COMMONWEALTH OF AUSTRALIA

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SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT REFERENCES COMMITTEE

Reference: Rural water usage in Australia

WEDNESDAY, 27 AUGUST 2003

GRIFFITH

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SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT REFERENCES COMMITTEE

Wednesday, 27 August 2003

Members: Senator Ridgeway *(Chair)*, Senator Heffernan *(Deputy Chair)*, Senators Buckland, McGauran, O'Brien and Stephens

Participating members: Senators Abetz, Boswell, Brown, Carr, Chapman, Colbeck, Coonan, Crossin, Eggleston, Chris Evans, Faulkner, Ferguson, Ferris, Harradine, Harris, Hutchins, Knowles, Lees, Lightfoot, Mason, Sandy Macdonald, Murphy, Payne, Santoro, Tchen, Tierney, Watson

Senators in attendance: Senators Buckland, Ferris, Heffernan, O'Brien and Ridgeway

Terms of reference for the inquiry:

To inquire into and report on:

1. current rural industry based water resource usage;
2. options for optimising water resource usage for sustainable agriculture;
3. other matters of relevance that the committee may wish to inquire into and comment on that may arise during the course of the inquiry, including the findings and recommendations from other inquiries relevant to any of the issues in these terms of reference.
4. the Committee to make its report to the Senate on this matter by the last sitting day in 2003.

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Committee met at 9.06 a.m.

CHAIR—I declare open this public meeting of the Senate Rural and Regional Affairs and Transport References Committee. This is the committee's first opportunity to publicly canvass issues raised by its inquiry into water resource usage in that part of rural Australia which relies on irrigation water for its agricultural activities. The committee's program for this week has taken it to St George on Monday, to Moree yesterday and to Griffith today. The committee is currently programming further hearings from now until the end of November which are intended to give us a complete picture of the rapid and difficult changes facing rural water users. The committee's inquiry focuses on current rural industry based water resource usage, options for optimising water resource usage for sustainable agriculture and other matters of relevance that the committee may wish to inquire into and comment on that may arise during the course of the inquiry, including the findings and recommendations from other inquiries relevant to any of the issues in our terms of reference.

I welcome all the witnesses here today. This is a public hearing and a *Hansard* transcript of the proceedings is being made. The format for today's hearing is a program of witnesses invited by the committee. At the end of the hearing, at approximately 4 pm this afternoon, I will invite any others who attend who wish to speak on a matter relevant to the inquiry to make a short statement. That statement can be for three minutes and will not be subject to committee questioning. Those contributions will form part of today's record of proceedings and will be considered by the committee in preparing its final report. Anyone wanting to take advantage of that should get their names and details to the committee's research officer, Mr Geoff Dawson, who is walking around at the back of the room, and he will arrange for that to occur. To date, the committee has received a large number of written submissions on this reference, all of which are available from the committee secretariat or the Parliament House web site for the committee's inquiry. The committee will also publish all submissions received to date, and I want to confirm now that the committee resolves to do so.

Senator HEFFERNAN—It does.

Senator O'BRIEN—Yes.

CHAIR—It should also been noted that the committee has authorised the recording, broadcasting and rebroadcasting of these proceedings in accordance with the rules contained in the order of the Senate of 23 August 1990 concerning the broadcasting of committee proceedings. Before the committee takes evidence, let me place on the record that all witnesses are protected by parliamentary privilege with respect to the submissions that have been made to the committee and any evidence given before it. Any act by any person which may operate to the disadvantage of a witness on account of evidence given by him or her before the Senate or any committee of the Senate is treated as a breach of privilege. While the committee prefers to hear all evidence in public, if requested, the committee may agree to take evidence in camera and record that evidence. Should the committee take evidence in this manner, I remind the committee and those present that it is within the power of the committee at a later date to publish or present all or part of that evidence to the Senate. The Senate itself also has the power to order the production and/or publication of such evidence. Any decision regarding publication of in camera evidence or confidential submissions would not be taken by the committee without prior reference to the person whose evidence the committee may consider publishing.

[9.09 a.m.]

BLACKWELL, Mr John, Scientist, Commonwealth Scientific and Industrial Research Organisation; and Delegate, Riverina Regional Organisation of Councils

DAL BROI, Mr John Peter, Chairman, Riverina Regional Development Board

LAING, Mr Bob, General Manager, Griffith City Council; and Delegate, Riverina Regional Organisation of Councils

McINNES, Mr John Ernest, Mayor, Murrumbidgee Shire; and Delegate, Riverina Regional Organisation of Councils; and member, Murrumbidgee River Management Committee

NEVILLE, Councillor Michael Gerard, Mayor, Griffith City Council; and Chairperson, Riverina Regional Organisation of Councils

CHAIR—I welcome our first witnesses today, the representatives from the Riverina Regional Organisation of Councils, commonly known as RIVROC. Do you have any comments to make on the capacity in which you appear?

Mr McInnes—I am the RIVROC representative on the Murrumbidgee River Management Committee and the ground water committee for the lower Murrumbidgee.

Mr Dal Broi—I am a councillor on the Griffith City Council and I am an irrigator, a rice grower and a viticulturalist.

CHAIR—Councillor Neville, would you like to make an opening statement?

Councillor Neville—In his absence, I would like to introduce Mr John Blackwell, who will be here shortly. John is a scientist with the CSIRO based at Hanwood. In this presentation from RIVROC I would like to go down a couple of paths, and I have given you an updated submission addressing a couple of oversights in the original submission and a few things we needed to bring to your attention. The way I would like to address the committee is for Councillor McInnes and I to give you a bit of an overview of our submission. I would then like to invite Councillor Dal Broi to outline a number of key issues in relation to the importance of water from the economic development point of view. Mr Blackwell will then look at some of the environmental issues that, no doubt, we are all well aware of.

I refer you to our submission, and I would like to look firstly at our conclusion there prior to going through some of the other things. RIVROC would like to challenge this committee to consider the following issues of significant importance to us. As you know, in the area bounded by this region of councils water is the key of life—that is the most salient point that we need to bring to your attention. The potential of the current water resource management changes and reductions in irrigation water allocations to impact on this area is significant. Changes to current water resource management and reductions in irrigation water have the ability to and no doubt will impact on the economic sustainability and viability of this region—which is significant

because of the impact that will have on lives not only in this area but in the areas that this community services.

We recognise the importance of environmental sustainability, and that is another key thing. We believe that the advent of technology and the better use of water as a resource in this area is first-class. Environmental flows and the scientific evidence supporting those need to be transparent. We would ask that there be some defined objectives clearly given, such as performance indicators and demonstrated outcomes, before any additional water is transferred from this area. RIVROC's concerns lie with the merit process and the claims being espoused in a number of areas, particularly in the report titled *The living Murray: a discussion paper on restoring the health of the River Murray,* currently being undertaken by the Murray-Darling Basin Commission. The impact that that has on this area, particularly the drafted and indicated environmental flows required, could disadvantage this area permanently. The bottom line really is that the water resource debate has been discussed at all levels and all we ask is that there be some consistency in how it is addressed.

We appreciate that various ministers and members of both parties have their own views; however, from our community's point of view we ask that there be a level playing field in the debate and that we focus on clarifying and creating an environment where things are transparent. Rather than broad statements being made by various members at all levels of government, state and federal, we need a common vision and strategy for water use in Australia that is indicative not only of the need for water but also of the potential outcome of water usage options for the nation. In summary, that is where we are at.

I would like to now go back to the start of our documentation. As you are probably aware, this area—the Murrumbidgee Irrigation Area and the Coleambally Irrigation Area in the western Riverina—is renowned as the most viable agricultural sector in this nation. The net value to our nation is about $1.5 billion through the national economy—through local, state, interstate and international markets; and they are significant—and, obviously, the impact that has on the nation is significant from a value-adding point of view.

Griffith City Council is a regional centre with a customer catchment of approximately 60,000 people. Its current population growth is significant at around two per cent. It is Australia's fastest growing and developing regional city, and that growth been significant over the last five years, averaging around 2.3 per cent. We believe that there is a need to ensure that water allocations in the Murrumbidgee catchment represent an equitable balance between environmental needs and the need to foster the economic development of the communities within this region.

We have placed before you a number of options in our submission, particularly in relation to environmental flows, so that we can try and ascertain again a clearer understanding of exactly where you want to go. Going to our conclusion, we would like to see some clarity in the debate, some clear direction from government at all levels on which way they would like the debate to go, and then, obviously, an opportunity at all levels to have some input. We have some other self-interest areas, which we have also detailed, in relation to the potential separation of land and water and the impact that would likely have from a local government perspective, with the changes of rate values, which have the potential to be significant.

The fear factor is probably one of the most important things to this community and to other communities close to us. As government stimulates debate in these areas, particularly when it comes to environmental sustainability in other areas, there is also some myth associated with that that people do not understand. We ask that there be some clarity of definition and some open and bilateral discussions at all levels of government so that the communities do feel that they are adequately able to provide some input. We would prefer that any negotiation and any discussion, particularly in relation to information, is provided on the basis that there is an ability to have some input at any level, as opposed to having information sessions and meetings for meetings sakes and the communities being held accountable as open consultations when, in fact, they are not.

The *Living Murray* paper has supplied a very practical example of that where, in this very building and in a number of buildings around the Riverina Regional Organisation of Councils, information sessions were given by the various players on the select committee. The first that most people heard about it was in the media after it beat up the fact that there was open consultation. That was not the case. With respect to your committee, we appreciate the opportunity to come here, have some open dialogue, present our case and, hopefully, as you have outlined earlier, Mr Chairman, have some input to some further feedback at a later date.

Mr McInnes—I have been a member of the Murrumbidgee Valley Water Users Association and also of the committee that has formed the water-sharing plan for the Murrumbidgee, and in that time we have travelled up and down the river. There are a number of users of the river, but it gets down to a crisis point once the river reaches Narrandera. The users below Narrandera are totally dependent on water. Above that area there are other attitudes. For instance, Wagga is most concerned about air space in the dams to stop flooding. When we got to Tumut they were talking about the tourism and the fishing, and so on. Trout, by the way, are not a native fish and yet that is a big issue there. In the overall discussion we came up with a water-sharing plan, which is going to be implemented on 1 January, that satisfies all the components of the river: the irrigators and the environment. There is provision for the end-of-river flow past Balranald of something like 300 megalitres a day, which was never there in the days before there were controls on the river.

I have tested this point in other groups and I can say that the Murrumbidgee is the best regulated river in New South Wales and it is probably the healthiest. We have provided for end-of-river flows for the sections in the river below the dams where water is stored. Generally speaking, what has evolved in the irrigation areas, particularly the MIA, has been a system of water sharing over a number of years to meet the needs of all the components of the river. The final plan meets those needs of the river. The thing is that now we have people coming in and saying, 'You've got to give more water.' Those plans meant that the irrigators gave up to 17 per cent of their water back to the environment. Now we have people like those from the Living Murray group suggesting that the Murrumbidgee now has to contribute more water to South Australia—obviously for irrigation but nobody seems to be prepared to say that. We have also a dipping into the Darling happening in Queensland—and you will hear more later today from Murrumbidgee Irrigation about the cap that was set on the river, which was based on the Murrumbidgee and current water use. A lot of the other states seem to be given scope to go higher before they have to meet the conditions. This is having an impact and if water does not come down the Darling and into Menindee Lakes the Murrumbidgee is going to be asked to provide water for South Australia. We on the river management committee believe that we have

done the fair thing by everybody in our own valley and by those at the end of the valley who are entitled to get some water into the Murray. But now we have got people making this impost.

There was provision for environmental flows in the Murrumbidgee and the over-bank flooding and so on that took place—it was on the back of irrigation—had a devastating effect on fish life. It brought back tannin into the river and there was a fish kill. Yet the scientists in Sydney—or maybe they were in Canberra—commented that it was wonderful as it brought food back into the river, but it turned out to be fairly poisonous. On some of these issues local knowledge seems to outweigh some of these scientific things. For instance, just after the scientific group made the statement about there being no Murray Cod in the river, three cod, each over a metre long, were caught in the same catch at Hay. That totally contradicted what was said by the people who had been there a few weeks before and could not catch any fish, perhaps proving that scientists are poor fishermen.

Senator HEFFERNAN—They were using the wrong bait.

Mr McInnes—So that is what it was. I think anecdotal evidence has not been taken into account in a lot of these things to do with the health of the river. In our local government contact with the Murray it was stated that different sections of the Murray in New South Wales were dying, yet the anecdotal evidence was that there was more water passing through—that is what makes a healthy river—and that there was more growth along the banks. So the locals just do not believe some of these scientific statements.

Some of the impacts of cutting back water are destabilising the irrigation industry. It is not just local government being affected, as Mike has mentioned. Also affected are family farms that have a water allocation where there is a heritage thing and people are trying to get bank security. Some of these things that have traditionally been the basis for valuing land, such as water allocations, are being undermined. The transition from one generation to the next is being undermined. It is pretty tough if a farmer has just arranged for the family to take over, they have a bank loan and the valuers are told to go and have another look because the water can be sold off and it is devalued. This has a community impact on the security of the whole area for bank loans, purchases and all those sorts of things. Those are the sorts of things that RIVROC are most concerned about in respect of destabilisation. Some of the most secure land and irrigation land in Australia is being undermined by new and fairly highfalutin plans about how water should be used and moved.

I would like to comment on water trading. Water trading can upset the whole balance of the river, and it needs to be controlled. For instance, there needs to be control over the water that moves out of and into the Murrumbidgee Irrigation Area to keep the balance of the bulk licence. I come from the community of Coleambally. We were established on the basis of the water that was going to be available from the Snowy scheme. We have established a town and a community, and we have grown to about 3,500 people, which is a minimum community. You can have a high school, a doctor and general quality of life. The minute you go below some of these figures you start to lose some of your services. In Griffith, they started to lose some of the higher education, health and hospital services and so on because they are the drawing area. The fringe areas, or the smaller communities on the edge, are impacted even more heavily.

RIVROC believes that this is the socioeconomic study that should be done before any water is moved or changed from where it is, not a farm gate study which says the farmer's income will go down by 10 per cent. The production of the area, the value adding that goes on and all those things are affected in the local government area. RIVROC is most concerned that, if water is moved out this valley to another valley or out of the end of the system, these communities are going to be impacted very seriously.

Councillor Neville—We have highlighted what John has just outlined in our dot point on page 4. We are requesting that the committee look at some of those areas that are of significant importance to us. We have tried to dot point each area as best we can. The simple fact of the matter is that any removal of water out of this area to any other area, whether it is an environmental flow or for water trading or other things, impacts on the residual and on whether the community here is sustainable.

Fundamentally, this area was legislated and drought proofed for the benefit of the people of New South Wales when Sydney was a big town of 900,000-odd people. Today, with a population base of about 5 million, the need to feed those people is more significant. In hindsight, perhaps we should just shut down the area for a couple of weeks to see whether Sydney actually notices. I am sure that within a couple of days, with transport systems the way they are now, it would.

Senator HEFFERNAN—You could close the wineries.

Councillor Neville—Water is the key of life, and it does grow wine. Whilst we are on that point, I now invite Mr John Dal Broi to give his perspective.

CHAIR—Before you do that, I welcome Mr Blackwell. Do you have any comments to make on the capacity in which you appear?

Mr Blackwell—I apologise for being late. The plane could not get here any more quickly. I work for CSIR0 Land and Water at the Griffith laboratory. I have been here for 35 years. I am an agricultural engineer, and I am passionately interested in irrigation and sustainability.

CHAIR—Thank you.

Mr Dal Broi—I was worried for a while that I would have to follow John Blackwell. You will see that he is quite a raconteur. In relation to the Riverina Regional Development Board, let me outline our boundaries, because it depends where you come from. The Riverina is a very large area, but our areas encompasses Tumbarumba, Tumut, West Wyalong, Hillston, Hay, Coleambally, Lockhart and Wagga and everything in between. The Riverina Development Board represent about 160,000 people. Our whole economic strategy—and we look at various groups that facilitate development—revolves around water no matter which way you look at it, whether it is manufacturing, tourism or agriculture. Sometimes it is difficult to imagine that you would have to utilise water, but we were told the other day that even to establish new timber plantations up in Tumut will require some form of water. At the rate that they are being harvested, the timber will start to run out in about 10 to 12 years time. With Visy and what is happening at Tumbarumba, there is a big call for timber. To keep the plantations going, you need water. These people are looking for water. When Visy first established at Tumut, there was quite a lengthy debate over that particular company requiring some 1,200 megalitres for their establishment.

They had to go out on the open market and purchase it. I think there was some resistance by the developers. They felt that they should have been able to purchase an amount of water from, for example, a government pool, but they had to go out on the open market and purchase it.

I endorse the comments made by the mayor and Councillor McInnes and I will not repeat what they have said. I will simply say that, particularly in the western Riverina, in the RIVROC area, water is just everything. If we did not have water, I suggest to you that the townships of Leeton, Griffith and Coleambally would not exist. We would just be a dry place and that would be that.

I have been involved in irrigation all my life. I can remember, from when I was young enough to carry a shovel, helping my father with irrigation. I do not like to go back in history, but too often we hear that farmers, whether we are horticulturalists or rice growers, are—I hate the term—environmental vandals. We are not. If you look at what we have done over the years to actually improve our water usage, it is quite astounding.

I do not know if the committee is familiar with terminology such as 'bankless channels' and 'rooftopping of bays', particularly in the area of rice growing. Not only have we reduced water usage quite enormously, but we have improved the ease of management. Time will not allow me to expand on this. I said to the general manager that maybe we should have a blackboard here to explain to you exactly what it all means. In our case—and I am sure it is the same with Councillor McInnes, who is an irrigator also—rooftopping allows us to step our bays. You rooftop them individually and you have to have laser levelling and the water can be that high to grow your rice, whereas years ago we would have to have it that deep because you had an irrigation system that followed contours.

We have come a long way and spent a lot of money and improved our properties of course, but now we really need that security of an allocation to be able to work our properties. I am opposed to water trading. I have an allocation of water and it is there to operate my properties. We have come such a long way that I do not know where we go from here. I would hate to lose more of our allocation, because that would be an enormous problem for us.

In the last six or eight years, we have taken a turn in our farming enterprise and have gone to viticulture. I mentioned in council here—and I suspect that is why I am here—some time ago the difference between high-tech irrigation and flood irrigation. I was checking some figures the other day. In one particular block of 85 acres—and I will use acres because I get confused with hectares—we used just under 70 megalitres of water. To water 100 acres by flood we used 294 megalitres of water. It goes to show that with high tech we can save the water. But, in saving the water, we do not want it then taken off us. That water allocation is really mine to put to another enterprise to utilise.

There is a scheme—they call it 2020 Vision, I think—through MI that encourages horticulturalists in particular to go to high-tech irrigation. There is some resistance out there because a lot of the growers do not understand it, but the incentive was that they should surrender part of their water as payment for the high-tech irrigation. It has not been taken up as well as we would like. My view was, 'Show me where I sign, because I will be in it straightaway and we will convert all our farms to high tech.' And we will do it anyway in due course. It is better management. You can control your crops and grow better quality grapes. For too long we have been known as a bulk producer of grapes. With the control of water, we perhaps might not

quite match the Barossa, but we are getting closer. We are actually having a lot of plantings here over the next few years. There is a lot of interest in growing grapes.

I will leave it at that. Suffice to say that water is everything to us. As I think John mentioned, we have already surrendered part of our allocation to the environment. We have already surrendered five per cent of the high-security water that we have on our property and we will not see that again. I think most general-security irrigators would be more than happy if they could receive about 85 per cent of their allocation each year. We have done our bit, but as irrigators we look for some security.

CHAIR—I should say that I am mindful of time constraints and it is up to you how you want to use your time. If you want to make time available for questions we will be able to test some of the—

Senator HEFFERNAN—Questions are the most productive part. We can read all that.

Mr McInnes—I will base my response on a question. I would like to know what the Senate committee thinks. Water trading, which John Dal Broi has just brought up, has upset the whole flow of the river and we are starting to get some of these multinational companies that are buying up water. It is having an impact in our shire. They have bought four or five farms; they are moving the water too. It is connectable. With regard to the water trading part, I ask Senator Heffernan: why has it been brought in and what impact might it have if we start to get water barons? Are we going to see the day when water from the Murrumbidgee River is going to be offered on the New York Stock Exchange? If so, what is the national impact of that? It belongs in our valley and yet it seems that this could be taken to an extreme. Some of the intellectuals in our country are advocating it. What do you think of that?

CHAIR—Could I just say that Senator Heffernan has already been on the record in the last few days as being very clear about his position on a national trading system. I know that his answer will be a long one, but I do want to hear from Mr Blackwell as well. I am sure that when we do get to question time, that will become clearer. Mr Blackwell, do you want to say a few things?

Mr Blackwell—Certainly, although I would much rather respond to your questions, because I think that is the best way we can help.

CHAIR—The interesting thing for us is that we have been to St George and Moree and we have not heard from any agricultural scientists. You are the first. There are a lot of things that we would want to ask in relation to the research that is being done and the scientific base that informs any decisions that are taken. I do not know whether you want to take a couple of minutes to offer any views or advice, particularly in terms of the Wentworth Group, which we were talking about, the Living Murray plan and the range of other things that may be in train at the moment—or may have been previously.

Mr Blackwell—I have to be very careful how I answer specifics about the Wentworth Group as it contains my boss and lots of other people. Perhaps you can scrub that! My concern—or our concern as scientists in the Riverina—is to make sure that each of the prognoses that are put forward and ideas that are floated are based on sound science. We have formed a little thing

called the Sturt Group to ask about the science in the Living Murray process. It would be a truism to say that none of us sitting in this area want an unhealthy system. We want a healthy river system, but we do not quite understand what that is. To simply say, 'We need X gigalitres of water to create a healthy system,' is not good enough. What are the outcomes you want to derive from the acquisition of this water? How do you want to use it? To what best purpose can you put it?

Even John will say he wants a healthy system, but his claim to some right to water is a sound one. He has bought land, he has developed the land and we have developed a town on the basis of that. He is not a fool; he understands that if there is nothing in the dam then we cannot have a share of nothing. But certainly a right of access is critical. To give him that right of access for 10 years is like selling you your house for 10 years. You would not be happy with that. There are lots of points to be made and this is not the forum to make them. I would simply make this plea to you: irrigation is critical in a global sense. It produces 30 per cent of our global food, including maybe 50 per cent of our two basic staples. We are no different here. We feed an awful lot of people out of the irrigation areas of Australia—not just the irrigation people or the Australian population.

The other salient point that I would make—and then I would really rather answer your questions, if I can at all—is that we all share in this responsibility. Those of you who live in cities have probably abrogated the most basic principle in your lives—that is, to feed and clothe your family—to three per cent of the population, which is composed of people in this country like John Dal Broi and John McInnes. That abrogation to them of the responsibility to produce your foodstuffs carries with it an obligation to help cure the ills that are perceived in our natural systems. I would argue that the outcomes of river flow for environmental health need to be more clearly defined. We as engineers and farmers can help people achieve those outcomes, but we do not really understand what they are.

CHAIR—To begin questions I would like go back to Councillor Neville's opening remarks and the statement he made about wanting to get to a point where there is a common vision and strategy for water use. Hasn't what the Wentworth Group has put out provided some sort of focal point or at least some clarity about the issues that need to be looked at? So far in the last two days we have had a mixed response about whether that has been helpful or not, particularly since the perception has been that it has been driven from the outside as opposed to via local initiatives.

Councillor Neville—I think the fundamental issues there are community consultation and clarity. With the advent of water-sharing plans, you have so many players—you have the Wentworth Group and, as John mentioned, the Sturt Group, which is like a review group—and everyone has their own view. I think the community needs a balanced view and a clear direction from government on which way they want to take the debate. Rather than put the cart before the horse, I think that, in the big picture, we need to look at the socioeconomic fabric of communities and the changing dynamics that any debate has. When it comes to consultation, it is a matter of being open about it. To have three or four speakers address a meeting or forum and then walk out and say that that is consultation is not due process, as you and I both know.

To try to answer your questions, I guess a lot of promises have been made that are not sustainable, particularly in relation to environmental areas. We need to see some open dialogue

that provides a clear direction on, (a), the intent of government and, (b), the net impact that that is going to have on our nation, which is more significant to us. At the end of the day it is irrelevant who governs us. At the end of the day, what is more important is whether we are able to be sustainable and viable in the environment we live in. The basic premise of an area that started as an irrigation wonderland—and it still is one, and it is one that is becoming increasingly efficient every day—is important to us. It may not be important in the halls of parliament, but it certainly is to us.

