COMMONWEALTH OF AUSTRALIA

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HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON AGRICULTURE, FISHERIES AND FORESTRY

Reference: Future water supplies for Australia's rural industries and communities

TUESDAY, 8 APRIL 2003

MELBOURNE

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HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON AGRICULTURE, FISHERIES AND FORESTRY

Tuesday, 8 April 2003

Members: Mrs Elson *(Chair)*, Mr Adams *(Deputy Chair)*, Mr Forrest, Mrs Gash, Mrs Ley, Mr Schultz, Mr Secker, Mr Sidebottom, Mr Windsor and Mr Zahra

Members in attendance: Mr Adams, Mrs Elson, Mr Forrest, Mrs Ley, Mr Schultz and Mr Windsor

Terms of reference for the inquiry:

To inquire into and report on:

The provision of future water supplies for Australia's rural industries and communities, particularly:

- The role of the Commonwealth in ensuring adequate and sustainable supply of water in rural and regional Australia.
- Commonwealth policies and programs in rural and regional Australia that could underpin stability of storage and supply of water for domestic consumption and other purposes.
- The effect of Commonwealth policies and programs on current and future water use in rural Australia.
- Commonwealth policies and programs that could address and balance the competing demands on water resources.
- The adequacy of scientific research on the approaches required for adaptation to climate variability and better weather prediction, including the reliability of forecasting systems and capacity to provide specialist forecasts.

WITNESSES

Committee met at 9.01 a.m.

CAMPBELL, Mr Ross, Director, Water Reform Section, National Competition Council

COPE, Ms Deborah, Acting Executive Director, National Competition Council

CHAIR—I declare open this public hearing of the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry in its inquiry into future water supplies for Australian rural industries and communities. Today's hearing is the eighth one for the inquiry and it is part of the committee's program of hearings to visit different parts of Australia.

I welcome the witnesses representing the National Competition Council. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of the parliament and consequently they warrant the same respect as proceedings of the House itself. I remind witnesses that giving false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. I invite you to make a brief statement in relation to your submission and then we will move to questions.

Ms Cope—We do not have a statement to make. I think it is worthwhile for us to spend the time answering specific questions that the committee might have.

CHAIR—Is there anything that you would like to add to that, Ross?

Mr Campbell—No.

CHAIR—It is pretty self-explanatory and it is a fairly extensive submission, so I thank you for taking the time to do that.

Mr WINDSOR—There has been a lot of discussion in terms of water reform between the states and the Commonwealth in relation to property rights. You would be well schooled on this issue, I would imagine. The issue that is constantly raised is the alleged noncompliance of the states in relation to the call for an adequate definition of property rights regarding water reform, which was laid down in the original 1995 agreement. Firstly, what is the National Competition Council's definition of property rights? Secondly, constitutionally can the Commonwealth withhold the payment of national competition payments from the states because of the alleged noncompliance of the states in relation to the recognition of property rights?

Ms Cope—I might start with the definition of property rights. The agreements themselves do not define what a property right is. They say that you need to separate out your water entitlement from your land, and that you need to define the water entitlement, and that needs to be sufficiently well defined. Basically, we say it needs to be sufficiently well defined to enable you to borrow money against it and to make sensible business decisions against it. But the agreements themselves do not specify the precise characteristics that a property right needs to include. That means the states are looking at the issue slightly differently and they do not say that they need to take a uniform approach to property rights. The approach needs to be compatible enough to facilitate interstate trade but it does not have to be the same approach in every state and territory. The other point of debate is that the agreements do not say that a property right needs to be in perpetuity—as long as it is sufficiently long term to enable sensible business decisions to be made.

The next part of your question was about the issue of withholding of payments for noncompliance. We make recommendations on whether we think states and territories have met their commitments in that area and the Commonwealth, if they do not think that they have met their commitments, are able to withhold competition payments, but that assessment is based on the existing water agreements. If somebody is arguing that because a property right, for example, is not in perpetuity, therefore the Commonwealth should withhold money, under the existing agreements, that is not a requirement and therefore it is not part of the current package.

Mr FORREST—You talk about 'agreements'. It is the same agreement for every state, isn't it? There is not a different variant for each state?

Ms Cope—I speak like that because I am used to speaking about national competition policy generally and there are a range of agreements. There is one water agreement; you are correct.

Mr FORREST—Yes, one water agreement. There is another one for taxis and another one for something else.

Mr Campbell—There are three basic agreements which define the national competition policy. One is the competition principles agreement, which contains the legislation reform obligation, which is where your issue of taxis arises, and then there are the other agreements which introduce the related reforms, which include water.

Mr WINDSOR—Under what circumstances would the council recommend to the government that they withhold payments, given that the original agreement called for a clarification of property rights? I will talk specifically about New South Wales. I do not think New South Wales has clarified its view of a property right.

