking today. In terms of yesterday we obviously looked at on-farm storage and discussed it a little bit but could you clarify what strategies are currently being implemented to ensure the efficiency on farm storages.

Mr HART: We have seepage meters and we have them for a month or so and it takes into account drainage through the ground and evaporation. Each storage is taken on its own merits. You have to remember they were put in 20-30 years ago when the technology was not as it is now. Some guys are decommissioning storages when the evaporation, mainly the deep drainage, has been too much. Raising walls to decrease surface area has been one of the main things and emptying them out and relasering and putting a clay plug over the whole floor another. There are all different methods.

The Hon. PAUL GREEN: That is quite expensive.

Mr HART: It has been, yes.

Ms LOWIEN: The majority of that work has been at the cost of the irrigator to do that.

The Hon. PAUL GREEN: How do they absorb the costing to do that?

Mr HART: The extra water they can hold does pay off over a few years but does not pay off straight away. Even increasing the banks by 1½ to 2½ metres you still need three or four years. I did all these sums probably five years ago and I had to have full dams for the next three or four years to pay for the earthworks. A lot of the work that Keytah are doing now on these four sections, there are a lot of growers around, all the way up north to Emerald, Macquarie Marshes and the Macquarie Valley waiting to hear the results on these four different operations and see which is going to be the most efficient. You will probably find that lot of other growers in other valleys have taken on what these guys have been doing since 2005-06.

The Hon. MICK VEITCH: It is very impressive.

Mr HART: Yes, they are right at the forefront

CHAIR: Ms Lowien, could you go through the four treatments for the record and explain it to us? I acknowledge that you did table three documents yesterday: "Improving irrigation in the Australian cotton industry", a general information sheet about the Gwydir Valley Irrigators Association and a CD titled "Irrigation efficiency trial 2009-10". We do have that information but would appreciate if you could go through those four treatments on that efficiency trial?

Ms LOWIEN: So the "Improving irrigation in the Australian cotton industry" is a four system comparison trial at the property Keytah west of Moree. The three systems that were considered to have the most potential for water savings for irrigators was a lateral move, a bankless channel and a drip irrigation and we used furrow syphon irrigation as the benchmark because that at more than 90 per cent that is the most common irrigation system in our valley. The trials were undertaken in 2009-10, you have the CD of the results there, and also in 2011-12, which is the handout that we tabled as well. Then there is a further trial season in 2013-14 thanks to the Cotton Research Development Corporation funding.

So far with the trial, comparing each of those systems against each other, we have looked at water use efficiency as well as expanding it in the last season to look at further information on energy and labour efficiencies because that is becoming an important aspect for our membership in managing the conflict between water use efficiency, energy and labour and trying to find the system that best manages those issues. So far with the trial we have found that it demonstrated a successful grower-led industry-driven program. As I mentioned earlier, where we have provided practical information to allow growers to make a decision on water use efficiency options and now also energy and labour it is localised reference material which is very important in a system like ours, which is quite unique.

The key highlight that we have received and definitely the message that was given yesterday by Nick Gillingham, the manager, is that water use efficiency performance of the lateral system is consistent over the two seasons. Although his major qualification is that having that on board, water use efficiency is not the only driver these days and there are larger operational and energy costs associated with that system and hence there is a thought that the bankless channel system has the opportunity for adaptation in our valley as well. Another interesting point to come out of the trial is that the measurement and monitoring of water on and off fields for furrow and bankless channel system is quite challenging, although the lateral and the drip is much easier because it is managed with a pressurized monitoring system.

The Hon. PAUL GREEN: Your submission recommends that more work on the capacity for our current dams to meet future demands must occur before any new dams can be thoroughly considered. What would you consider when assessing the capacity of our current dams to meet the future demands, though not to build any new dams?

Ms LOWIEN: Our view is to look at some of the challenges and some of the competition for our dams at the moment. I think our submission raised the point that the dam was once established for irrigation purposes and now just less than 20 per cent of the capacity is reserved for environmental purposes, which is different to its original conception. The other, not so much of an issue for the Gwydir I do not believe, is an urban increase that may or may not occur in other valleys and also industrial demands as well as mining. We have concerns for the increase in mining mainly on our ground-water reserves, not so much on surface water, but I do believe other valleys would have concern for surface water as well. We think we need to have a look back at how we may manage into the future a population increase from 22 million now to 35 million in 2056 and how we might meet the food and fibre demands of both our own nation and, at the request of our Prime Minister, to be the food

bowl of Asia as well. We need to look at whether the current challenges we have at our current capacity can meet those food and fibre demands into the future.

The Hon. Dr PETER PHELPS: I want to continue on that line of questioning in relation to the 20 per cent of Copeton dam which is now reserved for environmental flows. Do Gwydir Valley Irrigators have concerns that there may perhaps be an over allocation of water for environmental flows and do you have evidence for the downstream of an over allocation of water for environmental flows?