CHAIR—That leads me to the next part of the question. In your original submission to the committee you also talk about the socioeconomic impacts. I do not disagree with you about taking a wider approach that does not just look at the question of water use and water allocation. You mentioned something about a report that, I think, Hassall and Associates had done. I am not familiar with that; perhaps other members of the committee are. Could you tell us something about that? I know you expressed some views about what the report actually says about the socioeconomic impact—presumably in this part of the region.

Mr McInnes—The Hassall Group was asked by the Murray-Darling Basin Commission to do a study, and I was one of the people they asked for information. They called and talked for an hour about my farm program—where I had come from in developing my farm, my farm income and so on. This was what I referred to as a 'farm gate' sort of thing. I was interviewed. I mentioned the Coleambally community. Nothing was recorded or anything. This was what I meant by a 'farm gate' impact, as against a socioeconomic and community thing that should have taken in not only local government but also local businesses, schools and the whole thing. The whole thing should be taken into a study that is done that way. This is the community part that has not been done and should be done before any decision is made.

CHAIR—We can get a copy of that report. My last question is more looking at the science side of things. We heard yesterday from representatives in the Gwydir and Namoi area about the need for more environmental rigour in defining what needs to be done when it comes to looking at environmental flows—and it is much more than that. We were not able to get an answer to this yesterday—and I do not know whether that is because it was not forthcoming or whether we did not push hard enough—but I wonder if you, Mr Blackwell, have given any thought to what environmental rigour means, in terms of trying to define the other side of the coin? At the moment the focus seems to be more on the users' perspective.

Mr Blackwell—I am not an environmental scientist but I think a lot about it. I think that all they are asking for, if possible—and environmental science may not be as precise a science as we would all like it to be—is a definition, up front, of the outcomes we seek in terms of environmental flow. Let us assume that the river is degraded and that water down the river will improve that: what exactly do we then want to change in the river system? My environmental colleagues say it is a difficult question for them to answer as well.

But surely we can begin to answer it. We have things called icons. So if we have icon wetlands, for instance, what do we need to do to keep them alive—breeding and supplying to the river the function that is necessary? Is putting X gigalitres down in a flood—and maybe swamping Narrandera—the only way we can fill and drain these wetlands? That seems to me not a very smart way to go. I would have thought that if we knew the outcomes that were required we could think about managing those, because, like it or not, we live in a managed river system.

Without a managed system I would have thought we would be in a parlous state this year—worse than ever. We are not going to go back to a pristine thing—and, in fairness, no-one is arguing that—but what are the outcomes you require? If we knew that, we could put our collective brains together and try and achieve them. That is one of the questions that scientific rigour in effect encompasses. That is the question that people more widely are really asking.

Senator HEFFERNAN—Should not the first thing on the table be an audit of what is there? Why have you fellows ignored what the forests are doing to your run-off? You talk about the water for the Tumut Visy mill, but above 35 inches those plantation forests are taking out five megalitres of water per hectare for nine years of a 15-year forest cycle, and they are not being brought account. So in the next 15 to 20 years, under the 2020 vision—the tripling of the forests—1,000 gigalitres will be taken out of the catchment which no-one is bringing to account.

Mr Blackwell—Is the environment concerned about that? It is taking their water as well. Frankly, in answer to your question, I think John did answer that. He talked about water on the forest—not only the mill. I thought he was talking about an irrigated system. But he is not; he is talking about what you are talking about.

Senator HEFFERNAN—Everyone has been silent on why the forests above 35-inch rainfall are not being required to buy a water licence and take it out of the system. It is not going to be in the system. Why are you silent on that?

Mr McInnes—At one stage, an environmental flow to go down the river in October became available to the river management committee. Fisheries said they wanted it two weeks before; the bird breeding people said they wanted it a bit later; and the ones that wanted some of the red gums flooded seemed to have no criteria to say what exactly they wanted it for and what the outcome would be. Accountability has to be put into this. We need some sort of matrix that says when the water is available and how it can be delivered. John Blackwell has raised a very important question: is over bank flooding the only way you can do it? Pratt Water are now looking at ways of putting a channel in or pumping it or—

Senator HEFFERNAN—With respect, my question is: would you support a proposition—backed by the Murray-Darling Basin Commission's science—that, if you want to plant a plantation forest in your catchment above a certain rainfall line, the run-off that is going to disappear from the river system should be acquired as a water licence and taken out of the system? Because the forest is sure as hell going to take it out. Do you have a scientific view on that?

Mr Blackwell—The scientific view, obviously, is that you are right. If you change that landscape to an afforested one, it will take more out of the system. But there are many other things you might do to change that run-off capacity. If you change to good, deep, perennial pasture up in those slopes, you may well change the system.

Senator HEFFERNAN—The science on that is already done. For a 20- to 32-inch rainfall, there is not much difference at all in run-off between plantation eucalypt, pine and pasture. Once you go up the scale, above 35-inch rainfall, the graph becomes vertical in forest and stays pretty flat on pasture. The science is established, but for industry there has been no environmental planning done on where the plantation forests should be. I am saying that plantation forests

should come down into the areas of lower rainfall and should be given some assistance to do that so that we get a salinity credit as well as the benefit of the enhanced flow. It is a statistical fact that 38 per cent of Australia's run-off comes off 2 per cent of the land—and we are intercepting that. As much as anything, I am making you blokes aware of what is going on at the top of the river.

CHAIR—We are doing a separate inquiry into plantation forests as well, so it has come up.

Councillor Neville—It seems like he has been doing a bit of reading.

Mr Dal Broi—We are encouraging farmers perhaps on marginal country down lower where you were talking about to plant it, but of course there is a long lead time from the time you plant a tree to then being able to harvest it, so people would rather stick with traditional farming. We have project officers, particularly up around Tumut, Batlow and those areas, encouraging farmers to plant part of their properties with timber.

Senator HEFFERNAN—What I am really trying to say—through you, Chair—is that you are worried about losing a proportion of your head licence. Under what is proposed at COAG, they are going to talk about a proportion of the water available becoming your water entitlement under whatever circumstance—such as the changing climate. The scientists tell us that climate change will reduce the run-off in the southern Murray-Darling Basin by 15 to 30 per cent over the next 70 years. The plantation forests that are planned now are going to take 1,000 gigalitres out of the system. You are saying that, as opposed to the environmental people, you need to be conscious of things besides the environment that are going to put pressure on your allocation.

Mr McInnes—This is not facetious, but what is Canberra doing? They were on our headworks. Are they going to reduce the number of swimming pools? I think there are three catchments or dams in the Canberra area, including the Goodradigby and the Molonglo, and those are part of our feed.

Senator HEFFERNAN—The answer is that Canberra's population has grown by about a third in the last 20 years and their water consumption has dropped by 30 per cent. In the same period, Adelaide's consumption has gone up by 17 per cent. Canberra is making a contribution with smart shower heads and half-flush toilets. They have reduced their use by 30 per cent, despite their growth.

Senator FERRIS—I never thought I would hear you defending Canberra, Senator Heffernan.

Senator O'BRIEN—I wanted to see whether you had a snapshot of the Murrumbidgee catchment in your submission. Could you give me a breakdown of water consumption by agricultural, domestic and industrial use in the valley?

Mr Blackwell—Agriculture will greatly overshadow everything else. I do not have an accurate figure.

Senator O'BRIEN—Is there one somewhere?

Mr Blackwell—Yes, I think we could get one. Probably 80 per cent goes into agriculture, but I assume you want it more accurate than that?

Senator O'BRIEN—I do. I think we were told that the daily flow at the end of the valley is 300 gigalitres. Is that right?

Councillor Neville—That is right.

Senator O'BRIEN—What has come out of the river before then? That is a point I would like added to the information you have given to us.

Mr McInnes—I think Murrumbidgee Irrigation will be able to give you something.

Senator O'BRIEN—I want to clarify that information on the Tumbarumba timber plantation. You said 1,200 megalitres were purchased.

Mr Dal Broi—The Pratt Visy Board development needed 1,200 megalitres of water to finalise the development.

Senator O'BRIEN—Did they effectively irrigate the plantation?

Mr Dal Broi—That is not for irrigation, it is just for the plant.

Senator O'BRIEN—You were talking about it in the context of a timber plantation. You talked about rooftopping in terms of water use in rice growing, and you were giving us an example of your property and the efficiency that was achieved.

Mr Dal Broi—I am not unique. This is happening throughout the rice industry. It is expensive but it does give you good water savings effectively. It puts less pressure on the soil, because you have less depth of water. You can have 20-acre bays, better control and less water usage with the recycling system, with the exception of this year. Being a drought year, this year the water usage was quite high per hectare. It was some 17 megalitres per hectare. However, generally we can get down to 11 or 12 megalitres per hectare to grow a crop of rice. I know that the cotton people will tell you that we use more than they do, but that is not exactly correct. The established rice growing areas use between 11 and 12 megalitres in a normal year.

Senator O'BRIEN—I guess that means, without taking into account any varietal improvement, that productivity per megalitre of water has increased. Can you give us any figures on that?

Mr Dal Broi—I cannot, but I am sure Mr Linnegar will be able to give you the figures for the rice industry.

Mr McInnes—In round figures, last year or the year before last I used 11 megalitres per hectare and produced 800 tonnes of rice with 800 megalitres of water. In some countries—for instance, Egypt—rice is regarded as having the quickest turnover of water to food product and it is given priority. I think the rice industry will give you some information on that.

Senator O'BRIEN—In terms of the current regime for water entitlement, obviously there currently is not a property right in water and that is what you are seeking with your submission. Is that true?

Councillor Neville—With rice, yes.

Senator O'BRIEN—In terms of tying the right to the land, which I think you are also suggesting, how should we approach that in the context of the COAG decision of 1994, which I think was the determinant of the framework of disaggregating land and water rights? Are you saying we should go back to pre-1994 in terms of a policy setting?

Councillor Neville—We are suggesting that any decision in relation to the separation of land and water takes into account the net impact that that will have on the fabric of the Australian community, particularly in areas of high irrigation usage. The changing nature of the beast may be that—to perhaps go back to answer Senator Heffernan's question—by removing water from an area like this you also remove the people. The net impact of removing that might be insignificant in numbers but in net value to the Australian economy it is significant. Regarding the separation of land and water, I guess the big picture issue from a local government perspective—and the Riverina regional councils are indicative of the local government beast—is the net impact. With the number of unfunded mandates thrown at local government by state and federal governments—more by the state governments—to pick up the tab on the public purse to do things, having the dynamics of your rate base potentially changing significantly impacts on your ability to service the community and their needs.

Senator O'BRIEN—We were up at St George on Monday, and in their environment are those upstream who take the water from those downstream, and that continually happens down this catchment. It is a consistent theme in our inquiry. Should we be looking at the Adelaide situation and saying that there is a whole lot of take from the system which denies water to South Australia? Should we be giving them some sort of right to buy water rights from other catchments to ensure that it gets there, given that it was getting there before and now people are taking it? It is sanctioned—nevertheless that is the case.

Councillor Neville—I guess that comes back to which came first, the chicken or the egg. The river was certainly there and, as John mentioned, it was in pristine condition. However, time, technology and the need of the Australian people to be fed created an irrigation district called the Murrumbidgee irrigation area, which was set up to feed the people of New South Wales. Legislation was put in place to do that. Obviously the impact is a concern that we would have regarding the continued granting of licences for people to use water to crop or whatever. It would also be a concern of local government. However, to answer your question, the impact of that may have been taken into account at the time, although I guess no-one read the crystal ball as well as we all can do in hindsight. The reality is that it has been put in place and the impact that it has is significant. However, the problems that the South Australians may well have this year with the closing of the mouth of the Murray may have happened anyway in a drought, because there was probably no water in the river to start with.

Senator O'BRIEN—That may be true but—

Councillor Neville—We are talking about a regulated system set up to do a certain thing, and the extension of your question would be that possibly there is some room for them to buy water—and no doubt they have. However, they also have access to off-allocation water from other systems outside the Murrumbidgee catchment, which we happen to live in.

Senator O'BRIEN—Given that we have a river system that intersects with four states, a number of people have suggested to us that the Commonwealth rather than the states should take responsibility for this river system and implement arrangements. There is obviously a constitutional problem with that, but what would your organisation's view be of a change such as that?

Councillor Neville—The argument there would be that a committee of one is sometimes better than a committee of several. The fundamental issue there—and I guess our submission highlights that—is the fact that we want some clear definition, and whether that is the Commonwealth government's stand as opposed to the stand of three or four state governments is irrelevant. At the end of the day, all we are asking for is open consultation, together with clear direction and definition in relation to property rights, water rights and the big picture issues that we have outlined. The constitutional issue is obviously something that you would have to take up with the Australian people, but I do not see any problem with it.

Mr McInnes—I think it goes back to when the cap was set. I do not know all the details. There may be some later today from Murrumbidgee Irrigation—that that is when South Australia was given some scope to continue, and in New South Wales we were set on what we were using. The Murray-Darling Basin Commission—the four state governments and the federal government—have done that, but we were not a party to it. You still have to answer my question about trading too.

Senator O'BRIEN—I do not think he is allowed to.

CHAIR—We will get to that.

Senator HEFFERNAN—I am happy to, but they will not let me.

Senator FERRIS—Mr Blackwell, can you tell me a little more about the Sturt Group, why you formed it and how it differs from the fundamental principles of the Wentworth Group?

Mr Blackwell—The Sturt Group is a loose association of concerned scientists and citizens who listened to a seminar on *The Living Murray* and were simply concerned about the background information upon which *The Living Murray* document has been generated. We simply have meetings. We call people down to speak to us about *The Living Murray,* to try and understand it. The group is not set up for any other reason. It is a group of interested scientists and community people.

Senator FERRIS—Do you have any sociologists on it? Do you have people looking at the likely economic effect, as distinct from the scientific effect, on regions where there may be changes in water allocations or water use?

Mr Blackwell—The Sturt Group does no work itself. It simply tries to seek some information. It would be as concerned about the socioeconomic responses to a Living Murray change as it would be about any scientific instream or outstream change. It simply seeks information. It does not do any work itself.

Senator FERRIS—What particular areas of *The Living Murray* document are you concerned about?

Mr Blackwell—As you know, there are three target flows. There is the 350, the 750 and the 1,500—and of course in the precursor to the document there is one of 4,000 megalitres. The group would say that it is concerned about those and would like to glean an understanding of them. If you can claim that 150 gigalitres is useless, 350 is next to useless, 1,500 is of moderate use—and then, although it is not printed in the final document, the 4,000 looms large—that concerns people, who simply ask the question: on what basis do you make that claim? What is it you are trying to achieve with these different flows? Why is 150 useless? Maybe 150 gigalitres used really wisely is a pretty good idea. How much does Adelaide require—to come back to Senator O'Brien's question? How much does the city of Adelaide itself use on a daily or yearly basis?

Senator FERRIS—Let me say as a South Australian that many of us were absolutely appalled that South Australia was the only state that did not impose water restrictions last year, and I have no doubt that that decision was made for political reasons. So I do not think that we really know at this stage what South Australia, and Adelaide in particular, could manage with, because we have never, amazingly enough, addressed that question—to the significant embarrassment of some of us. What I am trying to get at here, given your qualifications within the scientific community, is a tighter definition of the differences between the Sturt Group and the Wentworth Group, because on each of the last two days we have heard evidence of the lack of consultation from the Wentworth Group before the document was produced, even though it involved areas that deeply concerned the people who were witnesses. We also heard that subsequent to the document's publication Wentworth Group advisers and scientists lacked availability—they were not able to come and discuss with people in affected areas how the implementation would be rolled out and what the sociological effects might be. Now there is another group, and I am very interested to try and pin down fairly tightly what makes you different from the Wentworth Group, because the Wentworth Group document has become fashionably acceptable as being the base document in this area, and there are many people in areas like yours who are deeply concerned about the ramifications of it. I am trying to get you to tell me exactly what those differences are, within the constraints of your work.

Mr Blackwell—There are no constraints within that. I was being facetious earlier on, and I am trying to tell you what the Sturt Group is. It is a loose association. It does not purport to do anything. It just seeks knowledge. It shares your concern exactly and seeks to find out what the basis for *The Living Murray* document is. On what are the statements from the Wentworth Group based? We have had John Williams, who is a leader in the Wentworth Group, and Mike Young, who we will have again because he has not given us a full seminar. We have had Cath Bowmer a couple of times—she is not in the Wentworth Group, but she is a fount of knowledge. We just seek knowledge—no more than that.

Senator FERRIS—Has anything been published by the Sturt Group?

Mr Blackwell—No, not really. We do not intend to. We literally just hold seminars. We could give you a list of the seminars we have held and perhaps some information that we have gleaned through them. But it is a fact-seeking exercise.

Senator FERRIS—Which is very commendable. However, if *The Living Murray* document, which is a publication that has wide circulation and credibility, is being questioned by a group of eminent people such as yourselves, then it seems to me that it is quite important that the Sturt Group product some sort of publication as well, otherwise we have no eminent group that is questioning the Wentworth Group.

Mr Blackwell—I would not say we are an eminent group.

Senator FERRIS—You are obviously as eminent as they are, in some different ways.

Mr Blackwell—One wonders. We are asking questions, that is all. You are perhaps right. Maybe we should try and put down in some sort of document the answers we have gleaned.

Senator FERRIS—If there is to be informed scientific debate—and I personally believe there should be; South Australians would like to see that—then we need to have the information that you are obviously sharing with each other.

Mr Blackwell—We are seeking it. I am not sure that we have it. For instance, there is your inability—not blaming you—to determine what Adelaide needs. If nobody knows, how can we debate it?

Senator FERRIS—I cannot say whether they know or not. All I can say is that, given that this is the first year of water restrictions, that they only came in in July and that they have not been through a summer, we have no way of knowing what Adelaide can do without.

Councillor Neville—They are quite often half an hour behind, aren't they? The issue there—you have highlighted it, and it is the area of concern we have raised in relation to consultation—is that the Australian way unfortunately is sometimes that until the shark bites you on the bum you do not know that it is in the pool. Because consultation and vision is sometimes a bureaucratic process, the bureaucrats tend to run it, and time and those things would mean that things need to be printed. Far too often in *The Living Murray* situation, as far as this area would be concerned, people do not traditionally think of the Murray Valley beyond the terms of, 'Oh, that's that piece of water you cross when you go to Victoria.' However, in the water debate, which is something of significance to this region—obviously it has been closely monitored—people have the tendency to look at who is involved in that process of consultation and say, 'Yeah, okay, they would represent these people or whatever.' But at the end of the day, when it comes out in black and white, you see it and it is smacking you in the face completely—or it is diametrically opposed to the position you may well have—all of a sudden the Australian way is to stand up, put up your hand and start to criticise. I commend John and his group for the vision that they have shown in trying to continue that process of gleaning information—and obviously disseminating some at appropriate levels. We would have expected that that type of process would have been followed in the first place.

Senator FERRIS—One of the difficulties with having an informed debate is that a number of participants in the debate come from vested interest areas—and I am not having a shot at you. It seems to me that the Sturt Group and the Wentworth Group could argue that they are at arm's length from having a vested interest, and therefore the Sturt Group should equally look at a publication in the way that the Wentworth Group did.

Mr McInnes—Six hundred people attended meetings in various towns along the Murray and here. We got on the front page of our local paper, and there was nothing more. You people who are making the decisions are not hearing our protest. The community consultation is totally lacking.

Senator FERRIS—Somebody sent me six copies of the Wentworth Group publication and there was nothing from you.

Senator BUCKLAND—I have one question for Mr Dal Broi. You were talking about your method of saving water by rooftop. You said, 'I saved that much water, but I do not want to lose my allocation.' What happens to the rest of the water? Are you saying that you will trade that to someone locally?

Mr Dal Broi—No.

Senator BUCKLAND—It just goes down the river?

Mr Dal Broi—I have never traded in water. As I said earlier, I oppose trading. At the end of the season, if I have saved 200 or 300 megalitres, that would remain within the system. At the moment with water trading, come the end of the season there are lots and lots of people out there saying, 'I have got 200 megalitres. I am going to sell it.' They might get $30 as a temporary transfer. So that water is activated. If you have not got water trading, it will not be released from up the top. If you want to release it for the environment in a proper manner, it can happen that way. At the moment, it is all activated because of water trading.

Senator BUCKLAND—You are saying, 'If I've got excess, I do not need all of my allocation this year; it will just go down the river system.'

Mr Dal Broi—It will not be let down from the dam, for example; or it can be used for the environment.

Senator BUCKLAND—You are not saying that you want to keep that water and call on it later?

Mr Dal Broi—No. Allocations are on an annual basis. At the end of the season, if I have some left over, that is it. I have saved that water. I do not have to pay for it. I pay the administrative costs for the allocation but I do not actually pay for the water usage. Water trading has allowed people to go out there, place it on the market; so that water is activated.

Senator BUCKLAND—Your leftover water would go straight down the river.

Mr Dal Broi—It stays in storage.

Councillor Neville—Instead of going from there to there, it is staying here. What John is saying about the trading at the moment is that they are taking all that out to move it wherever and there is nothing left: the cupboard is bare.

Senator BUCKLAND—It is not traded water. You are saying it just stays there. At some point in time someone uses it, or it goes down the river.

Councillor Neville—It may be used in a future allocation.

Mr Dal Broi—Some people will use all their allocation. What we are endeavouring to do is use less of that water.

Senator BUCKLAND—At some point in time, if we are all using less and less, the storage becomes full. It goes somewhere; it goes down the river. Am I right?

Mr Dal Broi—Okay. Adelaide would benefit.

Councillor Neville—In a perfect world.

Senator BUCKLAND—That is all I wanted to know.

CHAIR—Senator Heffernan, do you want to quickly answer the question that you were asked, before we finish?

Senator Heffernan—I also want to make a point to John Blackwell. In relation to the 350 or whatever was the guess on *The Living Murray*, can you see my point that if you were to decide it was 1,000 gigalitres for a healthy Murray, obviously that is going to come from somewhere and that will probably be from the other users in the river system. But if we do not bring the forests to account, which is a 1,000 gigalitres and 600 net over the next 15 years, the irrigators are going to get a double whammy. That is my point.

Mr Blackwell—I understand the point you are making.

Senator Heffernan—Now to the question. What was the question again?

Mr McInnes—It was about water barons and water trading and the fact that it could get out of hand.

Senator FERRIS—Don't ask that one or we will be here all day!

Senator HEFFERNAN—The short answer is that the government has got the message. Six months ago the carpetbagger blokes thought this was going to be a river of gold. I think we are going to head that off because everyone has suddenly woken up to the fact that you cannot transfer water from, for instance, the Murrumbidgee to the Lachlan, as some people have tried to do in the past, or from the Murrumbidgee to the Menindee. But one of the things that Senator O'Brien flagged which is a serious issue is that some of the upriver people are tending to defy downriver rights.

CHAIR—Does that answer your question?

Mr McInnes—Yes.

CHAIR—I will finish on that note. I thank Councillor Neville, Councillor McInnes, Mr Dal Broi, Mr Laing and Mr Blackwell for appearing and providing assistance to the committee. Obviously, a copy of the *Hansard* will be available at some stage in the future and if we need further information, the secretariat may well be in touch. Thank you again.

Senator FERRIS—Mr Blackwell, has your group looked at the role of sleepers and dozers?

Mr Blackwell—I guess it has looked at them but it has not made a study of anything. I have taken on board your point that maybe we need to write down what we have found out and I will put it to the chair of the group that we start to do that. But really we are gleaning information.

CHAIR—Thank you, Mr Blackwell.

Councillor Neville—One offer, too, in relation to Senator O'Brien's questions in relation to usage: if you are not able to access that today could you please make contact and we will chase that up for you?

CHAIR—Thank you.

[10.16 a.m.]

LINNEGAR, Mr Matthew James, Executive Director, Ricegrowers Association of Australia Incorporated

CHAIR—Mr Linnegar, I invite you to make some opening remarks before we go to questions.

Mr Linnegar—Thank you very much for the opportunity to come and talk to you this morning. Obviously, our full response you have in front of you. I want to make a few points to open up, if I may. Firstly, the Senate is looking at the issue of water usage. We are seeing many changes occurring in the area of water entitlements, usage and otherwise. The first thing I wanted to say was that obviously those people who are going to be most affected by the changes that are occurring now need to be fully engaged in the process. Secondly, they need to be assured of the security of their investment. They are the two critical points when we are talking about water usage. In relation to engagement in the process, we have outlined in our submission ways that community engagement can be improved and we base that on the OECD principles.

There have been smarter investments in more efficient practices in water usage. They have been happening across the board over the last 10 or 15 years in particular. But I feel to go further that that process is being stymied by this lack of security, and I am sure you are aware of that. My organisation and I believe that long-term water access rights are the crucial first step to sustainable irrigation in the future. We hear a lot about what enterprises people should or should not be in when we are talking about water usage. I believe that it is not a role for government to decide what enterprises people should or should not be in or what are appropriate or inappropriate. But of course government, industry and the community must continue to fully engage on the issues of appropriate mechanisms for water access, sharing and use.