Ms Cope—We have been looking at specific aspects of property rights in New South Wales for some time. For example, the issue of the register was something that we raised in a previous assessment, and said that they had not progressed that far enough and fast enough, and that is something which is still on the agenda for New South Wales in terms of property rights. The full assessment of property rights is in 2004; is that right, Ross?

Mr Campbell—In 2004; the matter of the New South Wales registry is something that the council will be looking at in 2003, because that is an issue from a past assessment which has not been completely finished.

Ms Cope—So there is still a range of property rights issues which are on the books. I would not be able to give you a full list of them off the top of my head, but our framework for this year's assessments has in it the stuff that we have identified for this year, and I can extract that out and send it to you, if that would be of use.

Mr WINDSOR—That would be good.

CHAIR—Water rights are not too secure legally. It does not appear to be that way, does it?

Ms Cope—They are a legal document, but they are still in the process of being converted over from the old right to the new right. Part of the issue is that we are in a period of transition. People have got an old right, which comes under an old system and the physical process of

actually looking at what the entitlements are on that right and converting it over to the new system is taking, in some cases, nearly a year. The old rights were very poorly specified, and it is not clear who physically owns the rights in some cases. They have to go back through each document, transfer things like the old parish regions into their new classification for regions and into the new rights, identify who owns the rights, transfer that all over, send it out to the people to check that it is their understanding of what their water rights are and then finalise the rights. Part of the problem is that we are in the middle of a process of conversion.

The second issue is that if you want to have that legal property right, you need to have a system where people are able to mortgage against it. When it was attached to the land, once you mortgaged against the land, you automatically mortgaged against your water right. There is a need to set up a title system for the property right that enables you to register a third party interest against that right so that the banks have a call on the right and so that somebody cannot sell the right when they have a loan over that right. That involves setting up a new registry system. Again, that is another extensive process that needs to happen. The rights are in legislation now so, theoretically, they are legal rights, but there are a lot of systems that need to be packed around them to give certainty of practise. Combine that with the fact that we are moving to a new system which people are not used to and there will be some natural uncertainty in the meantime before they get a full understanding of what the new system is and how it works.

Mr SCHULTZ—What is the council's attitude towards the current impasse between the states and the Commonwealth on the issue of water rights and compensation?

Ms Cope—The debate on property rights is really an issue for governments, it is not an issue for the council. We have been given quite a specific charter. We have an agreement that we need to make an assessment against. While I think it is useful for governments to be looking at where water reform is going in the future—I think that is a very important thing—it is not one of the core businesses of the council.

Mr SCHULTZ—In your 2001 assessment, the council stated:

> The NCP water reform framework is an integrated approach that addresses the environmental, economic and social issues associated with water use. It covers both surface and groundwater and recognises that while water reform is primarily a State responsibility some issues need to be addressed by coordination and cooperation between the States.

Based on that statement, what progress have the states made in implementing water reform? How consistent is their approach to the issue? How uniform is their legislation?

Ms Cope—The progress question is an enormous one. How much detail do you want me to go into?

Mr SCHULTZ—Just a brief overview.

Ms Cope—In terms of urban water reform, there are a few issues of detail that are outstanding but, fundamentally, the bulk of pricing reviews have happened and pricing reform has been implemented. Metropolitan water authorities have a commercial focus so a lot of the reforms are happening there.

The existing reform program within what has been specified still has to run until 2005, so it is not expected that the process should have been finished by now. The agreement says that there are a number of years left to go. An enormous amount of progress has been made but it is an enormous task which is going to take us quite a long time. There is water planning happening right across the country at the moment, and some of those plans have been finalised and a lot of them are in the process of being implemented. There will be processes which will specify what water will be available to the environment. Again, that is a really important step in helping to clarify what property rights are, because until you have gone through your water planning process, it is very difficult to say exactly how you are going to be managing the water available for consumptive use.

There are systems being developed to facilitate water trading. While permanent trading, and permanent interstate trading in particular, has still got some way to go to work out some of the systems, there have been trials conducted by the MDBC and reviews of those problems have been identified and there has been action taken to try to address those problems. Did you want to add any more to that, Ross?

Mr Campbell—Just to emphasise the importance of the water management planning process. That is the community based process which determines allocations of water for consumptive use and for the environment. That is what is being gone through at the moment in New South Wales, with the first round of plans. There will be a need for further plans in New South Wales, and also in Queensland, but all other jurisdictions are also looking at how they manage their river systems and groundwater systems so that they can better define amounts that are available for the environment and for extractive uses. Clarifying that based on the best scientific information that is available helps to improve knowledge about how much water will be available for consumptive uses.

Mr SCHULTZ—You mentioned the issue of water trading. Can you outline to the committee the economic and social benefits of water trading? Does the implementation of water trading have the potential to impact on environmental outcomes? If so, in what way?