Ms LOWIEN: Gwydir Valley Irrigators has quite consistently questioned the requirements under the basin plan for environmental water. The 20 per cent, or near 20 per cent, that is reserved for the environment in the dam is a combination of water sharing plan water as well as what has been purchased under the recovery programs for the Murray-Darling Basin Plan. A case in point is that the most reasons draft of the basin plan as it has gone forward has the Gwydir Valley in credit for our in-stream health. The point that we would make is that the modelling by the Murray-Darling basin on that number never actually modelled what water requirements were for the Gwydir, they actually took what water they had and modelled that as meeting an asset requirement.

Our position is that the water they have is more than sufficient to meet the in-stream health and that there needs to be an assessment of whether or not it has over acquired what they require for environmental purposes and our view is that they have. The water sharing plan itself with its both planned environmental water and the environmental contingency allowance we believe, net the requirements of the environment during the drought already, has proven performance and we question why there needs to be water above and beyond that.

The Hon. Dr PETER PHELPS: So do you think one of the recommendations from this committee should be that there be a reassessment of the quantum that is being diverted for environmental purposes?

Ms LOWIEN: And we have asked the New South Wales Government on a number of occasions in our submission for the basin plan to strongly work with the Murray-Darling Basin Association on the modelling for the Gwydir Valley; my point being they modelled what they had purchased not what they needed. The northern basin, as part of the Murray-Darling Basin Plan, has the opportunity to participate in the northern review and what we require is assistance in providing the information and potentially doing some of the modelling through the State based network to prove that the amount of water is larger than what is required.

The Hon. Dr PETER PHELPS: We heard yesterday there are reports of water flowing out from the Gwydir wetlands into surrounding private properties as a result of excessive water flowing into the wetlands. Are you aware of that as an issue, and how often would that occur?

Ms LOWIEN: The example that was given yesterday was in reflection to the floods that occurred in 2011 or just recently, so in the November and January floods 2011-12. The reality was that the Gwydir wetlands are under a management strategy through the environmental contingency allowance operational advisory committee and in that those wetlands were pre-watered prior to the natural flooding event. So when the natural flooding event occurred, the majority of which was downstream inflows, both in November and in January, it resulted in significant amount of environmental water as per the water sharing plan to be distributed to that system. The supplementary sharing rules are shared 50:50 so automatically 50 per cent of the flows that occur below Copeton Dam get shared and sent to the environment. That resulted in a significant amount of natural flooding on top of what was a pre-watered system. Hence, potentially the flooding impacts could have been exacerbated by the pre-watering.

The Hon. Dr PETER PHELPS: Just for the environmental outcomes, I also understand that the ironic outcome is that the pre-watering, combined with the subsequent flooding, produced worse environmental outcomes than if you just had the flooding itself without human intervention in the first place?

Ms LOWIEN: At the end of the day, both from an Irrigators Association point of view, and from the environment's point of view, there was a successful bird breeding event. The irony is that there was some unfortunate flooding out of the original nesting of the bird breeding event. At the end of the day, there was still a highly successful event which is why the environmental contingency allowance was set up in the first place. The point we say is that that contingency allowance was set up initially in negotiation with irrigators, because they believe and are very passionate about their environmental outcome as well. We achieved the outcome, but, yes, because of the two natural events and whether it was the management strategy beforehand, there were adverse impacts.

The Hon. Dr PETER PHELPS: How long ago was that plan agreed upon—about a decade?

Ms LOWIEN: Yes. The water sharing plan came into play in 2004.

The Hon. Dr PETER PHELPS: Do you think there is a need to revisit that place from the observed effects of the last decade? Presumably it is not set in stone or should not be set in stone? It should be based on subsequent research over the subsequent 10 years to see whether the original allocations have been overgenerous or undergenerous?

Ms LOWIEN: It is a very good point considering our water sharing plan is potentially on the table for review. We have had our 10-year period, and we have currently submitted to the New South Wales Government and the Natural Resources Commission regarding that point. Because of the change in environmental water management and in a sense that now the Commonwealth has acquired a fairly significant portion, we do think there could be a reassessment of the environmental contingency allowance based on that. The initial point is that the first environmental water that was provided was pre-water sharing plan, and that was negotiated with irrigators for a bird breeding event. The water sharing plan concreted that agreement, and then increased it without negotiation. Since then, both the New South Wales Government, through the NSW RiverBank, and the Commonwealth have been active in acquiring more.

The Hon. Dr PETER PHELPS: Arguably the Gwydir would not have any additional storage requirements if there was a more realistic assessment of the environmental needs? We would not need to go through an increase in storage capacity, but yet the future requirements of irrigators and, to a lesser extent, town and industry, could be met through a better assessment of what the real environmental need is, not just a number which was plucked out of the air 10 years ago?

Ms LOWIEN: That could be part of an assessment that would need to be looked at. With the dam now, nearly 20 per cent is reserved for environmental purposes. The Irrigators Association is concerned that that changes the behaviour pattern of that dam. There could be reliability impacts on having 20 per cent of that dam used at a different behaviour pattern to irrigators, and how that affects the overall share on evaporation and losses. We think there needs to be some work done on that to tease out whether there are concerns there or not.