What is missing in the debate at the moment is meaningful and factual data on water use. What is water use? Are we just talking about what people are using on farm or are we talking about the full use of water from paddock to plate, if you like? Figures on returns per megalitre can be misleading if they are the single indicator of why farmers select one enterprise over another. We believe that simple gross margin comparisons do not account for things like fluctuations in return over time or talk about the levels of capital investment that are required.

If all farmers choose to grow so-called high value crops, simple supply and demand will tell you market failure will occur. Also, many so-called high value crops have severe price fluctuations and high enterprise risk. Farmers consistently choose rice as part of a mix of their enterprises in this area, because it delivers profitable returns, has low levels of labour input per megalitre, has consistent markets—meaning lower risk—and growers own the product right through the value chain. The government's role is to work with industry and the community to get the policy settings right and to allow farmers to make the commercial decision about where that ought to go. There are plenty of other facts and figures, but rather than go on with those I would prefer to open it up to questions and go from there.

Senator BUCKLAND—I want to ask about some of the research and development that is going on in the industry. I read with interest the move towards rice that requires less water. Can you tell us a little more about that? Is that the rice we heard about earlier today where that uses less water or is it more like a dryland crop?

Mr Linnegar—We have only recently released a new variety called Quest which will have a 10 per cent water use efficiency advantage over its predecessor. Those sorts of gains have been made—I think you have seen the figures of around 60 per cent improvement in the last 10 years. We have set some targets to go beyond that, of course. Those sorts of improvements will continue to be made. The quantum leaps that we are talking about, if we go well beyond jumps of 10 per cent, will occur mainly because of a couple of things. The first is the issue of cold tolerance. I do not know if you are aware that rice when it is grown can fluctuate in water depth between just a couple of centimetres of water up to about 20 centimetres for a three-week period. That is mainly because of temperatures. It is a temperature buffer. If you have cold damage at a certain time of year, you are going to lose your crop. Our scientists are saying that with another four degrees of cold tolerance, which we believe we will achieve in the next four to five years, we can seriously start to look at things like rice on beds and other factors. Upland rice, which is totally aerobic rice, is another quantum leap altogether. Our policy at the moment is a no GMO industry, so you could start to look at getting that sort of level more quickly, if you were going to go down that track. But currently our policy is saying no.

Senator BUCKLAND—I am interested in another area—and I am an infrequent traveller along roads where rice is grown—but it worries me to see so much water lying. It also worries me when I see the uncovered channels and dam storages. I do not know if you need to go to pipes, but what is going on to eliminate the evaporation of water as it is moving from river to farm?

Mr Linnegar—In terms of where the major water savings are in the system, there are probably a lot more savings in things like—and I am sure Murrumbidgee Irrigation will refer to this—the Barren Box project, which is reducing evaporation from a large surface area to a smaller surface area and increasing the depth. Those sorts of things will achieve far greater savings than looking at channels. Piping channels are happening in a small way, but in an extensive way it would be hugely expensive. I do not know how much you would save by doing that. There will be points along channel systems that are leakier than others and they are the ones that need to be targeted.

Senator FERRIS—I think it would be fair to say that the rice and cotton industries are the ugly sisters in this whole debate about the future use of water and the appropriate crops to grow in areas that are under stress in relation to water allocations. What is the rice industry doing to address that perception by people who may never visit a rice growing area?

Mr Linnegar—That is an interesting point. Let me put it to you another way: if we could somehow magically show all the people who are concerned what we are doing in the industry right from paddock to plate, many of those concerns would be addressed. However, we cannot do that and we do not have multimillion dollar budgets to allow us to go out there and advertise. But I think the results are speaking for themselves in many other ways. About five years ago the industry made a concerted effort not just to improve our environmental performance but to lead Australian agriculture in environmental improvement. Some of the results today speak for

themselves. We are the only industry with a biodiversity strategy plan. We are the only industry with a greenhouse strategy and we now have the Environmental Champions program which is funded by the federal government. That program is leading the way in terms of on-farm EMS in Australian agriculture.

Senator FERRIS—To pick up on Senator Buckland's point, I drive across the Hay plains very frequently and I once got a puncture in 43 degrees right beside an open channel.

Senator HEFFERNAN—Did you jump in?

Senator FERRIS—I would have pushed you in if you had been there. The first thing that came into my mind was the rate of evaporation from that channel. I heard what you told Senator Buckland, but I just wonder whether your industry needs to consider more carefully some sort of program which involves signs along the highway where rice is growing pointing out what you have just told us—and I would say the same to the cotton industry. I do not believe that people who drive past irrigated crops understand that you are a much more efficient user of water than you used to be and that new rice varieties are making better use of the water that is used.

It seems to me that both of your industries have a lot of questions to answer in a public sense to ensure that people understand that you are appropriate industries to survive in what is currently a very stressed area of Australia in terms of its water usage. Whilst I am perhaps more aware than some other people about this, I do not believe that either of you has addressed this well enough and the Wentworth Group has stolen a march on you. I am not sure whether you were here when I spoke to the previous witness, but unless the assessments and evaluations are challenged by scientists who can do that, industries like yours are going to suffer in a public relations fight about water. What is your response to that?

Mr Linnegar—On the public relations front we are doing what we can within our means. You would have seen some of our booklets that went to all politicians on the matter.

Senator FERRIS—Thousands of people drive over the Hay plains. They see what your industry is doing and they are the ones who ask the questions; they might not get the booklets.

Mr Linnegar—They may not. In relation to the Wentworth Group, as you say, they have stolen a march because governments have taken the attitude that it is much easier to consult a group of experts than to talk to the community and make some sense out of what communities think. That needs to be addressed as well. If you have a group of eight people who are eminent experts, why not?

Senator FERRIS—Your industry has been around a lot longer than the Wentworth Group.

Mr Linnegar—Yes. And what you have pointed to is synonymous with what has happened in the community trend wise. You would know that irrigation was highly valued 30 years ago when all these developments were happening. Because of a range of other factors it is not as well known or as highly valued now. If you leave it to rice or cotton, or to whatever the target industries happen to be at the time, that is not going to get us as far as a national focus on irrigation or a national campaign. Until that happens, we will continue to do what we can but we

simply will not have the resources to fight the multimillion dollar PR campaign you are referring to.

Senator FERRIS—But you accept my point?

Mr Linnegar—I accept your point, but hopefully we can rely on people like yourselves to set the record straight.

Senator O'BRIEN—On page 4 of your submission you state that the industry has invested in environmental improvement. Can you give us a description of the sorts of projects that have been undertaken and some detail of the improvements gained?

Mr Linnegar—The improvements are at multiple levels. There are obviously on-farm improvements. I am sure the irrigation companies can give you accurate figures on farmers and land-holder investments in land and water management plans, which are significant. Certainly, between the three areas, it would be over $100 million to date, I would imagine, in land-holders' money. That is the on-farm, the recycling, laser levelling et cetera—those sorts of measures.

As an industry we have also invested heavily in the sorts of programs I referred to earlier. As an industry we have put literally millions of dollars into programs like the biodiversity improvement program, in which we are partners with the Murray-Darling Basin Commission; the Greenhouse Challenge, with the Australian Greenhouse Office—we have obviously been working there—and now our Environmental Champions Program. That is the on farm EMS program where we are running a pilot with over 200 growers, which will be the biggest of the EMS pilots happening around the country. Those are the sorts of programs at those multiple levels of on-farm and as an industry we have been investing in.

There is also our R&D program. With our contributions, government contributions and other bodies, that program runs at about $18 million a year. I think a significant proportion of that will go into the sorts of things we referred to earlier with Senator Buckland with regard to improvements in water use efficiency.

Senator O'BRIEN—Is the debate that is going on having any effect on the industry's relationship with the banking sector? Is it affecting your ability to obtain loans? Is it affecting the interest rate?

Mr Linnegar—I am not sure about interest rates. I think it is more the security issue. With respect to the 10-year horizon—that is not yet apparent but it is going to become apparent—in New South Wales the banking sector have made it reasonably clear that that is not a long enough investment horizon for them to feel comfortable about lending on. Certainly growers have portrayed to me that that is a concern of theirs.

Senator O'BRIEN—On page 5 of your submission you mention 'potentially sourcing water for environmental flows from philanthropic contributions and buyback from willing sellers'. How much water do you think we would be able to obtain via those mechanisms?

Mr Linnegar—I think Don Blackmore has some ideas about what philanthropy might bring. Willing sellers? I think that makes sense in a lot of ways. Leaving aside the argument we talked

about earlier about how much is required—let us just assume there is a volume that is—I think going down the track of buyback from willing sellers, looking at the issue of water savings et cetera is a much preferred method, rather than nominating an across-the-board cut and saying, 'We're going to go with two per cent,' or something like that. The reason is that it allows an exit strategy for those people who want to get out of the industry and it does not penalise the people who want to stay in and who are putting capital into efficiency savings.

Senator HEFFERNAN—Do you disagree with someone in the Coleambally irrigation area wanting to get out and selling it to the environment out of the confined area?

Mr Linnegar—Someone wanting to get out in Coleambally?

Senator HEFFERNAN—You have confined areas with head licences. If I am a Coleambally cocky and I want to go to Wagga to live, can I sell my licence to the philanthropic environmental flow group—out of the area? In other words, the water is going to disappear out of the area.

Senator O'BRIEN—Do you mean put it in the river?

Senator HEFFERNAN—Yes.

Mr Linnegar—If we get down the track and everyone agrees that an amount of water is required and it goes beyond what you can get out of savings, you have to look at those mechanisms. I think what you are referring to is perhaps the issue of stranded assets. If you had a lot of people doing that in one area, clearly that would need to be looked at.

Senator HEFFERNAN—There is a view that water should not be traded out of, for instance, the Coleambally irrigation area. Do you agree or disagree with that?

Senator O'BRIEN—With respect—because you jumped in on my question I will jump in on yours—that is a false premise because, if it is going into the river not to be used in another catchment, it is purely for environmental flow purposes. It is not the same argument.

Senator HEFFERNAN—No, you are missing my point. Correct me if I am wrong but in the Coleambally area there is the view that water should not be traded out of the area. That is my point. Do you understand that, Senator O'Brien?

Senator O'BRIEN—Yes, I understand what you are saying.

Senator HEFFERNAN—So what I am asking is: have the rice growers had a change of mind on that and will they now agree to let water be traded out of the confined area?

Mr Linnegar—What is required in the longer term are some sensible rules around the issue of trade. There is either end of the spectrum: there is 'free it up absolutely and wherever it wants to go it should go'—that is not going to work—and then there is 'absolutely no way are we going to trade anything out of this area; we must keep all in here'. I have my doubts whether that is going to work either. Clearly the issue of stranded assets and the much harder issue of the social dynamics need to be taken into account when we are looking at that issue of trade.

Senator HEFFERNAN—The short answer is that you have not got a policy on that yet.

Mr Linnegar—No.

Senator O'BRIEN—On page 6 of your submission you state:

Our farmers recognise the value of water ...

and on page 7 you point out that because water is the major cost input to rice growers' businesses this drives farmers' desire to minimise use of the resource. I have had the argument put to me that if water were fully priced to its true value then further efficiency gains would follow. Would you like to comment on that?

Mr Linnegar—It depends. I understood that we were at or close enough to full cost recovery. This is not the full value of water?

Senator O'BRIEN—What is water worth? What it costs to produce it and what it is worth to producers. That is the proponent's statement, not my statement. The price of water is what the market will bear. If it is priced at what the market will bear, does it necessarily follow that users will find ways to be more efficient with it?

Mr Linnegar—I think that has been happening anyway. The permanent and temporary transfer prices of water have increased. Then there is the issue of what it costs to deliver your allocation, so to speak. I understood that to be, from the IPART review in New South Wales, at or just about at full cost recovery. Others would say: 'I hear the argument that water's too cheap. What does that mean? Water should be increased in price? Why?'

Senator O'BRIEN—Environmentalists might say that to drive down the use of water you make it more expensive, you force the efficiency and it does not matter what it costs to produce it. Because we want to deliver some to the environment, we make it more expensive and effectively it would require you to develop your system to use less to get the same result and, therefore, put more back into the rivers. Environmentalists might put their argument that way.

Mr Linnegar—I heard John Dal Broi talk about this earlier. You will find that the efficiency savings that people are making are primarily to keep up with reductions in former access. They no longer have the access they used to have. They either buy it in or they create the efficiency. That is what has been happening.

Senator O'BRIEN—Finally, looking at your submission, it looks as though you are predicting a crop of about eight tonnes per hectare. On page 4—extrapolating from your hectares sown and the average production—you are talking about eight tonnes per hectare which would see, on your projected water usage figures, about 0.66 tonnes per gigalitre of water used. Is that a fair extrapolation?

Mr Linnegar—We have averaged over the last five years certainly over nine tonnes per hectare—about 9.2 or 9.3.

Senator O'BRIEN—Maybe your figures are wrong and you want to look at them again but in point 1 you have given some general figures about hectares sown and the average production of 1.2 million tonnes annually. Then on page 8 you talk about water usage being down from 15 to 12 megalitres per hectare in 2000—it may have improved since. I was using those figures and extrapolating that if you get eight tonnes per hectare that is 0.66 per gigalitre.

Mr Linnegar—Currently we are at about 0.8 tonnes per hectare. We have set in place mechanisms to average out at a tonne per hectare in the near future and to go beyond that. The fact that we are clearly leading the rice world in water use efficiency and yield means something to us but I do not know how much it means in the current debate, unfortunately. We are quite focused on that issue and we will continue. We have set our targets in place and we will go beyond the tonne per hectare.

Senator O'BRIEN—How much water would rice growers take from the Murrumbidgee per year?

Mr Linnegar—From the Murrumbidgee, I think—

Senator O'BRIEN—You can take that question on notice if you like.

Mr Linnegar—We roughly produce around 400,000 tonnes of rice at about 0.8 tonnes per megalitre, so it would be about 450,000—

Senator O'BRIEN—About half a million?

Mr Linnegar—Roughly. I can get you the exact figures but just to give you a ballpark figure—

Senator O'BRIEN—That will be useful. Thanks, Mr Linnegar.

CHAIR—In your submission you raise the issue of equity shift and you talk about the need for a suite of measures to be put in place. I thought it was very interesting that you had developed a number of ideas. I wonder whether you had given much thought—perhaps this is a question for the ground water people this afternoon—to sleeper and dozer type licences with compensation as part of a buy-back scheme. That issue has come up in the past few days. Does the Ricegrowers Association have a view on whether that ought to apply in those circumstances or is there some other flexible way, as part of a suite of measures response, that might cater to their circumstances? Presumably they have gone to the bank, they have used the water licences as part of the process to raise capital and so on, and they are servicing loans and all the rest of it. How do you deal with those circumstances with this equity shift concept that you have put forward?

Mr Linnegar—Are you talking specifically about ground water users?

CHAIR—I think it applies to them mostly. I do not imagine that you have any members in that circumstance.

Mr Linnegar—There are certainly ground water users who grow rice but I think that—

CHAIR—In that case are your members affected in that way?

Mr Linnegar—Some of them will be, yes—not many but there will certainly be some that are affected by it. The issue of sleepers and dozers has led some falsely to believe that there is this massive amount of unused water hanging around. If you can name some licences in the Murray-Murrumbidgee surface water that are unactivated, I would like to hear about them. I do not think there are too many. Ground water is a different story. The equity shift argument that we raised was that, if you want to shift from one paradigm to another, equity needs to be addressed in doing that. If you want to move from currently using water for these types of uses to some other use which may be environmental, who should pay for that shift? That is what the argument is based on.

To get back to your question, we are talking about a suite of measures to achieve that shift. When we put this document together we came back to the same issue we seem to face all the time: who pays? We will get to Friday and it will still be about who pays and where the money comes from. We need to look at who should reasonably bear the cost of the shift. The ground water systems that you are talking about are largely being focused on because they have been grossly overallocated for what we understand the resource to be. So where do they go from here? They have done all the things you have said. They have invested, they have gone to the bank et cetera. I think that if the licences have been given and the water is not there then the major burden of that cost has to lie, in this case, with the taxpayer.

Senator HEFFERNAN—Is it a state government error, though?

Mr Linnegar—In that instance, yes.

CHAIR—I think Senator Heffernan is referring to the decision in the eighties to allocate many licences and the outcome of that decision.

Senator HEFFERNAN—Could you give the committee a bit of an idea of the value of a water licence and what has happened to the value of a water licence over the last 10 years in a confined area and outside? You might let the committee know the history of the deregulation of rice growing on the Hay plains, how that occurred and what has happened since.

Mr Linnegar—If you are talking about the permanent transfer value of a water licence, that has seen a reasonably steep increase in the very recent past. The value of permanent transfer was on a steady incline prior to that, but, particularly in the last two seasons of water shortage, we have seen quite a steep increase.

Senator HEFFERNAN—Do you have some figures on that or could you provide them to the committee?

Mr Linnegar—I could certainly provide them later.

Senator HEFFERNAN—It is around $650 a megalitre down the Murrumbidgee. What is it in the confined area?

Mr Linnegar—I do not think it is much different. Two years ago it was probably running at $400 to $450 a megalitre.

Senator HEFFERNAN—Could you explain to the committee the increase in percentage terms in the production of rice outside the confined areas?

Mr Linnegar—The percentage last year would not have been much at all.

Senator HEFFERNAN—In normal rainfall conditions.

Mr Linnegar—Let us say, for example, that there is a 1.2 million tonne crop. The three areas that you are talking about—Murray, Murrumbidgee and Coleambally—would certainly account for 900,000 to a million tonnes of that. So you are probably looking at 200,000 tonnes of that being outside those confined areas.

Senator HEFFERNAN—What would your view be if someone went into one of your areas and decided, under the new regime of water trading, to accumulate water licences as a speculator?

Mr Linnegar—To say that we are not going to have trade anymore goes to the pre-1994 separation issue. I do not think it is going to happen. I think that what is required, though, are some sensible rules in relation to water trade and someone to oversee those rules. If, as you say, speculators are going to snap up some large percentage of the existing licences I do not think that is going to assist in fair market operations. As long as the other two things occur, sensible boundaries can be put around those sorts of things.

Senator HEFFERNAN—Given that 6.2 per cent of the run-off in Australia is in the Murray-Darling Basin, whichever way we do the sums there is full recognition that there is not enough water for the sums to add up—so everyone will have to lose a bit—have you blokes given any thought to bringing to account the extraction by the new plantation forests? You are going to be brought to account. At this stage, no-one is talking about bringing the extraction by the new plantation forests to account. Have you given any consideration to defending your position on that?

Mr Linnegar—Yes. There is no policy position, but clearly in this climate into which we have now moved—an era of water trading and separation, bearing in mind the things I have already talked about—new players in the market ought to purchase those entitlements just like anyone else has to.

Senator HEFFERNAN—So at what stage do you reckon we will see commercially grown, non-paddy rice?

Mr Linnegar—I cannot tell you. It depends on whether you want to pursue GMOs and on whether completely non-paddy rice is the way to go anyway. Certainly with a mixture of anaerobic and aerobic, given conventional breeding—let us assume GMO is not going to happen and our policy remains the same—then those sorts of things will be happening within the next 10 years.

Senator HEFFERNAN—Do you think the price of water might force you to rethink whether you should be going down the GMO path?

Mr Linnegar—It depends on whether we continue down the full cost recovery path or we allow people to artificially jack up the price of water.

Senator HEFFERNAN—The banks and the carpetbaggers are arguing that they ought to be in the market. I am saying that they should not be. Obviously there is going to be a hell of an increase in the value of water. Shouldn't that be something that you should be addressing in the future because it is as plain as the nose on your face that if you do not do these sorts of things you are going to be out of the market anyway?

Mr Linnegar—We are of course addressing that. It follows that if you become more efficient you use less water and achieve higher returns, which we certainly have the potential to do because we own the product through the value chain and because of the way in which we deal in the world medium grain market, not the long grain market, so we do not deal in world prices for rice. As you know, all of our products are value added, so we have the potential to do that. It concerns the twin areas of increasing the value adding regime—and you have heard about the $6,000 a meg. rice product, not the other figures you hear about. We have the ability to do that. So there are two things: do that end of things right—the value adding—and continue to increase the proportion of products that are higher value added and increase water use efficiency. They are the two things that we are doing about that issue.

CHAIR—I will ask you to take a question on notice. The submission that you provided is technically precise in dealing with the macro issues but, at least to me, it does not provide details of the consequences of changes in relation to members of the association, particularly those in the MIA and the CIA. Presumably, you have done some surveys of members as to what the effects and consequences are going to be, which would give us a clearer idea of what we are talking about in terms of both percentages and the value in dollars.

Mr Linnegar—So percentage reduction in access and what that would mean?

CHAIR—The impact upon your members in terms of growing rice and in relation to licence impacts—if there is a reduction in entitlements—and then the financial impact: if people are going to stay or go and what variations are going to happen.

Mr Linnegar—We could certainly do that.

CHAIR—Thank you, Mr Linnegar, for coming along and providing assistance to the committee today. A copy of the *Hansard* will be available shortly, and if there is any other information that we require then the committee will certainly follow that up with you. Thank you again.

Mr Linnegar—It has been a pleasure.

Proceedings suspended from 10.54 a.m. to 11.07 a.m.

HECKENDORF, Mr Rel Llewellyn, Chairman, Murrumbidgee Private Irrigators

SHAW, Mr Murray Ross, Vice-Chairman, Murrumbidgee Private Irrigators

CHAIR—Welcome. Mr Heckendorf, would you like to make an opening statement before we go to questions?

Mr Heckendorf—No, not really. We just need to reiterate that some of the institutional arrangements are not conducive to best practice water management. I have had eight years experience as a member of the Murrumbidgee Catchment Management Committee, I am still a member of the Murrumbidgee River Management Committee and I am also Chairman of the Murrumbidgee Customer Service Committee for State Water. We wanted to concentrate on some of the institutional arrangements that are holding up better water management, particularly in this state.

CHAIR—Do you want to take us to some of the points in your submission? For example, you could talk about what you see as some of the challenging issues or at least issues that go to previous policy decisions, where perhaps the settings were wrong or right and, as a result—given the amount of information we have received in the last few days and the more than 50 submissions about water reform at the state level—the impact, presumably, on your members and members of other groups.

Mr Heckendorf—My comment on the institutional arrangements is that with nearly everything there is a 'from the top down' approach. At the moment, Living Murray is being promoted by scientists, politicians and bureaucrats, and a lot of that is self-interest. As for catchment management, when the New South Wales government originally introduced the Catchment Management Act, the whole process—and I spent eight years in that process—used to get bogged down by jurisdictional issues between different departments and organisations. At the end of the day, we never used to achieve much.

We managed to get a water management planning process out of that original organisation, and that has been very successful. That has been promoted and embraced by local people—and government has been dragged along as an unwilling participant in a lot of cases. That is the bit that concerns us. Everybody out here knows what the issues are, but getting something done about them is a different thing altogether. Take the NHT funding for instance. I am not too sure what happened to that, but I do not think Murray and I saw much of it.

We represent people who live along the river. People who live along the river never get consulted about what should happen to the river. A lot of people have had 50, 60 or 70 years experience of living along the river. For instance, people say that the Murray cod is endangered. Fishermen pull out Murray cod within 20 or 30 minutes of putting a line in the river. Trout cod are endangered, and people go crook because they have to throw the damn things back. There is all this sort of stuff.

I am amazed at how people can come up with some of this so-called scientific evidence when they do not even bother talking to the fishing clubs that go out every weekend with their tinnies

or what have you. There are about three or four different boating organisations in Wagga that go out on the river every weekend with their tinnies to catch fish. Nobody ever bothers asking about the feral fish. When I was a kid, you could throw a hook in the river with a bit of silver paper on it and catch a redfin. You cannot catch a redfin now; they are almost extinct—and they are a feral fish. Carp were in significant quantities. You could sit on the bank and shoot them with a rifle in the 1970s, but now they have diminished to a great degree and the native fish are coming back. Where are they getting all this scientific information from? Blowed if I know.

CHAIR—The evidence that has been taken so far expresses a view very similar to yours. You would have heard the Ricegrowers Association this morning. They spoke about the need for information and data in relation to coming up with a sensible approach to looking at a national water policy and certainly water reform at the state level. Would you generally agree with the view that not enough is being done? Would you also want to add to that that part of the process has to include the need for local consultation to make sure that either the anecdotal and experiential information needs to be included as part of whatever that information base is?

Mr Heckendorf—I do not disagree with what was said. I think just about everything that has happened in this valley has been generated by local concern—but it is the time frame that you have to go through to get that local concern registered by government. For instance, back in the late 1970s, we said to the government that they should stop issuing licences for irrigation. It took until 1984 before the embargo was put in place. Murray will be able to talk about the ground water situation, because he is a ground water pumper as well. That took a long time to come in. MDBC brought in a cap, which created a lot of anomalies, and now water trading is becoming more and more prevalent. Prior to water trading, the divergence in the Murrumbidgee River was plus or minus one per cent from year to year. Water trading has created greater usage.

CHAIR—Mr Shaw, would you like to make any comments?

Mr Shaw—Getting back to what Rel said about the trading, I noted that Senator Ferris quizzed Matt Linnegar about the sleepers and dozers. I would have thought that they were virtually irrelevant since the cap came in in 1984. As they have been activated, every other irrigator along the river has taken a cut in allocation. So the people who have come in have forced everybody else to take a step back in their allocation.

I am philosophically opposed to water transfers—there are many reasons for it. Nobody has taken into account the fact that, if someone sells a megalitre from below the wall at Blowering to someone in Renmark in South Australia, it is probably going to take another megalitre or two megalitres in evaporation to transfer that megalitre down there.

The most efficient use of the water is closer to the dam wall. The only figure I have seen on ratios for moving water up and down a river is at Hume Dam near Albury. The movement across the dam wall is 1.48 megalitres. If you move it one megalitre up above the dam wall, you get 1.48 above. If you move it down, you have to move down 1.48 to get a megalitre down there. There are plenty of people moving water from here to South Australia—from Hillston to South Australia. The megalitre down there is worth the same as the megalitre here. That needs to be taken into account.

Senator HEFFERNAN—Did you say from Hillston to South Australia? You didn't mean that, did you?

Mr Shaw—Hillston, yes. That was the rumour or story. I know potato growers have moved from Hillston. They are already at Hillston and they have moved some of their operations to Renmark because they are still issuing licences down there.

Senator HEFFERNAN—Whose outrageous decision was that, given that the river does not hook up to anywhere—as I well know because I have lived on the end of it for a long time? How could you possibly move an irrigation licence out of the Lachlan and make any sense?

Mr Shaw—I do not know. They have moved them from Hay to Menindee too.

Senator HEFFERNAN—I remember that episode. But in a confined river, you blokes would obviously know the score on that.

Mr Heckendorf—It is physically possible to shift it from Hay to Menindee because of the three—

Senator HEFFERNAN—It is not from Hillston.

Mr Heckendorf—No. I am not too sure about that one.

Senator FERRIS—I would like to raise a number of points that you have referred to in your submission. Firstly, at the bottom of page 1 it says:

If South Australia were to pay their fair share of the eastern states infrastructure for their needs then the debate would have some discipline.

Could you elaborate on that?

Mr Heckendorf—As we see it, there is a lot of media debate coming from South Australia about how there should be more water down the Murray River to clean out the Murray mouth. That water has to come from somewhere; it probably has to come from the eastern states. The infrastructure has already been built there to deliver it.

Senator FERRIS—What do you mean by infrastructure?

Mr Heckendorf—Dams and weirs et cetera all have to be used to deliver that water. We pay for it at the moment. The users in New South Wales pay the cost of delivering water downstream. At the moment, the government pays for a share of that—the environmental costs or whatever—but if you are going to shift it to another state there is obviously going to be a cost to it.

Senator FERRIS—Who are you suggesting should pay in South Australia? Should it be a taxpayer levy or should the person who your colleague Mr Shaw referred to as moving a licence pay for it? I should say that I am a South Australian. I still do not understand how you want to charge South Australians, how you deliver the charge and what the charge would be for.

Mr Heckendorf—All the infrastructure has a cost attached to it. The dams cost money to run and maintain. We have just spent $40 million to $50 million upgrading Burrinjuck Dam. With regard to the weirs, we have a 30-year infrastructure plan in New South Wales which costs the irrigators a certain amount of money for their share of that infrastructure.

Senator FERRIS—What about the cost of dredging the Murray mouth to get it open? South Australian taxpayers have paid for that. By that logic, should that cost of our infrastructure go back into New South Wales and Victoria, who we would argue have not delivered the water? I just do not understand the logic of that argument.

Mr Heckendorf—If you are going to deliver water to South Australia for a purpose, it is not relevant what the purpose is. If the purpose is for opening the Murray mouth then maybe it is of national interest. If people determine that it is of national interest to open the Murray mouth then the national government should pay for it, but South Australians may think it is of interest to them to get better water quality and what have you.

Senator FERRIS—What do you mean when you say at the top of page 2:

We need to embark on a whole of government (state/federal/local) process of establishing a new framework for planning and resource management decision making, including comprehensive engagement of stakeholders and the community.

Isn't that what we are doing now?

Mr Heckendorf—Yes, but the trouble is that it comes back to a turf war when you implant something on a national level. Take the COAG competition payments. They were meant to deliver property rights et cetera for water in New South Wales. They never did that. At the moment we have legislation in New South Wales where if the government takes the water back it triggers compensation. It does not deliver compensation. It is up to the minister to determine what the compensation is. If he takes 500 megalitres off me and 500 megalitres off Murray, he can give us a Mars Bar or something or other and he has complied with the legislation.

Senator FERRIS—But what you are referring to in that sentence is a new whole-of-government process of establishing a new framework for planning and resource management decision making. That is not just about whether you get a Mars Bar. That statement suggests that the whole process that we currently have in place is wrong or flawed or something. I am going to take you to the dot points in your summary in a minute, but I am trying to establish what it is that leads you to say that that is what is needed and how that should operate. If you had a clean sheet of paper how would you do that? What would the fundamentals be?

Mr Heckendorf—If you were running the Murray, why would you have a jurisdiction in Victoria that was delivering water to the Murray, a different jurisdiction in New South Wales and a completely different one again in Queensland?

Senator FERRIS—Are you saying that we should have constitutional change so that the federal government runs it?

Mr Heckendorf—Probably, yes. If that is what is needed, then so be it.

Senator FERRIS—If you are critical of each of those two states, by extension of that logic you must mean that they should lose that jurisdiction.

Mr Heckendorf—Probably. My belief is that the jurisdiction should come back to a catchment level. If you had every catchment in—

Senator FERRIS—You do not mean a federal approach; you mean a local government approach.

Mr Heckendorf—Yes, but eventually somebody has to get it to the point where each of the catchments deliver certain outcomes.

Senator FERRIS—We have had evidence over the last two days that shows that the local arguments about who has water and who does not have water mean that big picture decisions are very difficult to take, because the vested interest groups quite understandably want to argue to keep their own status quo.

Mr Heckendorf—Yes, I have no doubt about that.

Senator FERRIS—Let us go back to what your statement says. What do you actually want this committee to take out of that statement in your submission?

Mr Heckendorf—As you suggested, it may need a constitutional change. I am not a lawyer or anything like that, but I am saying that you have jurisdictional problems within the states, you have jurisdictional problems between the states and it all exacerbates the problem.

Senator FERRIS—I am not sure that if you tried to take it all away from them you would have fewer problems. In the middle of page 4, in your point 3 on scientific data, you state:

> We continued to be dismayed at the lack of rigorous scientific data which continues to be used as a basis for much of the decision making concerning river health.

The CSIRO has had a division of irrigation management in this area for 30 to 50 years. What has happened to all of that scientific data? If you are critical of it or dismayed by it—to use your word—what would you want them to have been doing over these years?

Mr Heckendorf—That is a different question, because the CSIRO at Griffith is dealing with irrigation techniques and things like that.

Senator FERRIS—But they have also been looking at the big picture of irrigation management, haven't they?

Mr Heckendorf—Yes. That is fine. I think irrigation management is getting up there. There are a lot of changes. About 10 or 15 years ago, nearly all irrigation in this particular area was contour irrigation. It has now been laser levelled.

Senator FERRIS—That is not true.

Mr Heckendorf—And a lot of efficiencies have been gained. That has been due to a lot of CSIRO stuff. But in that particular thing we are talking about scientific data relating to the condition of the river system. It is not scientific data relating to the irrigation system.

Senator FERRIS—But two of those irrigation experts are in the Wentworth Group. Presumably that is the group you are having a go at.

Mr Heckendorf—Which two?

Senator FERRIS—Mr Young and Mr Williams.

Mr Heckendorf—They are federal level—overall, the CSIRO. But we have people here like Cath Bowmer, John Blackwell and Warren Muirhead, who have been in the area for 30-odd years. They are experts, but nobody ever seems to listen to what they have to say.

Senator FERRIS—I thought this area had a pretty eminent group of scientists who have lived here for most of their lives on this work, so I am surprised that you would say that.

Mr Heckendorf—I have just spent five years with Dr Bowmer on the river management committee. I respect her. Some of the government proposals for managing the river were turned upside down by that committee because of local input from local scientists et cetera. There was an original set of rules that the government brought out, which the committee rejected totally—and that is what I am saying.

Senator FERRIS—In the last three dot points in your summary you talk about exploring innovative solutions, improving the management and getting rigorous scientific data. I would have thought that that was what we already had. What in the areas of those three dot points would address things that are currently not being addressed by the policy that is in place?

Mr Heckendorf—Regarding the issue of rigorous data, I will take fisheries for a start. There has been a fisheries research station at Narrandera since the late fifties or early sixties. Their data on the fish species in the river is very poor to say the least. I wonder what they have been doing for the last 40 years. When we were on the river management committee they gave us very poor data as to what the fish stocks in the river were. When somebody comes out and says, 'This one is extinct, this one is extinct et cetera,' I ask, 'Why do you say that?' In one particular instance, they said 80 per cent of the birds were missing from the lower Murrumbidgee. If I had 80 per cent more birds on my place I would not be able to get out the door in the morning. I am not sure where all this scientific data is coming from. It is coming from a snapshot in time. I understand that the fisheries use electrofishing to determine what fish are in the river. Anybody who knows anything about electrofishing knows that it only goes down about two metres at the most. Murray cod basically live on the bottom of the river system, so they are only picking up a fraction of them. They are only picking up the surface ones.

Senator FERRIS—So you are saying that the whole basis for the evaluation of the scientific conclusions that have now been drawn is flawed. Are you saying the same thing about their management of the environmental flows or the resource management issues? When I read your summary, it was almost as though you were saying that we should throw out everything and start

with a blank piece of paper—except we are at where we are at. I am just trying to get you to flesh out more of what you mean by those statements.

Mr Heckendorf—Our concern is this: we have a river system now which we have lived on for however many years and somebody is going to come around and suddenly put a whole pile of water down the river system. What is that going to do? What will the outcome be? If you do not know what the starting point is, how are you going to measure the outcome?

Mr Shaw—There is technical information available. We have environmentalists running around saying that in 20 years time the drinking water in Adelaide will be above WHO standards three days out of five.

Senator FERRIS—We are aware of that. I am very aware of that.

Mr Shaw—Yet if it went up three times from what it is now it still would not be what it was 20 years ago—that is the salinity levels at Morgan. If you try and put that in a letter to the editor of the *Sydney Morning Herald* it will not make it.

Senator HEFFERNAN—That does not necessarily reflect the health of the river though. That reflects the interception of the basin.

Mr Shaw—When most people talk about river health, they talk about salinity and nutrient levels.

Senator HEFFERNAN—But you are achieving that not by the upriver health but by interception of the aquifer. Isn't that right?

Senator FERRIS—Salt levels have been declining for five years.

Mr Shaw—We have not been intercepting the aquifer for—there are figures available. Dr Marohasy might have spoken to this committee. She had the figures from 1938 to 2002, and they were probably level, except for 1983.

Senator FERRIS—It is very easy to write those words, but I do not think that this adequately addresses what they mean, and that is what I was trying to get from you this morning.

Senator HEFFERNAN—Do you think there was a deliberate decision taken to mine the aquifer in the ground in your area it because of the overallocation of licences?

Mr Shaw—I would not say that a deliberate decision was made. I know that regarding one of the government reports our organisation—I will probably be sitting with the ground water pumpers this afternoon when they speak—has a case in the Land and Environment Court. One of their reports said that our aquifer would stand the mining of whatever per cent was in that report—I do not have it with me. But I do not think it was a deliberate decision. I think it was just poor management. In 1997, our organisation wrote to them and told them. We went through a period from 1980 to 1990 when the aquifer was actually rising, which caused concern in the department for what was happening under the Coleambally Irrigation Area. They came to our organisation and virtually said, 'What do we have to do to get you to pump more water?' At that

stage our answer, the short answer, was, 'One, give us a crop that will make money and, two, give us more allocation.' When we first put our irrigation bore down the department said they were issuing a 400-acre licence. We went to the department and said, 'The capital cost of this doesn't warrant just watering 400 acres.' They said, 'Under the 1912 Water Act all we have to issue is a 400-acre licence. That is what we are doing, and we are looking into it.' At that stage, the basin had been accessed for some 12 or 14 years with one or two bores. In the early eighties, there was an explosion of interest in it and they decided to switch to volumetric. They brought in a volumetric allocation based on the surface area of the property, and that virtually killed off any development. That stopped from 1985 to 1991. To my knowledge, there was not one—

Senator HEFFERNAN—Could you describe to the committee the history of the increasing value of water over the last few years?

Mr Shaw—Yes. I would say two or three things contributed to it. One would be the deregulation of the rice industry.

Senator HEFFERNAN—We want the figures rather than why. We all know why.

Mr Shaw—The first figure I ever saw put on a surface licence when deregulation came in was $300 a megalitre. Today it is probably—

Senator HEFFERNAN—Over $600.

Mr Shaw—Yes, something like that. I have heard higher and lower figures.

Senator HEFFERNAN—How many years ago was that?

Mr Shaw—I would say 1994.

Senator HEFFERNAN—As you know, some of the banking people—the financial river of gold people—are saying that the best way to get the most out of water is to let them into the market—that is, the speculators and traders. Do you have a reflection to make on who ought to be able to own the water?

Mr Shaw—Personally, I do not think it matters who owns it. But I think anybody who does not have the land to use it will take a certain percentage of the water out of use. For instance, if I thought I could get $200 a megalitre for my service allocation, I would let them have it on a temporary basis. That is the figure that is being quoted at the moment.

Senator HEFFERNAN—But I want to refer you to the long-term accumulation of the capital wealth of the water. Would you not be concerned if all that were owned by people who live on the coast and you had to work in the spot market?

Mr Shaw—As an irrigator, I would not work in the spot market. Before I planted a crop I would have the water there; I would have my hands on it. If I had to pay $200 for the first megalitre, I would not start. I mean to say, if I got to February and my water usage in a hot summer was up and I needed one more megalitre to finish a rice crop—I needed the 15th after

the 14th and I could amortise the price of that last megalitre over the other 14—it might be worth $200 or $250. But the first megalitre would not be.

Mr Heckendorf—It has a capital growth in the permanent water market at the moment, but at the moment there is very little water trading. It is pretty hard to buy a megalitre of permanent water at the moment. There is very little water trading. I think that the liquidity of the market would probably determine whether people would be interested in getting into it or out of it.

Senator HEFFERNAN—You are not concerned about the long-term capital base of the asset?

Mr Heckendorf—I cannot see any value in it, put it that way.

Senator HEFFERNAN—That answers my question.

Mr Heckendorf—I cannot see any value in opening it up to everybody.

Senator BUCKLAND—Mr Heckendorf, earlier on you said that everyone out here knows what the issues are but nobody is doing anything about them. Is your group doing anything about addressing the issues that are causing the grief?

Mr Heckendorf—I will give you one instance. The Yanco Creek system is an old system of creeks which used to be run by a trust many years ago. Our group is now putting together a water management plan for that creek, with the assistance of departmental people, to reduce losses. It is basically a one-for-one arrangement for losses down there, and we believe we can save about 20,000 megalitres. Of course, there are a few impediments to that. If the users get to work and pay the full cost of recovering that 20,000 megalitres, do they get the right to use the extra 20,000 megalitres that have been saved, or do they come back into the system? At this stage it is pretty hard to get a property rights mechanism which says, 'If we paid for it we should get to use it.' That is one instance of water saving that comes to mind.

Water saving is a pretty hard thing to define. A lot of people say that rice uses 12 to 15 megalitres a hectare, but you have to realise that probably the first eight or 10 of those are the agronomic use of the plant, anyway—to get that level of crop. So you are really only going to save the difference between whatever the agronomic use of the crop is and the actual usage. If you change technology you will still have some of those losses. It does not matter what it is. If you change from flood irrigation to centre pivot irrigation, you are still going to have some losses to evaporation and what have you. I am a flood irrigator and I have done a few sums on changing from flood irrigation to centre pivot irrigation. I would have to get between $2,000 and $3,000 a megalitre for my water to make it worthwhile because of the extra cost of running centre pivot irrigation.

Senator BUCKLAND—You are saying that if you could be more efficient with your water usage you would still want to hang on to that additional allocation. What would you use the additional allocation for? To sell it?

Mr Heckendorf—You would probably grow bigger areas. For the people we represent, probably only 20 per cent of their farms are under irrigation; the other 80 per cent is dryland farming. So if they had extra water they would use it for extra irrigation.

Senator BUCKLAND—In your submission, you talk about innovative resource management. You say that you believe the government has taken the easy way out with the intellectual approach. You are putting all the onus on the government and the communities. Are you including yourself in that community, to work together to fix things?

Mr Heckendorf—Yes.

Senator BUCKLAND—What efforts have you made, apart from putting it down on paper?

Mr Heckendorf—I have spent a large proportion of my time in the last 15 years sitting on government committees to determine what probably should happen. I might add that not a lot of that time has been productive, simply because of interjurisdictional arguments and what have you.

Senator BUCKLAND—What has been the response when you have been making these submissions to the committees you have been sitting on?

Mr Heckendorf—Because the river management committee had nearly every government agency and also a lot of community people on it, it did achieve something. With the water-sharing plans, the committee set out to determine who should share what. Now the government has suspended those water-sharing plans and we are not too sure what happens from here on in. One could say that we spent five years looking at developing water-sharing plans and now the government has suspended them with the stroke of a pen. We have no idea as to what the government's view is on bringing them back in.

Senator BUCKLAND—What is the difficulty you have with allowing the excess water that you have not used or the water that you save each year—the remainder of your allocation—to flow down the river?

Mr Heckendorf—It generally does. It goes back into storage. In this valley, we can carry forward into the following year 15 per cent that we do not use. But if the dam spills it all goes down the river. If, for instance, in a wet year we only use 60 per cent of the water that we are entitled to use, it just goes back into the dams, spills the dams and goes down the system.

Senator BUCKLAND—What about allocating some of your excess water for river flow—for the environmental flow?

Mr Heckendorf—Under the water-sharing plan we have already donated about five per cent.

Senator BUCKLAND—When fields are flooded for rice growing, what happens to the water once it is there? Does it soak into the ground or evaporate? Does any of that water return to the river?

Mr Shaw—It goes three ways. The plants use it and then it is transpired and evaporated and it percolates down into the soil—hopefully in minor quantities, because all rice ground has to be drilled, and you have to have three metres of clay under a rice paddy, but there always will be that percentage. Really, the only difference between a crop of rice and a crop of corn is the water that is sitting on top of the dirt. The water efficiencies that the rice industry make are not in the amount of water that they put on the ground but in the length of time that the rice crop is there. So normally rice is 150 days, and we are shortening that down to 130 days. The water saving is in that two or three weeks by which we can shorten the growing period, when it is not transpiring, evaporating and percolating.

Senator BUCKLAND—But at the end of the day where does the water go? Back into the system?

Mr Shaw—Which water?

Senator BUCKLAND—Is there any water left over at the end of the growing period?

Mr Shaw—No.

Senator BUCKLAND—So it is all taken up by the plant?

Mr Shaw—Yes. If you have 20 centimetres of water there and the plant needs water for another three weeks, you cut off the water so the water level gradually disappears. By the time the plant is fully mature and ready for harvest you can drive the header on it.

Senator BUCKLAND—I see.

Senator O'BRIEN—On pages 5 and 6 of your submission of 28 February you say:

The Water Management Act should be amended to make it a statutory requirement for the Minister to explore alternative means of sourcing water for environmental outcomes before compulsorily reducing the entitlements and allocations of irrigators (with just terms compensation).

What alternative means of sourcing water for environmental outcomes should be investigated?

Mr Heckendorf—There are various means, such as en route storages. For instance, Tom Bullens is an en route storage at the moment. The yield out of Tom Bullens, which is only about a 12,000 megalitre storage, is about five times that—about 60,000 megalitres—because you can capture water that is surplus to requirements when there is a rainfall event or what have you down the system and then reuse it at a later date. That is used five or six times a year to increase the yield of the system. So things of that nature could improve the system.

Senator O'BRIEN—Are there any others?

Mr Heckendorf—You could change from flood irrigation to spray irrigation, which may increase the yield but the cost is prohibitive.

Senator O'BRIEN—I note that your submission states that you:

... support the government investing in on-farm solutions for efficiency. The use of centre pivots, drip irrigation and the like will reduce water usage and the government should perhaps assist farmers in purchasing new technology to meet its ends rather than take water off irrigator entitlements.

If the government were going to do that, would it not be in parallel with reducing entitlements?

Mr Heckendorf—We have always had the view that if the government pays for the savings, the government should get the savings. It is as simple as that. We have never had a problem with that philosophy.

Senator O'BRIEN—You say, 'The government should perhaps assist farmers in purchasing new technology.' Would that be in the form of accelerated depreciation or something like that?

Mr Heckendorf—It could be along those lines—low interest loans.

Senator O'BRIEN—Whatever the mechanism, it would be fair in those circumstances to align that with a reduction in entitlements. I am interested in what you say about the cost of centre pivots. I am from Tasmania and I regularly drive past centre pivot irrigation of food crops. I am interested in why you say it would be uneconomic for the rice industry or for this region to use that method. Could you enlighten me further?

Mr Heckendorf—Centre pivots are not conducive to growing rice.

Senator O'BRIEN—I didn't think they were.

Mr Heckendorf—They would be more for corn crops, pasture and lucerne.

Senator O'BRIEN—So it is the value of the crop that is the problem, is it?

Mr Heckendorf—That is what drives the investment.

Senator O'BRIEN—How competitive can we be in producing corn compared to the United States where it is produced in huge volumes?

Mr Heckendorf—I have grown corn for probably 40 years. Many years ago we used to export it to the South Pacific and that got knocked on the head with one of the huge export enhancement subsidies that blew us right out of the water. We just could not compete anymore. It distorted the markets and cost us those markets.

Senator O'BRIEN—What is the water usage of corn compared to that of rice?

Mr Heckendorf—Corn would not use any more than about 10 or 11 megalitres.

Senator O'BRIEN—Is there much dairying pasture in the Murrumbidgee area?

Mr Heckendorf—The Murrumbidgee changes. You have the hot dry climates out to the west. If you go up into the temperate climates east of Narrandera—I live east of Narrandera—you are

getting into undulating country that is not conducive to flood irrigation anyway. By and large, people are putting in centre pivots and growing lucerne or running dairy farms or growing crops that are conducive to going under a centre pivot.

I was interested in some of the sleeper and dozer comments earlier. In our valley, the sleepers and dozers are basically east of Narrandera. The last figures I had on sleepers—15 or 20 years ago—showed that there were only 30 sleeper licences in the valley for various reasons, such as deceased estates, because the land was locked up for a particular reason. They were not being used. Generally they were small holdings with small allocations. They could not use them because it was not worth their while to use them. And as for dozers—what do you call a dozer? I will gear myself to use 85 or 90 per cent of my water because I do not want to be caught by a hot dry spell and go over my allocation. If I only use 80 or 90 per cent of it, am I a dozer user—

Senator O'BRIEN—That is right. If you are efficient, I would not think that would make you a dozer. You are saying that you use it as you need it rather than because you have it.

Mr Heckendorf—Where is the definition? I have always wondered where the definition was.

Senator O'BRIEN—I wonder too. We have heard different views about it.

Mr Heckendorf—We have heard the arguments for a long time.

Senator O'BRIEN—But someone who intermittently uses their licence might be a dozer, from one view that has been put to us. Someone who has never used it might be a sleeper.

Mr Heckendorf—That happens east of Narrandera because your rainfall increases by about 10, 15 or 20 per cent once you get to Wagga, compared to Hay. In some years, they do not need their water because they have plenty of rainfall. They are what you call a dozer licence, I guess. But in other years they do use it.

Senator O'BRIEN—It may be that they do not use it because they have a holiday or the farm use changes for a period or whatever.

Mr Heckendorf—Yes.

CHAIR—Thank you both for providing assistance to the committee here today. A copy of the *Hansard* will be available. As I have said to other witnesses, if the secretariat needs to acquire any further information it will be in touch. Thank you again.

[11.51 a.m.]

HOWE, Mr John, Water Policy Manager, Murrumbidgee Irrigation

CHAIR—Welcome, Mr Howe. You may make some opening remarks before we go to questions.