The Hon. Dr PETER PHELPS: Do irrigators have concerns? I understand you can bank 150 per cent, unlike the Namoi, which is 125, but the environment can actually bank 200 per cent. Do you think there should be a complementarity across all users?

Ms LOWIEN: Yes, we would support that view. Our submission to the Natural Resources Commission and the New South Wales Government for the water sharing plan review recommended that all licence holders should have the same rules and conditions and we recommended that the ECA should be reverted back to the same rules as irrigators.

The Hon. Dr PETER PHELPS: Because if they were not, it would tend to indicate some users are more equal than others?

Ms LOWIEN: Exactly.

The Hon. MICK VEITCH: On page 11 of your submission, you make an observation that some of my fellow Committee members would concur with, as well as me. We had an opportunity yesterday to visit the fuse plug construction at Copeton, which was part of the Dams Safety Committee's recommendations. You talk in your submission about, in effect, the \$60 million project has no direct benefits to the local community as the safety upgrades will neither worsen nor improve the particular outcomes during such devastating flood events. Essentially you are saying that work was not required?

Ms LOWIEN: We are questioning the investment. To qualify, we think if those fuse plugs—and we have seen the modelling results that have come out of it and if you believe the modelling, that is the best forecast on what may or may not occur—the important thing is we are not valuing human life or the flooding impacts, but for those fuse plugs to be triggered, there would be substantial downstream impacts already, to the point that there would be flooding above record heights that we have seen already. The only benefit that we have been told of the triggering of the fuse plugs is that it keeps 80 per cent of the dam in storage, rather than losing the entire dam wall.

There would be so much impact downstream to the point that the modelling indicated 16 or 17 metres through the township of Moree, which would be devastating enough anyway before the fuse plugs were triggered. Our concern is that the New South Wales Dams Safety Committee made that recommendation at stage 1. When we move to stage 2, the concern is that that cost of any further upgrades to any further risk situations would be borne by water users whereas currently it has been public funds for public benefits. Our question would be is a \$60 million investment with little or no change in loss of life scenario, for example? If we go to a higher risk threshold at a higher cost, that is worn by irrigators, potentially. We are questioning the value of that investment.

The Hon. MICK VEITCH: We have seen quite a bit of the modelling yesterday. A presentation was provided. To be fair, some of the Committee members, including me, and I know Dr Phelps is of the same view, this one in one million years flood event criteria, with the work we have seen around the State, you have to wonder. I note your comment, which reflects the views of some, if not all the Committee members, but certainly a few of us.

The Hon. Dr PETER PHELPS: I will certainly put my hand up. There is massive overengineering.

The Hon. MICK VEITCH: There seems to be an overassessment. The work looks very good. It is fantastic work, but for \$60 million and what you are saying here, for no discernible benefit, it would appear that you concur with us.

The Hon. Dr PETER PHELPS: We saw on the pictures, the line comparisons between complete failure and the level at which it would be triggered. Living in most of these towns you are going to be swimming, anyway.

Ms LOWIEN: That is our point. The impacts downstream would be devastating before the triggering of the plug.

The Hon. PAUL GREEN: What would you have done with \$60 million? What could a local government have done?

The Hon. Dr PETER PHELPS: Paul makes a good point. Given the concerns which have been expressed about cotton on-farm storage and evaporation rates, you could have spent that money entirely covering the valley with new, deeper clay-lined on-farm storage to close down and regrade all of the less efficient on-farm storages, so you could have a smaller number of good, deep, on-farm storages with that money. It would have been a better use of the funds, assuming government wanted to spend money, and I am immediately opposed to spending money—

Ms LOWIEN: Assuming it could have been redirected.

The Hon. Dr PETER PHELPS: If you are going to spend money, there is a whole range of things that could have been done.

The Hon. PAUL GREEN: There is a plethora of ways.

The Hon. Dr PETER PHELPS: Arguably it probably could have been done cheaper down the entire valley, for a more effective use of water-saving arrangements.

Ms LOWIEN: There would be a list, including upgrading dam efficiency on farm. There are opportunities, as we talked about earlier, potentially modernising the delivery system, managing some of the constraints for delivery in our system, as well as upgrading some regulators. There would be an opportunity to invest in research and development to harness the information that irrigators are testing themselves on ground and throwing some research dollars behind that. That could have an opportunity and maybe there could be some offsets given to the community for some of the socioeconomic impacts of the water recovery to date.

CHAIR: Are there any further questions before we close the hearing? Is there anything else anybody would like to contribute before we close this session?

Ms LOWIEN: I would like to again thank you for coming to the valley and recognising that we do believe that the irrigators in our valley are extremely efficient and quite innovative in what they do. We think

that the results and the community benefit of having an industry like we do in this valley is essential for our community to thrive in the future. We encourage anything from our association's point of view that maintains the long-term prosperity and security of our valley, and we encourage the State Government to look at projects that also maintain that outcome.

CHAIR: Before we go, we may have other questions as we go through our evidence today. If we do have some further questions, the secretariat will let you know of those. Will you be prepared to answer those questions within 21 days?

Ms LOWIEN: Yes.

(The witnesses withdraw)

(The Committee adjourned at 12.13 p.m.)