Mr Howe—When I came here today I wanted to make a short statement highlighting a couple of issues that do not seem to get much attention, but sitting in the back there I realised they are getting more attention than normal today.

The first of those issues is the current failure to account for the cap in the governance of temporary water markets. Annual water allocations are based on resource availability but the cap limits the activation of water access to 1995 levels based on annual climatic conditions. This means that in hot, dry years more water can be activated than in cool, wet years. The principle is the same as not watering the garden when it is raining.

Above cap allocations should not be activated. This water underpins the environmental resource and enables in stream variation and greater reliability and stability of cropping for water users. There is currently a system of incentives, such as carryover provisions, and penalties to avoid activation of above capped water for use. But in the name of assisting the environment and improving returns from water use there is currently a strong move to eliminate the regulation of water trade. But there is no way that water users—buyers—can distinguish between below-cap water and above-cap water on water markets. This means that unregulated trade would enable water traders to activate 100 per cent of allocation every year, irrespective of climate. This means that unregulated trade would enable a pure trader to activate 100 per cent of allocation every year. That means activating above-cap water.

Since the cap in the Murrumbidgee Valley is on average about 80 per cent of entitlement, water traders would have a relative advantage of about 20 per cent of allocation over water users. This free kick to traders will come at a high cost to all existing stakeholders. In other words, water traders pocket the gain from activating above-cap water. It is environmental water but they will pocket the gain. It is a direct expense to the environment, both through the transfer of monetary gain and through the delay of environmental flows and dam spills.

Also, the link between water use and climatic conditions will be broken. This will result in less annual in-stream variation or an increased cost of delivering such variation. It will tend to increase some flows relative to winter and spring flows. The absence of these expected environmental gains from trade will also be likely to trigger pressure from the community for costly renegotiations of water-sharing plans. On the use side, it will tend to crowd out low-value usage—the primary goal for trade is to move to high-value usage—because the above-cap water is opportunistic water. Given that, it will also create a ‘use it or lose it’ culture and reduce the reliability of water access for irrigation and destabilise cropping.

More opportunistic water use is also likely to increase the cost to the local environment. Finally, it will reduce confidence in water markets. I noticed the committee received some

presentations earlier today where people questioned the ability of water markets to deliver, and, if above-cap water is traded, that will be further undermined. To avoid these outcomes we need to regulate temporary water trade to ensure a level playing field for users and traders that is consistent with the water cap. Such regulation is consistent with trade arrangements in other capped systems governing natural resource management. In other words, there is nothing revolutionary here.

The second issue I would like to raise is the current lack of bureaucratic support for measures to improve water use efficiency—for example, as part of the Living Murray process. This is despite the fact that, in a capped system, improving water use efficiency is the only way to release water savings for investment in river health and, at the same time, maintain socioeconomic benefits for water users. In part, the dismissal of water use efficiency reflects fears that gains will result in an equivalent loss to environmental flows through lower drainage. This does not make much sense, and it forces the environment to rely on outcomes that are accidental. Drainage is, more or less, an accidental result of water use. If you improve your systems, you lower drainage. Do we really want to make the environment hostage to accidental outcomes?

The dismissal of water use efficiency on a one-for-one loss of drainage is also incorrect. Water use efficiency gains will not generally, on average, result in an equal loss of flow to the environment. Reduced evaporation losses also have no impact on basin flows, nor does a reduction in drainage that currently flows to waste or environmental damage. Within our system, a four-megalitre improvement in water use efficiency, on average, results in a loss in beneficial flows—that is, re-use or the environment—of less than one megalitre. This means that there is significant scope for benefits to both the environment and irrigation. It just becomes a distribution question. On that point I would add that our system is not that different from the basin, on average.

As I think you heard earlier, some projects deliver much better results than average. For example, we are currently pursuing a project to modify midsystem storage, Barren Box Swamp, to reduce evaporation by up to 30 gigalitres a year—30 gigalitres is 30,000 megalitres—and, at the same time, rehabilitate a large wetland, and all this with no impact on basin flows. On-farm water use efficiency gains from better cropping, high-yielding crops, better water management and improved environmental services and so on will also yield significantly greater benefits than the associated reductions in drainage. The losses to the environment are much lower than the gains to society as a whole. So once again it becomes a question of distribution and distribution mechanisms.

A second reason that we think there are doubts about the contribution of water use efficiency to better outcomes is a perceived lack of readily identifiable opportunities. I am sure you have read the type of reports I am referring to, where a consultant looks at all the opportunities throughout the basin for investment in water use efficiency by the government and comes up with a result that says, ‘Two hundred thousand megs is feasible. That is not enough; therefore, we’ll have to take more water.’

That is a very static view of water use efficiency. If we ask farmers the same question—and I hope you have the opportunity to do this—I am sure that they will tell you, ‘We’re as efficient as we possibly can be at the moment. There may be some feasible options that we can perceive but

they are not large relative to our total water use.' That said, we know from experience that farmers will probably deliver water use efficiency of about 10 per cent over the next 10 years. You have already heard Matt Linnegar suggest that there is a variety of rice which will deliver that.

We think the difference is that at the farm level you have a culture of continuous improvement. That is the same culture that we need to develop at all levels of water management for success. For example, at the moment the average above capped water in the basin is about 13,000 gigalitres. If you apply the same efficiency gain for our water managers there, including agencies such as ours, that is a 10 per cent efficiency gain. That would be 1,300 gigalitres that could become available for the environment. We believe the distinction is a culture of continuous improvement, and all measures to deliver that culture of continuous improvement should be looked at. I will conclude my statement there, and I am happy to answer some questions.

Senator Heffernan—Why haven't the forests been brought to account?

Mr Howe—There are some big issues with the forests.

Senator Heffernan—You made the point that you could save 10 per cent—1,300 gigs—with all the hard work and science. We know the new forests are going to take 1,000.

Mr Howe—Yes.

CHAIR—Before you go into that, I wonder whether you might quickly put on the record what Murrumbidgee Irrigation is. I note that in your submission you talk about it being a company. Is it a company or an authority? It is just so that there is a clear distinction between you and the other witnesses who will appear this afternoon.

Mr Howe—Murrumbidgee Irrigation is a private company that is responsible for water delivery in the MIA and districts. It was previously a government department. Following the 1995 water reforms it initially became a government corporation and then in 1997, I think, it was privatised. It is owned by the holders of water entitlement in this area.

CHAIR—You do not hold water licences, you look more at the information and regulation of water in the area?

Mr Howe—I am sorry, I should not have answered no. We do hold the bulk access licence. We have an obligation to the shareholders in accordance with their individual entitlements. So that bulk access licence is a very important control mechanism on us. Under that licence, we have to meet environmental standards, service use standards et cetera.

CHAIR—Thank you for that.

Senator HEFFERNAN—As the head licence user, you will not be anxious to lose a proportion of your access.

Mr Howe—In terms of the Living Murray process?

Senator HEFFERNAN—Yes. But you do get these efficiencies. We heard from some people this morning that if they get efficiencies they will still want to have the same allocation to do other things with the water. I am curious why you or Murray Irrigation, which is your sister body, have not flagged this forest issue.

Mr Howe—It is one of those long-term issues. We are probably being swamped with short-term issues at the moment.

Senator HEFFERNAN—Do not be worried if you have not thought of it; I put it to the NFF and they told me that they had not even thought of it. Would it be fair to say that you had not thought of it either?

Mr Howe—We have thought of it and it has been brought to the attention of our board. It is quite difficult to come up with constructive suggestions. I suppose the only one is that we really would like the government agencies to revisit their own investment programs. If that were an entirely private investment program and it were approved for using the resource in that way, it would be difficult—

Senator HEFFERNAN—What concerns me is that in New South Wales, for instance, they are talking about privatising the state forests. Part of the anticipation in the document which ABM AMRO will have, I presume, will be that the forests have a history of wealth creation, and attached to that history will be the given that they have never had to bring a water calculation into their sums. I am concerned that if someone—you blokes are stakeholders in this—does not flag this serious issue they will become privatised and then they will be looking for a compensation regime when they have to start buying water licences to build their forests.

Mr Howe—Our approach to date has been to bring to attention wherever we can that the current system is almost falling over backwards to invite in the marginal user, rather than necessarily the high-value user. This is one of the problems with above-cap water activation: you bring in the marginal user at a pretty much unsustainable access to the resource and then you have to look after them. You cannot bring them into the system and later on say, 'Too bad.' I think you are referring to the same problem with forestry. Certainly, I take on board that we should be actively raising that issue.

Senator HEFFERNAN—Would you be alarmed if the government, in its lack of wisdom, threw open the market to the ability to paper trade water rights, and some smarties came into Murrumbidgee Irrigation's head licence area and bought, say, 50,000 megalitres because various people thought that they would retire to the coast?

Mr Howe—Yes, we would. Under the current arrangements, which effectively give a free kick to that person, it means that we are favouring somebody taking their water and going to the coast. There is definitely a regional development component of our operations.

Senator HEFFERNAN—The problem with the viability of your infrastructure was fewer users—even the rice mill, for that matter, as we know now. Sunrise mills have shut.

Senator O'BRIEN—On page 2 of your submission you state that in relation to the Living Murray, the messages delivered to stakeholders vary from meeting to meeting. Can you give us some examples of that?

Mr Howe—A very interesting thing emerged in the Living Murray project. For example, I went down to Leeton and listened to the MDBC presentation by Don Blackmore. We were very enthused about his message. It was fundamentally that under no circumstances will the MDBC ministerial council, at its meeting in November, take any water off irrigators. In other words, none of those targets was going to be initiated in a water-recovery sense from irrigators.

We put that message out—we thought we were just reporting what we had heard—and then people who had attended other meetings said to us: 'You must be joking. He told us, when he came here, that it is still full steam ahead.' You wonder whether it is a structural program that is in place or whether it is being by driven by the latest informal decision along the way. I suppose it is more that sort of fundamental problem. I do not know the situation that Don Blackmore was in there, and I gave that just by way of example. Quite often we do get mixed messages in this area.

Senator O'BRIEN—On page 3 of your submission you talk about the Murray Flows Assessment Tool and how it appears to be missing key components dealing with evaluating the effect of changing river infrastructure. Can you expand on that point, please?

Mr Howe—Yes. Once again we were very enthused when Professor Gary Jones presented the Murray Flows Assessment Tool model, the MFAT model. We have been arguing all along that what we really need is some mechanism to show the vision for the environment, how we are going to achieve it, the impacts of flows in that achievement, the impacts of management in that achievement and the impacts of potential infrastructure investment in that achievement. The MFAT model, which Gary Jones presented to us, had variables built in to assess the effect of management and the effect of infrastructure.

I am not sure if you are aware of this, but under the Living Murray process they divide the whole basin into specific environmental regions and the Murrumbidgee River is one region. Charles Sturt University was invited to do the modelling for the Murrumbidgee and at the seminar where they presented the model they said that the management variable and the infrastructure variable had been taken out. That means that you are just going to release the water at the top, let it flow out the bottom and not look at managing that water to improve environmental outcomes or put infrastructure in place to get a better bang for your megalitre for the environment. I am referring there to initiatives in relation to some of our wetlands which have been over-inundated. You could put in infrastructure to stop the inward flows there. For other wetlands, which are being under-inundated, you could put in infrastructure to enable management flows to maximise environmental benefits.

Senator O'BRIEN—That is the nature of the efficiency?

Mr Howe—Yes, the management variables have been removed from the model and the infrastructure variables have been removed from the model in the Murrumbidgee. We have pursued that with MDBC since then, and copied the letters to New South Wales bodies et cetera. We have not had very satisfactory answers.

Senator O'BRIEN—Have you had an answer?

Mr Howe—We had a letter from someone, I cannot recall the name of the person, at the MDBC. The letter pretty much said, 'Don't worry, you'll see when the report comes out.'

Senator O'BRIEN—Can you supply us with a copy of the correspondence?

Mr Howe—Yes, I would be happy to do that.

Senator O'BRIEN—Thank you. Under 2.2 of your submission you say:

The CAC recommendation of the establishment of an environmental trust for management (and trade) of environmental water seems a step in the right direction.

Can you give us a summary of how that recommended environmental trust would function?

Mr Howe—That is a very good question. One of the reasons why we used the word 'seems' is that, again, it is a bit of a movable feast. For example, Professor Cullen, says, 'We'll buy water cheap when it is surplus to irrigation requirements and then we will sell it to irrigators in the dry times when they need it.' That indicates that it is a temporary water trade, because the temporary price will fluctuate much more. In fact one interpretation of that is that the environment is going to buy its own above-cap water in the wet times. The question then becomes: how do you carry that over a period that could be up to five or six years in order to sell it in the dry times?

If they are talking about buying permanent water cheaply in the wet times, they are pretty optimistic. If they are talking about buying permanent water then certainly it could help out the irrigation industry in the dry times, but you would think that they would not activate it at all in the times in the middle. We have argued for the appointment of environmental managers for above-cap water and, in theory at least, you can conceive of a situation where such a trust and the environmental manager could work very well to deliver solid environmental outcomes.

Senator O'BRIEN—But you cannot see how it will work practically?

Mr Howe—You could envisage it, but I am not sure whether it is going to evolve in that direction. We have not even got an environmental water manager at the moment.

Senator O'BRIEN—What are your views on water trading and, in particular, on the arguments for and against a national system as advanced by Mr Anderson?

Mr Howe—We have got some strong concerns about water trading. Yesterday, I picked up the *Sydney Morning Herald*, looked at it, and the broadsheet named Murrumbidgee Irrigation as a sort of 'restraint to trade' or something like that. In our own analysis, we believe that the resort to free trade or unregulated trade is going to destroy the benefits of the current system in terms of the environment and use. In other words, it is a totally perverse outcome to what the free traders expect. In the past we have used rules to control the activation of water to be sold on the transfer market. In other words, if we control it at that point to below-cap water, then a buyer should have total confidence that not only is it below-cap water but also they can expect it to

come on the market every year. It is a structural trade. They can have confidence in the water that they are buying.

We believe that the current discussions about trade in relation to water markets are utterly unrelated to the cap. It is as if the cap does not exist. If the same thing were happening in sulphur dioxide trading, you would have environmentalists the world over absolutely banging on your door. If that is not a reasonable example, look at what happened to Canterbury-Bankstown when they broke the salary cap. The trading is not taking that into account, either on a permanent basis or a temporary basis. That is our fundamental position.

Senator O'BRIEN—What is the analogy about Canterbury-Bankstown? I am from Tasmania.

Senator FERRIS—They broke the salary cap and they got thumped for it.

Senator O'BRIEN—I thought they were leading the competition this year.

Mr Howe—They are going well now. We have tried to bring these issues to bear in the COAG property rights debate. After that, we were fairly happy with the way they had to deal with a lot of values up and down the system, but they did not bring the cap into it. Pretty much the sole aim of our submission was to get the cap into it. After that, we wrote back and said: 'Is there something wrong in what we have done? Why isn't the cap in there? Is there something we can do to get it in there?' We still have not received a response to that letter to the COAG executive group. I think COAG is meeting on Friday. If the cap is dropped out of the discussion on property rights, the only mechanism that you then have is governance of trade. If you change property rights to, if you like, individualise the cap, that would be another mechanism that you could use.

Senator O'BRIEN—I understand you to be saying the cap is of critical importance to the whole system.

Mr Howe—Unquestionably so. In all the water reform processes that have been done to date, the cap is unequivocally beneficial if it is implemented correctly for both the environment and existing water users, because it reflects the needs of both.

Senator FERRIS—Mr Howe, that was very interesting evidence. I found it quite fascinating. I want to take you to the bottom of page 1 of your supplied submission and to the material under point 1, 'Information services'. I imagine that you are telling me that you think that some of the work of the Wentworth Group is flawed. I am just wondering what contact you have had with the Sturt Group, whom Mr Blackwell referred to this morning when he was here. Can you take us through what your relationship is with that group? If there is not a relationship, do you think there should be one? As I said to Mr Blackwell, there is no doubt that the Wentworth Group is a group with a very popular manifesto at present. You have pointed out, in a number of dot points within section 1 on 'Information services', where you think its processes are flawed. So can you tell us what you have done about that and whether you have any association with the other group?

Mr Howe—I will take the second question first. We are really concerned about some of the ideas coming out of the Wentworth Group. The fundamental problem is that you have experts in

their field advising in an ivory tower context. There is nothing grounding it. There is nothing coming back to the dirty detail. For example, I was discussing the environmental trust. The Wentworth Group has recommended an environmental trust—but once again where is the detail? As I noted before, Professor Cullen's description of it just does not seem to gel with the facts. I will give you another example. I say that for a four megalitre gain in efficiency a one-megalitre loss occurs. Mike Young has continued to go across the basin saying it is one for one. We got Mike to come and address our board as we were sufficiently concerned about that. Mike came and addressed the board. Unfortunately, I was not at that meeting but, according to board members, they put all their issues to Mike and he accepted them with: 'Yes, you're right. I've made an error there.' I should note that Dick Thompson is one of our board members and he knows the water system probably better than anybody else in the valley.

Senator HEFFERNAN—He's not here, by the way?

Mr Howe—He isn't, unfortunately. His daughter has had a heart operation in Sydney. Dick's knowledge of how the system operates is comprehensive.

Senator FERRIS—You may wish to ask Mr Thompson if he would like to write a letter to us outlining the discussion that board members had with Mr Young.

Mr Howe—We could certainly arrange for something like that. I actually spoke to Mike after that meeting. He acknowledged that yes, the efficiency gain for an environmental loss is probably about right and he said that we should be focusing far more on the system efficiencies that are available. I asked Mike: 'What are you going to do about that? Can you inject that much more into the debate?' In his paper, and I do not know if you are aware of this, Mike has come out and said that the problem with trade is in permanent trade, so freeze permanent trade and absolutely do whatever you can to encourage temporary trade—and, as you have heard from me this morning, that is directly opposite our position.

We are saying that temporary trade is where you are going to activate above-cap water and you are going to lose the confidence of your stakeholders. In a cap system there is no room to move. We cannot rob the environment of any water. If we do that, we are just temporarily robbing ourselves. Within that system, the activation of temporary trade above cap creates all the problems. But Mike has yet to come out and say, 'Don't worry about permanent; the problem is in temporary.'

When you ask us what we are doing about it, I have to say that we are trying our best but the Wentworth Group is a pretty powerful organisation. It has access to high levels of policy making. In a way, if we cannot influence them, we are not going to substitute for them. That in part answers the question in relation to the Sturt Group. The Sturt Group is an excellent organisation locally. We participate in it and go to the seminars—the MFAT seminar that I referred to earlier was a Sturt initiative—and we exchange emails et cetera. But if the Sturt Group tried to formulate itself as a competitor to the Wentworth Group, I think—and this is only a personal view—it would probably struggle. I do not think the Wentworth Group strength is its technical knowledge; I think it is something else. And I do not think the Sturt Group can compete on the same playing field.

Senator FERRIS—Are you aware of a study that I understand is being done from New England which looks at some of the sociological effects of changes in water management in New South Wales in particular? One of the witnesses yesterday referred to this study. She said the release of this document was imminent, but I do not have any details of it. The criticism that that witness was making was not dissimilar to yours in the sense of there being a lack of dimension in the sociological aspects of the Wentworth Group. She said later that this other document was being prepared and was due for imminent release through, I believe, the New England university. Are you familiar with that?

Mr Howe—No, I am not, unfortunately. We actually see the gap in the socioeconomic assessments of the impacts as a major shortcoming currently.

Senator FERRIS—Yes.

Mr Howe—It seems as though in the Living Murray process that is a pretty low priority at this time.

Senator FERRIS—It is hard to believe that it is, but I would agree with you.

Mr Howe—We attended a meeting for a scoping study, and that was the last contact we had about that.

CHAIR—Mr Howe, I do not want to ask a question in relation to what you have provided, but I found most of the information provided different and informative in terms of some of the things that we have heard in the past few days and certainly what submissions reflect. I was wondering whether there might be an opportunity for the committee to meet with you and Mr Thompson at another time so that we can explore some of these issues further.

Mr Howe—We would be very pleased to do that.

CHAIR—Thank you for appearing today and providing assistance.

Proceedings suspended from 12.29 p.m. to 1.27 p.m.

BRAMSTON, Mr Mark Lindsay, Chief Executive Officer, Coleambally Irrigation Cooperative Ltd

BLACK, Mr Robert H., Chairman, Coleambally Irrigation Cooperative Ltd

CHAIR—Welcome. I will ask either or both of you to make an opening statement. Who would like to begin?

Mr Bramston—Good afternoon, ladies and gentlemen. I seek leave to provide as evidence additional information supporting my submission.

CHAIR—That is fine.

Mr Bramston—This additional material contains supporting information on Coleambally Irrigation Cooperative. In it is a presentation that I would like to speak to briefly. Hopefully, the presentation will act as an aid to any of the questions you might like to ask. My submission on 13 February gave you a brief background on Coleambally Irrigation Area and outlined a number of optimising concepts. This optimising approach is drawn from Coleambally Irrigation's primary business goal. I ask you to turn to page 2 of the colour presentation document. Our primary business goal in relation to modern irrigation infrastructure is set out there. I would like to draw on RIVROC's presentation from this morning where they were talking about the Murrumbidgee Valley. We have a population growth of 1½ per cent. The wine industry is growing at 11 per cent and horticulture is growing at eight per cent. All of that was in their presentation this morning. Coleambally Irrigation's business goal is to provide irrigation infrastructure and services of a world-class value that will increasingly attract the Murrumbidgee's development into the Coleambally irrigation district. This is not to say that we want to take the water we have to existing development. We are trying to set up irrigation infrastructure which will attract the development that is happening. We want to bring it to Coleambally, to the infrastructure that we currently have and to the water that is currently there. That is the essence of what we are on about.

CHAIR—Essentially, a bit of competition.

Mr Bramston—It is, but it is turning the debate around. We have $1 million worth of irrigation infrastructure and we are attempting to make it world class, both in the services it provides and the farms it serves. We have a lot of water. We would like to say to people who want to develop: 'Rather than doing it somewhere else, bring it here.'

What I would like to do for the rest of the presentation before handing over to questions is quickly flip through the package of information we provided to the committee and make a couple of comments on each aspect of it. On page 3 of the document entitled 'Systematic approach—sustainability and competition' is an outline of the irrigation area. It shows our channels, drains and river. Coleambally was built by the New South Wales state government. It was an obligation they had under the Snowy scheme. When Burrinjuck Dam was built the water had to be put to a use and the Coleambally irrigation community and infrastructure was built to service that. On page 4 you can see the entire irrigation area. It is around 400,000 hectares. We

have divided it up into regional areas where we specifically target what we do in relation to the farms that we service. Each of those colours shows an area that has a unique characteristic that requires tailored services.

CHAIR—What are the coloured areas on the right-hand side of that page?

Mr Bramston—For example, the red area is an area where there are very deep watertables. They have a different irrigation practice to that in the south where it is green and the watertables can be quite high. Page 5 shows you an outline of the ground water monitoring we do twice a year. It is done in great detail. We monitor and feed the information back to the farmers on a regular basis. On page 6 is our land and water management plan, which is something the community are very proud of. It has been around since 1994, and the community have spent over $40 million on it. Less than 15 per cent of that money is government incentives or cooperation funds. The key objectives on page 6 are the six objectives the community are working to. They own it and they are very proud of it.

Senator HEFFERNAN—What does the piezometric map on page 5 tell us? I know what it tells me.

Mr Bramston—The light area shows you where water is within one metre of the surface, and the dark blue area shows where it is very deep.

Senator HEFFERNAN—Doesn't that say the job is a bit out of control?

Mr Bramston—It may. That is one way of interpreting it. But if you look at it within the scheme of things, back in the early eighties it was 18 metres everywhere, then a couple of decisions were made and it came up to two metres very quickly. In 1994 everyone got very concerned about it. If you plotted the trend line of where we were going, we were going to have a white area over the whole of the area within a couple of years.

Senator HEFFERNAN—That says to me that you have a lot of work still to do.

Mr Bramston—The message we have from it is that it has improved dramatically in 10 years. What you are seeing in that graph is that as you fill up for irrigation and go through a season you have an impact on the watertable. It dissipates very quickly and you fill it up again. What we were trying to do with the land and water plan was stop the trend. The trend was to have that area completely white throughout the whole year.

Senator HEFFERNAN—But doesn't that mean that day is still coming?

Mr Bramston—No, it does not. It is the trend line of where we were going. If you grab our annual report and have a look at the web site, you can see that that trend line has been flattened out and is improving.

CHAIR—Presumably there was another one done in 2001.

Mr Bramston—They are done every year.

Senator HEFFERNAN—So is that pale blue area the one-metre area? What does the latest map tell you? Has it shrunk or gotten bigger?

Mr Black—Less than 5,000 hectares are at two metres.

Senator HEFFERNAN—But is it smaller than what is shown on your map?

Mr Black—A lot smaller.

Senator HEFFERNAN—So it has started to shrink?

Mr Bramston—Yes.

Senator HEFFERNAN—Might you supply that to the committee?

Mr Bramston—I am very happy to do that. I have mentioned the land and water plan objectives. On page 7 there is a print-out of the crops that we grow in the area and the way we track water use in area plantings. To order water for an irrigation crop in Coleambally a farmer has to provide details of crop water use with every request he makes. On page 8 there is an EM 31 survey of the farms. EM 31 is electromagnetic induction. It measures the soil conductivity. That gives us a measure of how much water is leaking to the watertable. Within a year—we have only 20 farms left to do—we will have the first detailed EM 31 map of an irrigation area, to my knowledge. On page 9 is the soil paddock map, a georeferenced paddock map where a farmer can walk out with a GPS unit and pick where the soil types change. When you put those two things together, they are very valuable management tools for an irrigator.

Senator HEFFERNAN—How much is the average farmer having to leave out of the pervious soil?

Mr Bramston—It is hard to give you an exact number. I will answer the question in another way. If you are growing rice we have a limit of 69 hectares in a 200 hectare farm.

Senator HEFFERNAN—How much of the average rice farm in Coleambally is actually suited to growing rice?

Mr Bramston—It varies significantly. Some farms have only 69 hectares of suitable soil, other farms—

Senator HEFFERNAN—How much ground has been taken out of production because it is unsuitable? It has certainly happened over the back here, I know that.

Mr Bramston—How about I send you a number? I would rather not answer offhand.

CHAIR—We might just get you to finish your presentation.

Mr Bramston—Over the page again, the next two charts show you aerial and spatial satellite imagery we use to monitor the planting of crops. It has been developed as a way to actually increase production and to help in water use efficiency. That work is actually done under a

research program with NASA and is quite advanced. Over the page again, you come to whole farm plans. We have started whole farm plans for all 437 farms in Coleambally. They are at different stages of development. The aim is to have one of those completed for every farm within a few years.

Senator BUCKLAND—That irrigation design, is that one farm you are talking about?

Mr Bramston—That is one farm, yes. Over the page again, there is a slide of SWAGMAN on a farm. That is a computer modelling tool that we worked with CSIRO to develop. That modelling tool takes account of all the information I have spoken about so far and it is put into a package so the farmer can sit down and make both environmental and gross margin decisions on how best to use his water and his land. Over the page again, there is a graph on water losses from the irrigation infrastructure. We typically take and deliver 80 per cent of what we divert from the river to farms. Our irrigation system efficiency is around 20 per cent and we have an objective of having that less than 18 per cent within five years. Over the page again, there is a chart on demand forecasting. We use some sophisticated computer systems to actually forecast what we need to have released from the dam seven days in advance of the farmer's needs. That modelling works quite well and the state agencies that we report to are quite happy with the accuracy of our forecasts.

Over the page again, there is a chart on SCADA. SCADA is an acronym for supervisory control and data acquisition. We have 110,000 hectares of land covered by a digital radio network where we can monitor things 24/7 and the farmers will actually be using that to communicate with us this year. The last slide shows a detheridge wheel, which is the old water metering device, and the new metering device, which is called a flume gate. The flume gate is a totally automated device that has a computer monitoring what happens 24/7. The old detheridge wheel was a manual device. The difference in measurement accuracy is significant and the new flume gates will also provide significant water savings for the business.

In your package of information there is the yellow graph. It is the last thing I would like to talk about before I hand over to questions. This chart provides a record of diversions from the river into Coleambally and corresponding deliveries to farms over the period from 1976 to 2002. The regression lines that have been fitted to this data show a continuous decline in water use of seven per cent over a 25-year period. That significant improvement in water use is due to changes that have been made within the irrigation community. Three significant ones were: best practice used by the rice industry in their environmental programs, best practice with SCADA and the flume gates that I have talked about and the community's land and water management plan. That graph significantly shows that in the last 25 years the irrigation communities have worked very hard to get water use efficiency right.

Senator HEFFERNAN—Thank you for that. It is one of the best presentations we have had with regard to what your message is for this committee. Are you concerned about retaining the viability of your irrigation area by retaining your water allocation? This is setting aside any government decision to reapportion the total thing for the environment et cetera. In terms of your confined area, are you concerned about being able to trade inside water outside the area?

Mr Bramston—We are very concerned.

Senator HEFFERNAN—Would you like to explain those concerns to the committee?

Mr Bramston—We have modern irrigation infrastructure. Its value on a replacement basis is over $100 million. As a corporation, those assets are worth nothing without water. As a business, we have to think about our long-term viability. We believe, if about 30,000 megalitres of water left Coleambally, we would start to see the fixed cost delivery to the remaining farmers go up to the point where it significantly affected their profitability.

Senator HEFFERNAN—What proportion is that? What percentage would that be?

Mr Bramston—About five per cent. We went along to our shareholders and outlined our concerns and brought in Charles Sturt University in Wagga. We asked them to run a survey talking to the land-holders on a one-on-one basis to gauge their understanding of the problem and what they would like to have done about it. We stood back and let them do that. They ran a survey over 12 months and they got a 40 per cent return rate. They went out and interviewed those people who returned surveys to get a better understanding of what they submitted. We then had a community meeting and brought everybody along to talk about the results of the survey. The impression we have is that over 95 per cent of shareholders firmly believe that we should not allow water to be sold out of Coleambally, because it will ultimately affect their immediate livelihoods and the jobs of the townspeople.

Senator HEFFERNAN—One of the areas of new science is the innovation that could come to rice growing from GM intervention and the likes of the development of non-paddy rice. Where do you see that fitting into the future of rice?

Mr Bramston—I believe it has the capacity to lift the overall efficiency of the farmers we currently have and, where they cannot grow more land because it is not environmentally sustainable, any water use savings they make they will put into other crops. One of our problems is that in 1994 we were using 94 per cent of the water we currently had. We were getting 100 or 120 on a regular basis. The whole of Coleambally is developed up to use that efficiently. When the cap came in, we were brought back to around 75 per cent of our water on an average basis, so we have had a huge reduction in productive capacity. The development is there now, and, if we can find additional efficiency gains that will save us water, they will go back into producing what we have always produced.

Senator HEFFERNAN—Could it be argued that, given you would have had a high take-up rate of the licensed water available within the confined area, you have been in some ways disadvantaged by the sleepers that have come into the market and that have taken a snapshot through the allocation of the whole value, whereas you were a mature licence user, as it were? On the river, for instance, there are a lot of sleepers—

Mr Bramston—You are right. We see it that way. What we saw happening was the sleepers and dozers activating over a period of 15 to 20 years, if things had happened normally, and we would have been able to adjust to that. But with the cap coming in, that 15- to 20-year change happened overnight and we were significantly affected.

Senator FERRIS—I do not have any questions at this stage, but I think this is a very comprehensive briefing and I appreciate your coming.

Senator BUCKLAND—I have only a few questions because we have only just got this submission. On water usage—I am not sure what page it is, but it is crop water usage in proportion of total deliveries—can you just take me through what it is saying?

Mr Bramston—For the biggest one, the first crop, rice, the right-hand column says 67 per cent of the water that we have delivered has gone to a rice crop. We are a monoculture and that is pretty much an average—70 per cent every year. If you look at the next largest productions, they are winter cereal, which is wheat, then pasture and soya beans.

Senator BUCKLAND—This is a good presentation, once I get my head around what it is all telling me. I agree with Senator Ferris that it is really comprehensive and helpful. Do you use satellite and aerial imagery of the areas to tell the farmer things like: 'Use this paddock for your crop this year' or, 'Don't go there'?

Mr Bramston—I will walk you through it. We have a good understanding of the soils, and we will say to a farmer, with a map, 'You are allowed to grow rice on this ground, and you are not allowed to grow rice on that ground.' He will then come in and say, 'I'm going to plant a crop.' A typical farmer is allowed to plant 69 hectares. We need to know that he is growing it on the ground he is allowed to, that he is not exceeding his area and, if he orders water, that he is actually using that water on the area of crop he has told us he is planting, not some smaller area, so that the data we get is meaningful and useful. People have, in the past, played games.

Senator BUCKLAND—So they have to stick to your directions?

Mr Bramston—There are significant financial penalties and other penalties if they do not comply with the land and water management plan or the rice environmental policy.

Senator BUCKLAND—Could this equally be used to say to the farmer, 'You might be better putting lucerne in this year'?

Mr Bramston—Yes.

Senator FERRIS—Why doesn't the farmer take back the private property?

Mr Black—I got a phone call yesterday to say that one of my paddocks had to be let go. I used 19 megs per hectare last year on a paddock which I had land packed. I had made the soil impervious with a machine. The first year, it used 11 megs per hectare. Last year, it blew out to 19 megs per hectare. Last year was a very hard year, but I got a phone call to say, 'Please do not use that paddock again next year'—which I was not going to do anyway, because it is not viable for me to grow a crop on a paddock at 19 megs per hectare. At 10 or 12 megs, I am making good money. So I am changing what I am doing with my farms.

Senator BUCKLAND—Do all the farmers in the region cooperate in this process?

Mr Bramston—There can be difficulties at times, but the community understand that if we want to have a sustainable farm and community these things are necessary. They are not things we have adopted without community support.

Senator BUCKLAND—It is quite amazing that you have been able to do that. If you said to a farmer, 'We think you'd be better off putting in lucerne rather than rice this year,' for reasons that you were able to detect with your data, and he said, 'No; I really do want to put rice in,' can he just do it?

Mr Bramston—There are contractual arrangements between that land-holder and the corporation in which he is a shareholder, which are supported by the other shareholders, that say if he plants a rice crop after he has been told he is not allowed to he terminates his contract and is not allowed to get water. There is a very complicated process to go through to get to that stage, and his rights are protected all along the way. But if he does it deliberately the other shareholders will not support him.

Mr Black—But the shareholders are supporting us in what we are doing. If they do get a phone call, they adjust their methods of operation on the farm.

Senator BUCKLAND—I am very impressed and think you are extremely brave to take that line. But you could, in fact, dictate the income of an individual farmer. I am not saying you would do it without good reason, but you would be dictating their income. Rice is a better crop to have in than lucerne.

Mr Black—Not necessarily. That 20 per cent of your land might be one part of your property, and so you would just stay clear of that part of the property. You could still grow your 69 hectares of rice, or your other crop, somewhere else.

Senator FERRIS—How long have you been running this management plan?

Mr Bramston—The land and water plan came in in 1994. But rice environmental policy has been in place since the eighties; it has just become significantly more complex.

Senator HEFFERNAN—Would it be fair to say that if you had not been doing this things would be worse now?

Mr Bramston—It would be a lot worse if we had not been doing this.

Senator BUCKLAND—I am absolutely impressed with what you have done. I think it is leading edge stuff.

Mr Bramston—I prepared this presentation for a conference in Phoenix. I did not get a chance to deliver it—someone else delivered it for me—but internationally it has been very highly regarded. I would like to make a comment on water trading. Senator Heffernan asked some questions about what our community would react to if water were traded out of the area. I have been asked many times by economists visiting us why we have barriers to trade. Our shareholders have a rule that says we are not allowed to permanently trade water out of Coleambally. That generally is what the economists see as a barrier to trade. We do not look at it as a barrier. We are a corporation and we have got 437 shareholders. As a corporation, we went along to the shareholders and said: 'These are the assets you own. How are we going to manage them?' One of the things they said, which was supported by the survey I mentioned, was that as a group of shareholders and a community they do not want to see water traded out of the area.

We take that not as a barrier to trade; it is just the shareholders who own the assets saying that they do not want to sell them. It is a bit of a nuance, but it is not a barrier. Someone owns a bit of property and they are saying they do not want to sell it.

Senator O'BRIEN—What would we learn from looking at the chlorophyll-a indices from the period in the slide?

Mr Bramston—At the moment we are trying to be able to identify a rice crop from a corn crop or a soya bean crop and use that as an area measurement to make sure that we are being told the truth. That is what we are trying to do now. Where that technology can go is that it can actually tell a farmer how healthy a crop is, whether the water use is efficient, when he should put fertiliser on it, whether he should change his management programs. It will ultimately be a tool for the farmer to be a better farmer.

Senator O'BRIEN—You have a slide about the detheridge wheel and flume gates. When were the flume gates installed?

Mr Bramston—They are going in this year. We have a very large capital program to put them in. It is a significant change in technology. The detheridge wheel was something designed in 1928, and today it is being asked to do things it was never ever designed to do. The flume gate is actually a continuous measuring device that is fully automated and provides a number of benefits.

Senator O'BRIEN—How is that assisted, from the point of view of government assistance, tax write-downs or the like?

Mr Bramston—We are writing off a few assets but there is a massive capital program to replace them. A detheridge wheel is one price; a flume gate is about twice the cost, but you get so many benefits out of the additional investment.

Senator O'BRIEN—Is it written off gradually with depreciation?

Mr Bramston—Yes.

Senator O'BRIEN—What sort of rate is that at?

Mr Bramston—We would write the flume gates off over seven years. It is typically a $20,000 investment written off over seven years. A detheridge wheel would be around $9,000.

Senator O'BRIEN—Are there any other water saving techniques that you are investigating?

Mr Bramston—Yes. There is one I have not mentioned, which is a thing called total channel control. Total channel control is a sophisticated computer system that models a channel over its full length. When you have flume gates at the farm and we have flume gates in the regulators, they are all controlled by the computer. The computer actually continuously adjusts the whole system to ensure that it does not waste any water. That sounds pretty simple, but look at the way we run things now: we have one man driving 200 kilometres a day, visiting on average 40 regulators and 40 farms, and he manually adjusts the water up and down. We do one adjustment

a day and we hope we get it right. We do not, and we waste a reasonable amount of water, but the computer can do it continuously and it saves a significant amount of water. TCC as a technology replicates a pipe system in an open channel at a third of the cost.

Senator FERRIS—How many other irrigation areas have this sort of system?

Mr Bramston—We have led the way in New South Wales, but the Victorian government are investigating this quite seriously, down near Cobram.

Senator FERRIS—What about Queensland?

Mr Bramston—I am unaware of any that are in, but a lot of people are interested.

Mr Black—Queensland state water came down and saw us a few weeks ago.

Senator O'BRIEN—If I understand your system, you are using your records to say when you need water delivered from the main storage to the irrigation area—that is one system of minimising evaporation loss in the channels. Then you are using the flume gate system to more efficiently distribute the water and your next stage will be to improve the efficiency with a computerised system. You still have water running around the channels and evaporation. Do you have any idea of what you might be losing through evaporation at the moment?

Mr Bramston—Evaporation and seepage would be around 10 per cent of the total. Saving that 10 per cent is very costly. You need to pipe the system. For example, our main canal runs 5,000 Olympic swimming pools a day during January and it is 25 metres across. To pipe that—there is 50 kilometres of it—would be very expensive. It could be done but the biggest impediment is that the Murrumbidgee River has a very high silt load. One of our biggest operating costs is removing silt from the open channels every year. To pipe it would require a very complicated pressure system to remove the silt. On the numbers we have done so far, it is unaffordable, even at horticultural returns.

Senator HEFFERNAN—I think it needs to be got carefully into the record that the Pratt pipe thing is, as it were, a pipe dream. What most people do not understand is that Pratt was originally talking about developing some new irrigation areas from savings, not saving water. People who are used to what this is all about would know it is a pipe dream.

Mr Bramston—Senator Heffernan, I share your views.

Senator O'BRIEN—What about alternatives? Is there a blanketing system that can be used? Have you investigated those?

Mr Bramston—Yes. We initially did some work with RMIT in Melbourne to look at blankets to go over the surface of the main canal. They are very costly. One of the things that has beaten us, so far, is that we suffer severe winds in the October-November period. Those winds often run parallel to the channels, and any of the floating systems quickly get blown over into the banks. When 50 kilometres of floating pontoons are in a mess, it is very costly to try and repair. We are talking about 10 per cent. With the other losses we can do that cost effectively. It is where the money is going at the moment.

Senator O'BRIEN—How much water is 10 per cent?

Mr Bramston—We hope to save between 10,000 and 30,000 megalitres. So far we have put $7 million into it and we need to spend another $12 million to do that over the whole of the irrigation area.

Senator HEFFERNAN—How much do you reckon you have saved now by getting to know the country better and by blocking out? Do you have any idea of that?

Mr Bramston—I submit that the graph I gave you is a symbol of our having done it better over 25 years.

Senator O'BRIEN—I take it that the fluctuation is roughly between 600 gigalitres and 400 gigalitres. So at the moment you would be losing about 40 gigalitres through evaporation and absorption?

Mr Bramston—We get 130,000 megalitres a year. That excludes the farmers' water. The water we deal with in getting that to them is 130,000 megalitres in a normal year, of which 13,000 megalitres is seepage and evaporation. We would put about 40,000 megalitres of water into the downstream environment and the balance of the water is for wetting, measurement and so on. We will never get that to zero.

Senator O'BRIEN—That is 13,000 megalitres. What is the value of the water?

Mr Bramston—It is $500 a megalitre.

Senator O'BRIEN—That is a fairly substantial value, nevertheless, isn't it?

Mr Bramston—Sure, there is the $7 million or so it would save, but my point is that the operational and maintenance costs to save that are quite significant. That is one of the problems that we have with taking money from government to make water savings: most of the savings are going to be made by very expensive technology. To hand over the water for a capital payment, there are a number of things you have to build into that capital payment. The things that they miss at the moment are the ongoing operational and maintenance costs and the cost of replacing that technology in the future—and then there is the impact on the community. When we have been asked to sit down and work out things like excision fees for taking water out of the community, my personal view is that the net present value calculations never take into account all the real costs. It is very hard to come up with a number that provides a significant benefit to everybody involved in letting the water go.

Senator HEFFERNAN—Do you have any idea of the difference between your seepage loss and your evaporative loss?

Mr Bramston—Yes. I can send you a paper on that if you are interested.

Senator HEFFERNAN—Thanks.

Senator BUCKLAND—Just one more question—from someone who knows nothing about the flow of water. On the map showing CICL's operational area, there is a green area—the outfall district. What does that represent? Are they flood plains?

Mr Bramston—No, it is dryland grazing that has supplementary irrigation for pasture land management and some bores.

Senator BUCKLAND—Okay. Thanks.

Senator HEFFERNAN—I think there has been a misunderstanding down this end of the table, so you might explain to people the significance of the map on page 5 and what is going to happen if we come forward another metre.

Mr Bramston—The productive capacity of land is driven off the top two metres. Our land and water management plan says that, if the water table stays within that top two metres continuously over a whole year, we will lose productive capacity. Our aim in the land and water plan was, firstly, to stop the trend, which was that we were going to have it within one metre for the whole of the year, on an ongoing basis. So the first thing we had to do was stop that trend. Secondly, we had to make sure that, where it was above one metre, we got it down below two metres. We have stopped the trend and we have started to shrink that white area on the map.

Senator FERRIS—So was that white area at its highest in March 2000? It has grown significantly in that six months.

Mr Bramston—No, you are seeing the change between the start of the irrigation season and the end of the irrigation season. That is what I am showing you in that map. It does vary during the year. If you go back to 1994, it was very bad. If you would like to have a look at our web site, those graphs are there, but I would be happy to send the information to you.

Senator HEFFERNAN—If you could provide the committee members with that, that would be good.

Mr Bramston—I will send it to you, sure.

Senator FERRIS—So, proportionately, those two maps are presumably at the beginning and the end. Looking at March 2003, for example, how much smaller was it, as a percentage?

Mr Bramston—It is smaller, and I do not have that information at my fingertips.

Senator FERRIS—Would it be a quarter or a half smaller?

Mr Bramston—No, it is a small number—nowhere near a quarter—but it is improving, and I would be happy to send that information to you.

Senator FERRIS—Okay. And what is your goal? What would you like to reduce it to?

Mr Bramston—We would like to see under 12 per cent of the area with water at two metres. Rob has just given me some numbers, and the area with two metres has gone down by about 5,000 to 10,000 hectares. But I will send you the graphs.

Senator FERRIS—That might be useful. I am just amazed that it has taken a terrible year and a terrible drought for people to get on to this system, which seems to me to be a very good system of regional water management.

Mr Bramston—Thank you.

CHAIR—Mr Bramston and Mr Black, thank you for appearing today and for providing assistance to the committee.

Senator FERRIS—Thank you for the submission; that is very useful.

CHAIR—If there is any information that we need to clarify, the secretariat will be in touch. Thank you again.

[2.05 p.m.]

GOWRIE SMITH, Mr Bruce, Trustee and Deputy Chairman, Murrumbidgee Ground water Preservation Association

SHAW, Mr Murray Ross, Trustee, Murrumbidgee Ground water Preservation Association

Mr Gowrie Smith—By way of explanation, I am standing in for our chairman, whose father died two days ago in Adelaide. My preparation to try to make a reasonable presentation for you was very rushed. Murray Shaw is a bore irrigator from next door. I gather you have already toughened him up this morning.

CHAIR—Do you have any opening remarks, Mr Gowrie Smith?

Mr Gowrie Smith—Yes, thank you. I personally put my first hole down in 1970, so I am the only surviving original irrigator in the area. It was the No. 3 hole in the whole of the valley. In that 30 years I have put down four or five holes. It has been a burning challenge to me to help develop this basin, which is a gigantic resource. I must say that over the years the Water Resources Commission and their executives—more so in the first 20 years—helped greatly to encourage the development of this giant resource. Mr Schuster has listed five points in the submission. I will read them and, if I am allowed to, will give a two-minute assessment of what the basin looks like, which is really what most people have trouble coming to terms with.

The New South Wales government's current water-sharing plan for the Murrumbidgee ground water resource will eventually cut 48 per cent of everybody's entitlement, which is an across-the-board cut regardless of the history of use or the land development that has taken place. In my case, that is 30 years of development. The association wishes to achieve sustainable use of this giant resource in a different way, by managing annual extractions on a water level bandwidth process. This would see current licences being retained with each individual property and an annual extraction permit being granted, either ramping up or ramping down gradually in zones where it is proven that sustainable levels are a problem.

I will bring you up to speed with the situation. Because of the introduction of the legislation and in the interests of possibly warning everybody that 50 per cent might be the outcome of this, those people who run to 50 per cent were told to stay at 50. Those people who have been using less than 50 per cent were told not to exceed 50 per cent of their entitlement. Those who use 65 per cent were told to stay there, and so on. In other words, it is to encourage people not to spend any more capital, just in case this legislation goes through in its entirety. That is why I am saying that if it were done with a bandwidth process it would mean for those people who have been cut short and are treading water at the moment that, if their part and their property and their zone were quite safe, they would be ramped up in their licence. Any areas that were clearly not in a good part of the basin, and where the commission could show that the levels were declining, would be notified accordingly and would be graded down. It may be by 30 per cent or it may in fact lead to a totally decommissioned bore.

Senator HEFFERNAN—That is the Namoi model, by the way.

Mr Gowrie Smith—Is it? This is actually ours, but it could have had some reference to that. I am not sure. The association rejects the principle of across-the-board reductions as hydrogeologically unsound, because recharges in some areas of this huge area are near to zero. In some areas, particularly in the eastern half around the MIA and the CIA—as with the water table accessions that we were just hearing about—there is a serious need to increase the deep bore pumping to help protect the current irrigation schemes and lower the water tables. The new act does not address the hugely expensive structural adjustment or compensation which will be required and demanded by the property owners, who for the last decade have been very actively encouraged to develop this resource and are now in a flash being told to disconnect half of it.

Earlier in the day, Mr Shaw may have referred to the fact that in the early nineties the senior water commission people met at Darlington Point and said, 'What have we got to do to get you people to put bores down? We have giant irrigation schemes either side, the water table is scary and we do not want salt problems on our hands or another Moulamein.' The Hon. Jack Hallam came out and got very unpopular but he did a great job by saying, 'This whole region will turn to salt unless something is done about the rising water table.' He scared everybody; it was great shock treatment. In fact, the rice industry and the Water Resources Commission then acted very positively to try to do something. In Coleambally they put down a giant bore and ran it for 1½ years to see the effect it had on maintaining the table. The Ground water Preservation Association has been forced, because of the total unfairness of this current plan, to challenge it in the Land and Environment Court, and that process is on at the moment. There is a senior executive of Land and Water behind me, and that is fair enough. We will both be debating the rights and wrongs fairly soon.

I would like one minute to talk about what this basin is, because it is quite hard to come to terms with it. Everybody initially thinks there is a giant self-levelling lake underneath. But hundreds of millions of years ago the plain in the eastern part of the state up to Narrandera had rain, storms and torrents like we can never imagine. It came to the Narrandera area. There is a giant hole that went from here to the other side of Balranald. You can see it in the map where the water line is. That was a depression. In fact, right underneath us here the bedrock is down about 300 feet. Underneath Darlington Point it is about 400 feet. Underneath Hay it is 1,000 feet. The whole of that area was being filled up with blown-in—but mainly washed-in—material, and it was deposited.

So you can imagine that when there was horrendous water movement it dragged gravel and coarse material and deposited it as the water slowed down in the giant lakes and in the deltas that were created and settled. The closer to Narrandera you get, the coarser the gravel is. When you get to Hay, it is almost 800 feet of pure, fine silt and there is very little water movement ability. So we have a totally varying basin. A chap called Simon Pells did reports in 1968 to show that the whole of the Coleambally area was a woven mass of prior streams laid on top of one another over the many hundreds of centuries so that where the river is now may not have been where the water course was 10 centuries ago. There may have been 50 water courses heading out there. It is hard to imagine what is underneath one of my bores. One American driller was excited one day. He had this big piece of petrified wood. It came from a forest 300 feet under the current Darlington Point. He whacked it in methylated spirits and excitedly sent it off to the department. It was just like balsa wood. It just shows you that at that depth there was a forest which got buried, and then it had more streams on it.

So we have not got a self-levelling lake. We have a whole pattern of deposited materials that finger out and crisscross all over the place. Back in the seventies and eighties, the water commission clearly said, 'Once you get very far past Darlington Point, you are going to most probably run into recharge problems.' Unfortunately, we have an attitude that we have to treat this whole thing as an across-the-board cut. When somebody applied for a licence south of Goolgowi, right on the extreme fringe, there was no way in the wide world that the commission undertook to guarantee that that individual property was going to have sustainable water. None of us expected the commission to ever guarantee that, because it is so variable. In fact, on Coleambally Station itself, the American driller went down near the homestead and, goddamn it, he could not find any water near the homestead where Ron Carlon wanted the first hole. He had to go two kilometres away. So even in the eastern part the patterns are totally unpredictable.

So we have a situation where there are 1,980 million megalitres of entrapped water between Narrandera and Balranald—and the commission has repeatedly quoted that figure. It is inside that blue area. In the eastern end, only about 40 per cent of that is really high quality irrigation water. I think you can see that from the darker colour on your map. The lighter grey is still good irrigation water, although it is not of as high a quality. From then on, because it moves so slowly, it picks up salts and gets very salty, and in fact it rises to the ground surface level underneath the Murray River down on the other side of Balranald, where the commission has madly got pumps trying to prevent it from popping back into the river. So it is pretty unattractive water when it gets down there. But it travels unbelievably slowly. The water that is now underneath this building was at the top end of Griffith before Christ was born it moves so slowly. They have aged this: in 1984 they got a researcher from the Atomic Energy Commission and carbon dated the water. It is moving so extraordinarily slowly that there is less than one metre a year in total movement.

We cannot imagine this as a self-levelling lake. If you happen to have a property—you have got a piece of paper—that happens to have sands underneath it that might have accumulated water over trillions of years, and you have pumped it and it is starting to draw down, there is quite a big chance that the veins of sands that might feed that little patch underneath that property may not in fact be able to supply at the rate that the irrigator is pumping it out. In areas where that is the case, sustainability will be challenged and the irrigator will have to slow down. On the other hand, in our Darlington Point zone, within a 10-kilometre radius of my property there are 33—

Mr Shaw—Thirty-two.

Mr Gowrie Smith—There are 32 bores pulling 58,000 megalitres out. Yet in the middle of every winter the water is just as high in my original bore as it was when it was put in in 1972. So it is totally recharging in some areas. Unfortunately, the commissioner's proposal is that we have to treat it all as evil. We have to cut all that development in half and beg, borrow or steal enough money to buy water off somebody out there who has not got water—which is ridiculous, because you are asking somebody to sell water that is not there—and transfer it back up, when logistically it cannot physically be transferred. It has taken 15 million years to get down there; there is no way it is coming back. So to me it is not saleable. At this stage, Mr Deputy Chair, I ought to back off and let the committee fire some questions.

Senator HEFFERNAN—Could you explain to me how it takes 15 million years, if it is moving a metre a year?

Mr Smith—Initially, it was—

Senator HEFFERNAN—That does not add up to 15 million years, in my book. It is not that far to Hay.

Mr Shaw—Less than a metre a year. It was 40,000 metres from Darlington Point to Carrathool—that was what someone said.

Senator HEFFERNAN—What you are talking about is something they have come to terms with in the Namoi catchment. What you have not explained is where you get your recharge for the faster recharge versus the slower recharge.

Mr Smith—The recharge has been stated a number of times within documents throughout the eighties and the early nineties at the water commission. On their calculations, there are about 44,000 megalitres disappearing in the river between Narrandera and Darlington Point, and you can imagine that they would be pretty accurate on that. It was not more than 15 years ago that they believed the sustainable extraction level here might only be 60,000 megalitres. In the early nineties, we got to 100,000 megalitres of extraction, and the water was rising dramatically on most of the piezometers. That is when the commission and Jack Hallam and everybody panicked and said, 'Clearly it is not the river supplying all this water. It has to be coming from accessions out of the giant canal systems and out of the farming techniques that are going on around and over the top of this basin.' As you can see on the blue map, a big proportion of CIA and MIA are actually over the poorest parts of the aquifer.

Senator HEFFERNAN—Which is, of course, an argument that you should continually put. It is an argument for continuing to have flood irrigation versus trickle, because you are actually recharging your second crack at the water through the ground water.

Mr Gowrie Smith—That is true.

CHAIR—Senator O'Brien has some questions.

Senator O'BRIEN—I am just trying to understand your map. The area that appears to be marked 'exposed bedrock' is the area where the recharge is best.

Mr Gowrie Smith—In the exposed bedrock, which is the dark country, there is no recharge at all. That is actually rock. It is recharging, and on the calculations of the commission only 4,000 megalitres a year—that is their maximum feed-in—sneaks through the gaps between the rocks underneath the river at Narrandera. The other 40,000 megalitres is actually going in through the bottom of the river in an area from Narrandera to Darlington Point. That is on their figures.

Senator O'BRIEN—So between Hay, Carrathool and Narrandera, the dark section has very slow recharge?

Mr Gowrie Smith—They have not put a figure on it, if that is part of it, but they have never claimed that is a big recharge area.

Senator O'BRIEN—So from Balranald through to Hay is the area that you are talking about, where the recharge is best.

Mr Shaw—Slowest.

Senator O'BRIEN—That is what I am trying to understand.

Mr Shaw—The best recharge is from Yarroweyah to a point west of Darlington Point.

Mr Gowrie Smith—As the gravels fell out of the fast moving water, they basically fell in the areas closest to Narrandera and out to five to 10 kilometres west of Darlington Point. From there, it becomes very marginal. Right near the word 'Carrathool' on your map and down towards the word 'Conargo' there are some piezometers that have been registered to clients in the last 10 years. That has been the basis on which the Water Resources Commission has said that the whole thing is under stress. But when you analyse those 10-year figures—which they do not in their documentation—a massive number of bores have gone in around both of those piezometers. We did a check the other day: there are seven big bores within 10 kilometres of the piezometer, which is pressing alarm bells with them in the Steam Plains area. Then you go to John Elliott's property at Cobram, and five big bores have been put down just east of Hay, and a property called Arundoul has got three, and they are all within six kilometres of this poor little piezometer. So it is no wonder that it is registering a decline, because 17,000 megalitres were pulled out around the Conargo one.

Mr Shaw—Yes, 20,000.

Mr Gowrie Smith—Unfortunately the figures that the commission is using to justify an alarming downward trend have all been taken over the last 10 years. In none of the status reports do they actually quantify the amount of influence that brand-new bores are having on those figures, so it is easy to misconstrue it. The second thing to say is that in the trend line that they also argue they start from 1990 and they go to 2000, and they say, 'Whoops, the water recovery definitely isn't as high as in 1990.' But if you ask them, 'When was the highest level ever recorded of the pressure under this area?' they will say, '1990,' because all the way from 1990 back to 1970, where their early piezometers worked, there is a decline. So the irrigation activities in these big schemes raised the pressure until 1990, and so they have chosen 1990 to start the graph instead of taking it back historically and saying, 'Where are we in relation to 1920 or 1950?' It suits them to say, 'We've got a decline.'

Thankfully, Mark Bramston's group and everyone are very appreciative of the fact that there is some decline where there is intense bore activity around the Coleambally irrigation scheme. The CSIRO's Dr Shabus Kahn has done a research report which says that the best maintenance of the water level table problems is where the most activity for big bores is. So, from a salinity point of view and a sustainability point of view, it is very serious that this across the board cut is putting restrictions on the wrong—

Senator HEFFERNAN—Could you explain to the committee, if you are able to, how east of Narrandera on the line from Hillston to Narrandera to Albury there is a more or less continuous aquifer, where they intercept the salt going into the Murray River, whereas back from here there is a broken aquifer, which is a different arrangement altogether, hydrologically.

Mr Gowrie Smith—I have not become an authority on that, but I gather it is a very narrow vein, basically, underneath—

Senator HEFFERNAN—It is all joined up. The committee needs to understand that from here to the west there is a continuous catchment, even if they are small channels at times, whereas back up here the aquifers do not link up.

Mr Gowrie Smith—That could be true. This one was basically because of its alluvial deposits and its interconnecting prior streams.

Senator HEFFERNAN—Yes, it is different. This one back up here is broken.

Mr Gowrie Smith—I gather that licences are still being granted for extraction above Narrandera—and that is fine.

Senator HEFFERNAN—They are very confined aquifers though.

Mr Gowrie Smith—I honestly believe that when the dust settles hopefully reason can be negotiated within the department so that this across the board decimation of this giant resource is not enacted. Then we will see usage of areas which in fact have high water levels—and a great number of these piezometers are actually running as level as level. There is no effect at all, for instance, in those areas south of Coleambally towards Jerilderie and back towards Narrandera. There is a vast resource there now which will be dead if this comes in. I think that it is only wise that, if there is a level management situation operating and some areas are told to cut back pumping, areas where it is clearly safe should be encouraged, because why leave the resource there? It is 150 to 200 feet underneath the ground; using it will not do any harm.

Senator HEFFERNAN—Would you explain to the committee what the average ground water licensee does with their water?

Mr Gowrie Smith—Thirty years ago, when a few of us started off, we generally had flood irrigation, sorghum, sunflower and wheat.

Senator HEFFERNAN—I remember it well.

Mr Gowrie Smith—Because of the cost of these bores—and it is about a quarter of a million dollars of private enterprise money to put one down, and nobody guarantees, as they do with a water wheel, that they will come and fix it if it breaks down; you are absolutely dead in the water with your bank if something goes wrong with that pump in the middle of summer—we had to find some more profitable crops. A few at Coleambally actually grew marijuana—but I was not among them. So we went into row crop corn and seed crops like hybrid sunflower and sorghum, which I grow. I grew 16,000 tonnes of tomatoes for many years and nearly went broke in the process. I actually started a value-added tomato business which has $500,000 worth of wages in

Darlington Point annually now. My bank has told me that if I have a 50 per cent water allocation I should close shop as they will no longer have the mortgageable value. Yet it has taken me 30 years to get there. It is plainly ridiculous that this basin, which has an entirely different set of circumstances from most of the other water situations in the state of New South Wales—and those areas' circumstances have to get addressed; that is right—has been bundled in to try to fit in with the norm. This basin has a huge volume of water. Because the science on it is only 30 years old and it changes every year—every status report is different—they are learning about it and we are learning about it and we need to back off from rushing through and matching all of the other water plans.

Senator HEFFERNAN—With respect though, the Namoi aquifer does exactly what you say should be done here. With the Namoi aquifer they are going to lose from 87 per cent down to about 30 per cent. It has been broken up, as you say this one should be.

Mr Gowrie Smith—This one should be too—absolutely. We are actually proposing that in actual fact we want it to be sustainable, just like the department and the government do. If only we could approach it from a different angle, so as to say that we annually manage it up and down without across the board cuts. If we did that the association would not be calling for any compensation, quite frankly. There is not any public money for associated readjustment. In actual fact, if I have applied for a licence and I happen to be in an area which unfortunately is not sustainable, it is not anybody else's problem but mine. But if you cut me in half when I am sitting on top of totally rechargeable water, then I am going to scream like hell. That is why half a million dollars has been raised by some people that are still living in a shed and have cancelled their holiday to try to contribute towards this claim in the Land and Environment Court. It is that desperate for some little people; it is not so desperate for me. I am getting to the stage where I am going to retire anyway, so they can chop me off at the legs and it is going to be early retirement—that will be it.

Mr Shaw—Our aquifer has been divided up into management areas but our association would say that, for this to be 100 per cent effective, this really needs to be done on a bore by bore basis. In some areas where there is good recharge there are a lot of bores. In other areas the bores are miles apart. As Bruce said, in our area there are 32 in a 10-kilometre radius of one of these piezometers. That is what we would say. You can have two bores a mile apart and they will perform entirely differently. One will completely recharge; the other one will be two or three metres lower next year or something like that.

Everyone has gone into summer crops instead of a spread of winter and summer crops, so we have a high extraction rate for the summer months and then everybody switches off, because they use their allocation for summer crops. I am a summer pumper and before we start up I take a static water level in my hole. I did a graph for another committee last week and over the last three years—which has been the worst drought we have ever had so I have extracted more water—the static water level has actually risen. From 2001 to 2002 to 2003 it has come up one foot each year, even though extraction rates have actually risen. There are other people who have virtually pumped their holes dry.

Mr Gowrie Smith—I have one other little comment on that. It is very easy, this. I do not know what the total number of bores in the area is. It is most probably 400. That is a guess, but anyway. It is not a very hard task to get a winter reading. The commission has actually used

winter recovery level readings from their piezometers. But what they failed to do was to make a notation of the fact that in the 1990s we changed our farming technique quite dramatically. Admittedly, Murray is a rice farmer and he basically uses all his water in the summertime. What happened in the earlier era—right through the eighties—is that you grew some summer crops and then you pre-irrigated your winter crop in bays in February or March. After that you fallowed it and then, when you got a planting rain in May, you put your winter cereals in. It was basically unheard of to switch the pump on in the middle of winter. Since the nineties and thanks to Martin Maynard out of Hay, we have gone to minimum tillage, permanent beds. We harvest our corn and—this is bit of a no-no—burn the corn stubble after harvesting, proceed with a disc seeder and wait for rain. If it does not rain in the next week, you put the water down on it. I pull about 20 per cent of my water out in the middle of the winter months. So quite a bit of winter pumping is done. So the piezometers, since 1990 when all this alarm was created, in a lot of areas have been affected by the winter pumping activity of multi-cropping people like me. But no notation has been made of that. So it is affecting the chance for that water to completely recover in some years, and it should be acknowledged that that is going to slightly affect the winter figure which is in their gradient.

Senator BUCKLAND—On your own property, how many bores do you have down?

Mr Gowrie Smith—I have two. I am right at the crossroad of Darlington Point. There are two on my own property, Huddersfield.

Senator BUCKLAND—Are they at different levels or depths?

Mr Gowrie Smith—No. There is a 30-inch hole with a 24-inch piece of steel hanging in it to about 200 feet and then it goes into 16- or 18-inch steel from then to about 450 feet. It is in that bottom 200 feet where we insert either slots into the casing or stainless steel screens, and that is where the water is coming from. In the winter time, it is coming back up, as I said, to about 62 feet. Then, because of all the stress of these 33 big bores around my zone, we are having to put up with pumping levels in the middle of summer of about 130 feet. That is a bit of an extra energy bill. It is about $35 or $40 a meg just for the energy to bring it up. But we are wearing that because at other times of the year it is $20.

Senator BUCKLAND—It has a float mechanism?

Mr Shaw—We are pumping out of the pressure zone. The entrance to this is up at Narrandera and it gradually snakes down. We put the hole here. One of my first aquifers is at 210 feet and the pump is set at 160 or 170. We are pumping out of the pressure zone.

Mr Gowrie Smith—We are not pumping out of where the water is stored. It is coming up the pipe to there.

Senator BUCKLAND—Okay.

Mr Shaw—Then in the off season that would be 60 feet to 70 feet.

Senator BUCKLAND—With taking bore water from the aquifer, do you take any river water as well?

Mr Gowrie Smith—Out of the river itself?

Senator BUCKLAND—Out of the river itself.

Mr Gowrie Smith—I was so concerned about this documentation, I spent $300,000 running a 3.2 kilometre all-the-way pipe to the river last year, and I have 14 lousy megs of licence in the river. But just to preserve my situation I felt I was going to have to buy temporary transfer to prop up what might be taken away from me. Murray has always been a river pumper. But most of the bore pumpers do not have that luxury. Most of them are miles from rivers and so they are actually sitting there in deep danger of becoming uneconomical.

Senator BUCKLAND—To balance that, if you were to lose part of your allocation of bore water, would you get 14 megalitres from the river?

Mr Gowrie Smith—Yes, but if I lost half of my 3,000 megalitres I would have to go and buy 1,500 megalitres. The farm is beautifully lasered. It has been lasered many times and as far as I am concerned it is showcase farming; it is pretty neat. So I am not wasting any water. It is all recirculated, and there are two giant lift pumps. Not a drop of water ever leaves my boundary, and water never lies anywhere except in the dam. It is pretty well managed. At the current replacement rate—with high security water now trading at over $1,000 megalitre—we regard bore irrigation water as a damn sight dearer to pull up, but it is high security. It is always there if you are in a good part. So, if it costs $750 a megalitre to buy replacement water, my bank is not going to wear it.

Senator HEFFERNAN—What does it trade for now—around $200?

Mr Gowrie Smith—What is that?

Senator HEFFERNAN—Your bore water.

Mr Gowrie Smith—It has not really traded.

Mr Shaw—What has happened is that some people have bought farms and, under the new legislation, are aiming to move the allocation back. It seems a bit illogical to me that, when we are supposedly under stress and reduced to 95 per cent, someone would be allowed to transfer that back.

Senator HEFFERNAN—Let me put this to you. You know what a phantom licence is.

Senator FERRIS—A ghost.

Senator HEFFERNAN—A ghost licence. Do you have many ghost licences?

Mr Shaw—Could you give me a definition of a ghost licence?

Senator HEFFERNAN—A ghost licence is where someone has a licence—and it is a completely different regime here; the blokes at Gwydir did not use it or lose it—which they hang on to even though they do not have an aquifer. Do you know many blokes that have a weak

aquifer—that have, say, a 1,000 megalitre licence but no real aquifer; they have stock and domestic? If you do, are they going to be able to trade it back?

Mr Shaw—Yes, under this regime.

Senator HEFFERNAN—I am opposed to that.

Mr Shaw—I am philosophically opposed to it too. We are arguing that at the moment in the Land and Environment Court.

Senator HEFFERNAN—On 1 July they would have been able to trade back in and cut your allocation further.

Mr Shaw—That is what will happen. As they transfer the water in, everyone else's allocation will be reduced accordingly.

Senator HEFFERNAN—I have to say that, in me, you have a champion for your cause on that one.

Senator BUCKLAND—I might have missed this, but I want to ask about the cost difference between buying water from the aquifer—that is, taking an allocation from the aquifer—and taking an allocation from the river. I know that it is more costly to pump water from the aquifer, in terms of energy, but as far as paying for the water is concerned, is there a cost difference? If you were to pump it out of the river would it be cheaper, in terms of paying for a licence, than pumping it out of the aquifer?

Mr Shaw—Do you mean the landed water price at the farm surface?

Senator BUCKLAND—Yes.

Mr Shaw—It depends on whether you are an electric or diesel pumper. I am a diesel pumper and my total costs for fuel, repairs and maintenance over 20,000 hours, including a rebuilt motor, comes to $21 a megalitre. I have just done that calculation for Country Energy because they wanted to know why I was not an electric pumper. For an electric pumper with the same pump as mine—with a line shaft with an electric motor and associated headworks—it would cost $40. River water is costing me a total of nearly $7 landed on the farm, as against $20—or in the middle of the season probably $30.

Mr Gowrie Smith—That is why you would not pay the same amount of money for bore water as you would for river water—because every year your running costs are so much worse here. But most people have no option—you might be a bore pumper 30 miles from the river.

Mr Shaw—I have a next door neighbour who has 70 acres of almonds on a 600 megalitre licence. If he gets cut in half, he either buys the extra water necessary or pushes out 30 or 40 acres of trees.

Senator HEFFERNAN—How many trees does he have?

Mr Gowrie Smith—About 250 trees per hectare.

Senator HEFFERNAN—You have a new neighbour who is going to put in 500,000 acres of it.

Mr Gowrie Smith—Yes. Almonds are exciting.

Mr Shaw—So is Mr Price on Tubbo Station.

Mr Gowrie Smith—That is who I am talking about.

Mr Shaw—I would like to make another quick comment about that development's value to this state last year. It is a totally private enterprise development, apart from the government meter readers. We have all put meters on. Any grower who does not have a meter basically gets stopped. We have encouraged that because we really do want to understand the basin—so that is good. Otherwise it has all been private enterprise.

Last year this was a terribly valuable contribution to New South Wales. Because it did not have any water cutbacks, it actually produced a huge amount of feed grain. I raced around after the corn harvest had finished and, because of the desperate state of most of the cattle people between us and Albury, I baled 10,000 ½-tonne bales of straw and we trucked up to 16 semis a day, which was a hell of a saving for people from Cootamundra to Albury. We just couldn't supply enough commodity. So in years like that it is a great insurance for everybody, in a way.

The other thing is the wildlife. If anybody wishes to come and have a look at one of my properties, they will see 5,000 to 10,000 birds living on it permanently. There is a 32-acre lake and an armada of pelicans and ducks. There are also those little black waterhen. I don't know what they're called but they look like the little white hen running on the old Cerebos Salt label, if you remember that, and there are just thousands of these things. Had there been no water out there, we would be lucky to have half-a-dozen emus.

Senator HEFFERNAN—They are from the lower Lachlan. They have had to migrate to you!

Mr Gowrie Smith—That is right—I am feeding them for you! In the almond orchard, there would be 400 kangaroos that just reside there and look at you. It is a lovely sight. If Americans come and you want to show them kangaroos, you just take them out to the almond orchard. The kangaroos just get fed on white clover underneath the sprinkler system. It is not that we want to increase the number of kangaroos, but from a wildlife point of view it is simply fabulous to see that, way out in the middle of the plain, there is an irrigation dam and an awful lot of wildlife that was not there before. So it is a bit of help.

CHAIR—As there are no further questions, Mr Gowrie Smith and Mr Shaw, I thank you both for providing assistance to the committee. If there is anything we need to clarify, the secretary will be in touch.

[2.43 p.m.]

FORD, Mr Warwick Alan, Regional Director, Murrumbidgee Region, Department of Infrastructure, Planning and Natural Resources, New South Wales

CHAIR—Welcome. Do you want to make some opening remarks before we go to questions?

Mr Ford—The name of my department has only recently changed to the Department of Infrastructure, Planning and Natural Resources. It is a bit of a mouthful. As part of my duties as a regional director I am involved in the water issues in the Murrumbidgee Valley. I have arranged for you to get copies of maps of the area that I cover. That is probably the easiest way to explain to you the area that I administer. The first map is basically the Murrumbidgee catchment rivers boundary, which is my regional boundary, with the exception of the ACT. The area that I cover runs basically from Cooma through to Wagga and down to Balranald. The second map is a water administration map and you will notice that it goes down into the southern area a little bit further, around Jerilderie and that area there. The reason for that is that there is a lot of Murrumbidgee River water diverted at the Yanco Weir down Yanco Creek into what we call the Yanco and Colombo Creek systems. Part of my responsibility is to administer some of that water. That is why I have given you the two maps.

I would like to give you some basic water statistics for the Murrumbidgee Valley as a starting point. The actual length of the Murrumbidgee River is approximately 1,600 kilometres. There are two major storages on the system: Burrinjuck Dam, which is just downstream of Yass, which has a capacity of 1,026 gigalitres, and Blowering Dam, which is just above Tumut, which has a capacity of 1,628 gigalitres. There are seven major weirs on the system; these being: Berembed Weir, Yanco Weir, Gogeldrie Weir, Hay Weir, Redbank Weir and Balranald Weir. There is a mean average annual flow in the Murrumbidgee River as measured at Wagga of 4,300 gigalitres a year. So approximately 4,300 gigalitres of water a year goes past Wagga. In regard to licences, on the regulated river system—and the regulated river system is what we call the system below Burrinjuck and Blowering Dams—there are 904 licences, and they have a total volume of 2,409 gigalitres. On the unregulated system—which is the system above the two dams and also those creeks that actually run into the Murrumbidgee, particularly down below Burrinjuck Dam—there are 811 licences. They are actually area licences—they are being converted to volume at the moment. The area that they cover is 26,985 hectares.

Senator HEFFERNAN—Is Tarcutta one of those?

Mr Ford—Yes, Tarcutta is one of those. The ground water allocation licences total approximately 530 gigalitres at the moment. So they are the basic water statistics for the valley. To clarify the department's operations for you, we were the Department of Land and Water Conservation prior to the last state election. That department included what we call State Water. I am responsible for the resource management of water within the valley. State Water are the resource operator; they are actually responsible for delivering water, particularly in the regulated system from Burrinjuck Dam and Blowering Dam, to the actual licence holders downstream. So there are now two very separate departments managing the water in this valley. I am basically responsible for the resource management of the water.

Senator HEFFERNAN—Does that mean the division of the cake, as it were?

Mr Ford—It is partly to meet the terms of the COAG requirements where the operator has to be separated from the natural resource manager. The main legislation that I have to operate with is the New South Wales Water Act 1912. That is currently, slowly but surely, being overtaken by the New South Wales Water Management Act 2000. The Water Management Act has seen the development of what we call water-sharing plans, and the previous speakers were referring to a ground water plan. Water-sharing plans are documents—for example, this one here is for the regulated river system, and I am quite happy to table that.

Senator HEFFERNAN—These are the ones that are on hold at the moment?

Mr Ford—Yes, these are the ones that are on hold until 1 January.

Senator HEFFERNAN—And possibly even longer.

Mr Ford—I will not comment on that, Senator. In this valley at this point in time we have a water-sharing plan completed for the regulated system, a water-sharing plan completed for the lower Murrumbidgee ground water system west from Narrandera and water-sharing plans for two unregulated streams: one plan for Adelong Creek just above Wagga and the other plan for Tarcutta Creek just above Wagga. One of the main principles clearly set out in the new legislation in relation to the total water in the system is that there has to be a share of water made available for the environment—that is the first priority—followed by extractive use. Within extractive use you have what we call basic water rights and licensed water access rights. Basic water rights cover such things as stock and domestic rights and harvestable rights—under which part of the rainfall that falls on a property can be retained by the land-holder.

Senator HEFFERNAN—That is the 10 per cent.

Mr Ford—That is the 10 per cent run-off. Native title rights are very similar to stock and domestic rights. The licensed water access rights, which are the next line of priority, have within them, as the first priority, water being made available for towns then industry and irrigation. Within irrigation, there are two forms of licences: high security water, which is aimed at supplying water to permanent plantings such as vineyards or citrus; and general security, which is whatever we have in storage that we can make available to the irrigators.

The other document that I brought with me that I am happy to table is the Murrumbidgee Catchment Blueprint, which was prepared by the Murrumbidgee Catchment Management Board. One of the reasons I am tabling it is that it looks at some of the natural resource management issues within the catchment and it has set targets. It is a 10-year plan and it has been accepted by the New South Wales government and the Commonwealth government. At this point in time it has certain parameters in it. The two main ones that relate to water are targets to reduce salinity hitting the valley and targets related to water quality. So that plan is linked in with these water-sharing plans. I will leave my introduction there.

Senator HEFFERNAN—The river management plan and the second document you presented—the document I am holding—were they put together by the river management committee?

Mr Ford—The Murrumbidgee River Management Committee—and I am still holding the document for a reason: I might have to quote a couple of figures from it—put this document together. The other committees that we had in existence—

Senator HEFFERNAN—Who put together the blueprint?

Mr Ford—The Murrumbidgee Catchment Management Board.

Senator HEFFERNAN—Would you care to provide to the committee the actual bodies and the people involved, because sometimes some of the bodies can become very political operations rather than scientifically and practical use based operations.

Mr Ford—The Murrumbidgee Catchment Management Board is constituted under the New South Wales Catchment Management Act. It is made up of a number of representatives across the catchment: three local government representatives; four land-holder representatives; four people from—I was going to say from the Greens, but it is not quite the Greens; two from the Nature Conservation Council—

Senator HEFFERNAN—Rather than go through them, you might just provide the details to the committee on notice.

Mr Ford—I can do that. The board was formed to look at natural resource management issues in the valley. They have developed five main targets within that catchment blueprint and they are related to salinity, water quality, biodiversity, soils and a community building target—that is, giving the community the capacity to address some of these issues.

Senator HEFFERNAN—So under this document I am holding, where are the forests?

Mr Ford—You are holding the ground water plan.

Senator HEFFERNAN—Under this other document, where are the forests?

Mr Ford—When you say, 'Where are the forests?'—

Senator HEFFERNAN—The forests are going to take a hell of a lot of water out of the river system. Where is the environmental planning for that? As I understand it, there has not been any. Why would the committee not have brought that to account?

Mr Ford—The committee has brought that to account in that that document is a benchmark. A lot of research went into it to establish what exists exactly in the catchment at the moment. Obviously, part of that is a lot of the softwood plantations that are around the Tumut area. It also looks at what needs to be done to address salinity. Insofar as addressing salinity, some of the actions that are recommended within that plan include reafforestation and/or the planning of deep-rooted perennial pastures.

Senator HEFFERNAN—I want to go to the effect on the run-off of forests above 35-inch rainfall in the Murrumbidgee catchment, which is taking you up into the higher country. Where and how have you addressed that? And have you made a calculation under the 2020 vision

plan—which is part of the forestry planning—for a tripling of the forest area over the next 15 years? Where is that calculated into the overall sums for the catchment?

Mr Ford—That is in that document, and it is not calculated per se. It is recognised where those forests are at the moment, and what is calculated is the sorts of run-off yields coming from those catchments. More importantly from a salinity point of view, that document has identified 12 subcatchments above Wagga that are contributing significant salt loads to the Murrumbidgee River.

Senator Heffernan—That is in a below 32-inch rainfall area.

Mr Ford—Yes. That document then goes back into those respective subcatchments and looks at where that salt originates. We have got the technology to go into some of those subcatchments. When we have identified the parts of those subcatchments still contributing very clean water to the river system, the document recommends that we leave those completely alone. The only place it targets is where it identifies either saline scores or saline recharge areas that will have an effect on reducing salt. We have models that we can run to compare how much surface water would be intercepted by establishing, say, a forest on a particular part of that landscape compared with how much salt it would actually reduce.

Senator Heffernan—Obviously, the Murray-Darling Basin Commission has done the science on the 32-inch to 24-inch snapshot of the slopes, where I think all the forests ought to be going instead of into the 80-inch country behind Batlow. Have you identified that in this study?

Mr Ford—Yes. That is basically—

Senator Heffernan—Does this book say you should not be growing trees at Batlow?

Mr Ford—No, it does not say that at all.

Senator Heffernan—Perhaps it should.

Senator O'BRIEN—No. That is absolutely contrary to the answer you just got. I am trying to get an understanding of the Murrumbidgee catchment. On page 15 of the little *Murrumbidgee Valley (Regulated System)*—

Mr Ford—I did not refer to that. My apologies.

Senator O'BRIEN—I will get you to refer to it now, so that is not a problem. In relation to the end-of-system flow, it says:

Sufficient water must be set aside to meet the end-of-system flow requirements under the Murrumbidgee River environmental flow rules. What is the requirement?

Mr Ford—That is one of the reasons I kept this and did not hand it over to you.

Senator O'BRIEN—Can we have it afterwards?

Mr Ford—It is in this document. In very broad terms, within the water-sharing plan there is provision for two end-of-system flows: one to cover the first five years of the plan and the other to cover the second five years. The reason for that is that, when the committee put this plan together, it did not meet the state water management outcomes requirements for end-of-system flows. There was less water going out the end than what that state document required. As a way forward, the committee suggested a couple of major things happening in this valley over the next five years that would probably increase the end-of-system flows without putting extra requirements in the environmental segments of this plan. Those two things include, firstly, the Snowy savings. For every three megalitres of Snowy savings in this valley, one has to go into the Murray system: so two go back into the Snowy and one goes into the Murray. Without trying to confuse you too much—

Senator O'BRIEN—So it is transferring water across catchments?

Mr Ford—There are two ways we can get it into the Murray—one is we can go through Eucumbene to Hume, and the other is we can put it out the end of the system, past Balranald. The committee thought: why not deliver it out the end of the system? That then helps to meet the end-of-system requirements when those savings are made. The second thing—and it is an unknown—is the Living Murray process. The Living Murray will be looking at taking additional flows coming out the end of the Murrumbidgee system. That is why there are two set end-of-system flows in this document.

Senator O'BRIEN—What number are we talking about for the required end-of-system flow?

Mr Ford—In the first five years it is 1,925 gigalitres.

Senator O'BRIEN—I am just matching it up with your 4,300 gigalitres per annum at Wagga.

Mr Ford—That approximates to 56 per cent of the water in the valley.

Senator O'BRIEN—That will catch up with 4,300 at 56 per cent.

Mr Ford—What I just read out to you was the long-term extraction. My apologies; I was reading it the wrong way around. For the first five years, the average long-term extraction will be 1,925 gigalitres, which equates to approximately 56 per cent of the available water. That is estimated at 4,360. I just gave you a round figure to start with. In the second five years of the plan, that extraction will be limited to 1,890 gigalitres. By doing that, approximately 57 per cent of the long-term flow will go out of the system. So that is the end-of-system flow. I am happy to table that information now; I thought I would be asked that question.

Senator O'BRIEN—Are there historical figures on the end-of-flow number for the Murrumbidgee?

Mr Ford—There are modelled figures based on over 100 years of records. We have in the vicinity of 108 years of records for the Murrumbidgee system and for the river. Obviously, with current day technology the flows can be modelled right back to what they were. I have a fairly interesting overhead—it has nothing to do with what we are talking about—of the impact that drought has had. I can show you what that looks like on a document.

The small booklet which I just handed out, the *Water Allocation Plan*, is distributed to every regulated river licence holder at the start of each water year. It puts into plain English for them the operations of the regulated river system for the water year. That document has been developed over a five-year period, in full consultation with the water users. If you look at the index, you will see that it covers allocation announcements, water delivery and trading rules. It puts things very simplistically so that licence holders can understand what they are about. If you pick up one of these other documents, you will see they are written in a regulatory fashion and are very hard to read. So that is the plain English version.

Senator O'BRIEN—What was the effect of the cap on the end-of-system flows?

Mr Ford—I would have to look into that. I cannot answer off the top of my head.

Senator O'BRIEN—Can you supply that to the committee on notice?

Mr Ford—We can supply that.

Senator O'BRIEN—Obviously, if you have the historical figures, we should be able to see an intersection of the operation of the cap and the end-of-system flow. Can you also supply that historical overhead you are talking about?

Mr Ford—Yes.

Senator O'BRIEN—We may need some explanation of it.

Mr Ford—It is a chart showing the available water that we had in Burrinjuck and Blowering dams on 1 July this year compared to the last 108 years of records. This year was the lowest starting point ever. That reflects the drought period. Interestingly enough, by 31 July—and this is what this particular chart shows—we would have been able to get the general security allocation announcement above 20 per cent. The worst year on record is 1983. It got there on 27 July, according to this model chart. At the end of July this year we were sitting on 15 per cent. In other words, it was the worst start on record.

Senator HEFFERNAN—Just in the last day or two, you got a bit of a flow in.

Mr Ford—Very much so.

Senator HEFFERNAN—Someone told me this morning by phone that they thought that water would be managed under the new plan. Is that right?

Mr Ford—No. The little blue booklet I have just handed to you basically has the operations of the river this year. The first six months are exactly as have happened in the past. So it is operating under the old legislation and the old agreement. The new legislation kicks in on 1 January. If you look through that little booklet, you will see a little boxed explanation every now and then. That will say, 'On 1 January this is what will change.'

Senator O'BRIEN—Can we assume that pre-irrigation the end-of-system flow was a lot higher?

Mr Ford—Yes.

Senator O'BRIEN—Would it have been somewhere near the figure you have for the annual flow past Wagga of about 4,360?

Mr Ford—Again I would have to get that figure for you; off the top of my head, I could not answer that.

Senator O'BRIEN—But the chart will tell us this?

Mr Ford—We can get that figure for you, yes.

Senator O'BRIEN—I am interested in getting an understanding in historical terms of the impact of the water take from the catchment on the end-of-system flow. Given the arguments that are probably emanating from Senator Buckland's end of the world about the waters that flow into the Murray and what happens when they flow into South Australia, it would be very interesting to see that figure.

Mr Ford—We can get the modelled version of that for you.

Senator O'BRIEN—Is there a breakdown of how water taken from the catchment is used? I asked a question earlier, for example, to see whether I could get a breakdown between agricultural, domestic and commercial uses.

Mr Ford—It is probably more possible to get that from the irrigation corporations. I quoted the number of licences at the start, and two of those licences on the regulated system represent nearly 75 per cent of the water. One licence is with Murrumbidgee Irrigation, which is about 51 per cent; and the other licence is with Coleambally Irrigation, which is just under 25 per cent. Basically we issue a licence for X amount of entitlement and then obviously what happens with the allocations is dependent on the rainfall. You are probably better off asking the corporations for a break-up of how that water is used. ABARE would have some indicative figures on that, and I could probably get them from that source too.

Senator O'BRIEN—If ABARE has the figures, we should be able to get them from that organisation.

Mr Ford—ABARE would be our primary source in trying to get those figures for you.

Senator O'BRIEN—I presume that, if ABARE have those figures, they will be generous enough to supply them to us.

Mr Ford—The one comment I can make is that, over the last 10 years, there has certainly been a significant increase in irrigation demand for summer crops. I guess that is a reflection of the expansion of the rice industry primarily, but maize is becoming a very significant crop in this valley and cotton is just starting to come into it. But with summer crops the type of irrigation demand has changed—there is now a lot more summer demand.

Senator O'BRIEN—Do you have figures on the rate of flow throughout the year at the Wagga point?

Mr Ford—We can get that modelled and supplied to you.

Senator O'BRIEN—Is that available historically?

Mr Ford—It probably would be. I would have to check that for you.

Senator O'BRIEN—It would be good if you could do that.

Mr Ford—It would be monthly; would that be all right?

Senator O'BRIEN—Yes, that would be very good. If you model that with take from the river, I suppose you get an idea of what gets past to the end of the system.

Mr Ford—Yes, that is what you can do: you can model what it is at Wagga, then you can see what it is at Balranald and you can get an idea of your consumptive usage.

Senator O'BRIEN—Are those figures—

Mr Ford—Insofar as actual consumptive use goes, the regulated system was converted to volumetric allocation in 1984. From that point onwards each licence holder had to have a water usage meter fitted. As I indicated earlier, the unregulated system is area based, so we are only just starting to meter and go over to volumetric conversion—to the unregulated system. The ground water has been metered for a number of years. I would have to check exactly when that started.

Senator O'BRIEN—From my point of view it would be interesting, if the numbers were easily available, to look at how the flow of the river upstream to the end of the system has varied over the years. You talked about an increase in summer cropping and, therefore, summer extraction. I would be interested to see how that impacted the end of the river. I have taxed you enough. Thanks, Mr Ford.

CHAIR—I will ask a couple of questions to finish up. I am not sure whether you are in a position to answer them; they are more to do with the whole policy setting process. You would no doubt be aware that over the past few days we have heard from water users from the other side of the border who have complained about everything from the consultation process through to scientific and environmental rigour in defining what the outcomes are to be. Are they fair criticisms to make? When COAG dealt with this back in 1994, many commitments were made, and one of those in particular was about defining water property rights, even dealing with the question of what was compensable. I do not know whether you are in a position to comment, but do you think that, in the context of the policy settings that have been set in recent times and their effect on the MIA, the CIA and even other catchment areas, the criticisms are fair?

Mr Ford—I can probably only answer for this valley—I would have to confine my comments to the Murrumbidgee Valley. Certainly, when the Murrumbidgee River regulated plan was being developed, the committee went out of their way to undertake public consultations whenever they

met, and they deliberately moved their meetings around. Obviously, additional consultations with the community were undertaken once the draft plan had been prepared. A reflection of the overall support for this particular water-sharing plan was that, after the draft went on exhibition, we got about 420 public submissions—it was by far the largest plan in the state—and probably more than 80 per cent of those submissions were basically in favour of what the committee were putting forward.

That reflected the success of the consultation process that had been undertaken for this plan. The plan had obviously got out there to the water users, and they in turn got back to the committee with that response. That plan has been gazetted. There is currently an appeal in the Land and Environment Court against one clause of the plan—the rest of it has been unchallenged—which is to do with a trading cut-off date. The hearing has taken place, but the judgment has not yet been handed down so I do not know the end result. The two unregulated plans were fully accepted by the Ettalong and Tarcutta communities, and they are ready to go. The ground water plan, as you heard from the witnesses before me, is well and truly under challenge. I make no bones about that one. A lot more work has to be done with the respective ground water licence holders in the valley to try to work our way through that.

CHAIR—What about the issue of defining water property rights and the question of what is compensatable? What has come up in the media of late is the question of who should pay for that and how it should occur. Is it not true that in the early to mid-1980s the state government encouraged the allocation of water licences and that, in many respects, has contributed to the circumstance that we are currently seeing?

Mr Ford—I probably need to clarify my position before I answer that question. I have come up through a number of departmental amalgamations. I came from the soil conservation side of the equation. I was not directly involved with water management until 1994, when the Department of Land and Water Conservation was formed. In saying that, I have certainly heard statements from both ex-Water Resources Commission people and water users that they were encouraged to actively get involved in water usage. That is hearsay, and that is the only way I can answer that question for you.

CHAIR—I guess it raises a dilemma, in the current circumstance, about whether we are talking about an overallocation.

Mr Ford—I keep coming back to the regulator plan, because that has the biggest volume of water in this valley. The Murrumbidgee is probably the biggest and most reliable inland river system in New South Wales. There has been an acceptance of that water-sharing plan. It has drawn a line in the sand. But all the water users are saying that, for anything over and above that, compensation has to be on the table if water is taken away from them. That is their line in the sand.

Senator HEFFERNAN—Your poor old boss does not know how to answer that one. You did better. Could you point out to me, in all these documents I have here, where I look for the long-term sharing plan, environmental impact and water usage. If I want to plant 10,000 hectares of pine forest up the back of Batlow, where in all these plans and booklets et cetera is reflected the impact of that on everyone else's water? If I want to look up the water-sharing plan for a new forest, where is it?

Mr Ford—It is not in those documents per se. With the amalgamation that has just occurred within this department—where the planning arm of the former New South Wales planning department is now sitting in with the natural resource management side—any development like that which you just referred to would have to go through a development application or EIS scenario.

Senator HEFFERNAN—My point is that it is scientifically established that a plantation forest does have an impact on the catchment.

Mr Ford—Yes.

Senator HEFFERNAN—Why is it not in the catchment plan?

Mr Ford—The catchment management board blueprint is, as I said, addressing some of the natural resource issues that are causing degradation to the land and landscapes within this valley. That is what that is angled at. The water-sharing plan is probably what you are trying to zero in on, because you are talking about what effect that reafforestation would have on water yield. I think what you are asking me is: where do you find it?

Senator HEFFERNAN—I will give you a scenario. Right up the top of the Murrumbidgee catchment, or behind Batlow, they will take five megalitres per hectare per annum out of the catchment, compared to what was there. Where is that calculation in the water-sharing plan? It is part of the sharing of the water; it is water that is not going to make it to the catchment in the future. There are 200,000 hectares of that plantation planned in south-east New South Wales and north-east Victoria. Where in the Murrumbidgee plan is that calculation of allowance?

Mr Ford—The calculation that is currently contained within these plans are those figures that I read out in answer to Senator O'Brien's question earlier in relation to the intersystem flows that have to be met within the catchment here. If there are developments that are undertaken that are going to impact on water yields in this catchment, they are going to have to come across our bows for some sort of an assessment to be done of them. The assessment that is done at this point in time is what is actually there on the ground right now.

Senator HEFFERNAN—As you know, just recently there have been 10,000 hectares planned at Tarcutta, which has got the local community up in arms. It has already been approved. Where is the impact at the end of the river reflected in these plans?

Mr Ford—I do not want to argue with you but I disagree with you that it has been approved. It certainly has not from the documentation I have seen. This department has input into providing information to the Tarcutta people and, in that instance, it was New South Wales Forests who were proposing the expansion. A lot of the assessment that we are doing is trying to get that targeted in the right part of the landscape.

Senator HEFFERNAN—I agree 100 per cent with your department in that respect.

Mr Ford—That is all we are trying to do with it. That is part of what is in that catchment blueprint.

Senator HEFFERNAN—That particular Tarcutta plantation is going to be in the 32-inch rainfall area—

Mr Ford—It is clean water and we do not want to see it affected.

Senator HEFFERNAN—which will have a salinity credit benefit, but the plantations that are planned and the reafforestation that is occurring at the back of Batlow have a serious impact in that 80-inch rainfall area of the catchment. Where are you going to insert that planning into this river management—into the river flow?

Mr Ford—Let me go back a step. The catchment blueprint, which is the one that is probably picking that up, is an advisory document. It is not regulatory.

Senator HEFFERNAN—It seems to me that in these documents that are here—I have just had a quick flash through them—there is no consideration.

Mr Ford—No. The water-sharing plans are the regulatory plans. They apply to existing licences. What you are asking me is about a proposed change in land use, which is not picked up in these plans.

Senator HEFFERNAN—With great respect, this is a continuing use of forest country. I note for the record that New South Wales are planning to sell their forests. But this is a rotating forest management plan for the forests up there in the back of Batlow. There is no calculation of and no provision of information on the impact that that is having on the catchment. I say that it is an oversight by your department.

Mr Ford—All I can say in response to that is that the existing catchment yields and triggers that we have are known for the respective subcatchments, in which we would include some of that Batlow country that you are talking about. I know full well, as you do, that there are proposals to put additional plantations in there. Quite frankly, they are going to have to be assessed on the impact that they have on water yield.

Senator HEFFERNAN—But there is no current assessment of the rotating forests. In other words, there are no plans to—

Mr Ford—They would be looked at as existing forests and this is the yield that we will be giving to those catchments. We have records and, depending on which catchment you are talking about, the actual subcatchment records do vary. But we do have records on water use.

Senator HEFFERNAN—Can you understand that an irrigator who is losing 40 per cent of his allocation would be a bit miffed by the fact that, for end of river management planning purposes, he is going to lose a proportion of his allocation? There are no plans to share that pain with the people who are in the forest industries.

Mr Ford—I can understand their concerns. All I was going to say is that, on these respective committees that have helped prepare these plans, we have had irrigator representatives who have certainly put that forward.

Senator HEFFERNAN—But at most places I travel to, no-one is doing the forestry side of it. I do not think your mob is either.

Mr Ford—We have only done it partly. We have done it partly for a couple of the specific catchments, and Tarcutta was one.

Senator FERRIS—I only have one question and that relates to responses to the Wentworth Group. Everywhere that we have taken evidence—and you may have heard some responses from previous witnesses here today—there is great concern about the level of credibility being given to the Wentworth Group's Living Murray publication, the lack of consultation both before and after publication and the apparent lack of sociology in the document. Do you have a view on that publication? Are you aware of the degree of uncertainty that has been brought about in the irrigation areas as a result of its publication?

Mr Ford—I have certainly read the publication and I am fully aware of what is in it. With regard to the community reaction to the actual Wentworth report per se, I have not seen a lot of community reaction to that. I have certainly seen a lot of community reaction to the Living Murray proposal from the Murray-Darling Basin Commission. I was involved in eight public meetings in mid-May with the Murray-Darling Basin Commission when they made their first presentations to the Murrumbidgee community on that proposal. There was certainly a high degree of concern at those meetings about the perceived lack of science of what was being proposed. So, yes, I am fully aware of that. The commission have undertaken to address that and put some more information out to the community. I think they are talking about towards the end of this month—that is my recollection. It certainly needs to be done so that the community can get an understanding, and part of that information will be some of the stuff out of the Wentworth report.

Senator FERRIS—I am reassured by your comments. I am sure that some of the people who have given evidence over the last couple of days will be too.

Mr Ford—When I attended those eight public meetings over a four-day period there were around 1,500 people from this valley at those meetings. They were all extremely concerned about the proposal as it was with the lack of science behind it.

CHAIR—Mr Ford, on behalf of the committee, I thank you for providing assistance and for making the trip across from Wagga. If there is anything that we need to clarify, the secretariat will be in touch. Thank you again. Before I conclude today's hearing, I thank the Hansard staff for their support over the past few days, the secretariat for organising the series of programs in the three days, and my Senate colleagues who, I say time and time again, do not have to be here but choose to be here because they have a personal interest in the issue. I thank everyone for participating.

Committee adjourned at 3.27 p.m.