Ms Cope—Water trading needs to be within the environmental and social constraints of a catchment. They are the words that are contained in the agreements. So obviously you are not trading between a river here and a river there which have no interconnection between them. I think that is the first point. You are talking about trading along systems where you have interlinked water systems.The only way you can trade between two separate systems is if you actually run a pipeline or truck it or something like that, and that is not what the bulk of this discussion is about.

Once you start looking at trading along a river, you cannot automatically equate a bucket of water at the top to be the same as a bucket of water at the bottom. You have to run exchange rates to take into account the way that evaporation or the impact of taking water earlier in the river has on the flows down the river later. So that is the first environmental issue that you need to take into account. The trading systems have built into them exchange rates to ensure that you are trading things which are equivalent at different points in the river.

You then need to look at the broader environmental issues and at trading in a smart way. This is something that was identified by the Murray-Darling Basin Commission trial on interstate trading. One of the issues that they found was that water was potentially being traded out of low

salinity risk areas into high salinity risk areas, so they were having salinity problems that were resulting from water trading.

So they are saying that you need to make sure you have got the land management right in the areas you are trading water to in order to ensure that you do not exacerbate environmental problems as a result of trading. They are things that have been identified, and work is happening at the moment to address those. Once you have got to that point, what you are saying with water trading is that, from an individual business perspective, it gives people flexibility in the way that they manage their investment over the life of the investment and over a year in the investment. If they decide that they do not want to use all of their water in a particular year they have an asset with value which they can trade; or, during the life of their business, if they decide that they want to change the nature of their business and move out of irrigation they can then trade their water out, or if they want to move into irrigation they can stay on their particular block of land and buy water in. Also, in the long term it gives people the flexibility to say, 'I do not want to move off my land but I want to retire, so I can sell off my water right as an asset.' There is that flexibility from an individual business point of view.

From the economic gain point of view, what you will find is that water will tend to go to those particular crops where you can get the biggest return out of the water, which is particularly important when we are talking about a very scarce resource. We want to make sure that we use it in a way that maximises the gains from it to Australia. Water trading will mean that the people who have got high returns from the use of that water will tend to be the people who buy the water and apply the water.

You then need to consider the potential for some adjustment between what we might have now and that situation. You have to think about how you manage the communities that are changing the way they are using water to move to higher value uses or the adjustment process within those communities if you are going to end up with some problems—and it is an 'if': you may have some problems or you may not; you have to look at it on a case-by-case basis. You may have an issue where a community is being significantly affected because, over time, we expect to see water move out of the area because of the nature of the agriculture in the area and that means people are not getting the returns. Other people will want that water and will be willing to pay high prices for it, and they will be willing to sell their water, because that is the way it will work. Then you are going to have to manage that change process.

Mr SCHULTZ—A final point that you may or may not wish to comment on: how is it that we recognise that there is a system of trading water and there are certain restrictions on the way in which we handle that trading to protect the environment et cetera, yet there seems to be an enormous amount of debate on all sides about water rights and compensation? There is a concern that people do not have water rights, that they are not going to get compensated, yet they are allowed to trade. That seems to be a conflict of interest to a repugnant degree, from my point of view. I wonder whether you would like to comment on that.

Ms Cope—I am not sure I fully understand your question.

Mr SCHULTZ—The point I am making is that they have got a commodity that they are able to trade, yet if that right to trade is taken away from them there is no compensation at this time or there is debate about whether they are going to be compensated for that part of their business that is going to be taken away from them, for whatever reason, hence the debate about their

rights to have that tradeable commodity—that is, water—and their right to be compensated for the loss of that commodity.

Mr Campbell—The debate about compensation relates to that process of determining amounts of water available for consumptive uses: how much should go to the environment and how much should be available for domestic, stock and other consumption. What it has been about is how we manage river systems which are stressed and overallocated on the basis of the science—that is, how we move from a situation which has developed to one which gives Australia a better chance of avoiding land degradation problems from overconsumption of water and a system which for the first time recognises that the environment is a legitimate user. That is what COAG has said should happen.

That means there is going to be some change in the amounts that individuals can extract and use. Not only does the amount that gets extracted have to be reduced, but some of that has to go up to the environment. The management planning process being gone through at the moment is working through community based water management committees to try to determine what the appropriate extraction level for a river system should be, what the environmental water allocations should be and what the licensing arrangements are with particular levels of security for different types of water use. The debate about compensation has been about how the situation should be handled where the amount that has been available—determined by whatever method in the past—has changed to the amount now available, which, in some cases, could be less.

That is a debate occurring between governments. The management planning process that, in the end, will define amounts of water for extraction and water entitlements is the basis for an efficient trading system. Having gone through the planning process you will end up with a situation where you have water entitlements. Those are the things that can be traded through a trading arrangement. In a sense, it is a bit separate from the debate on compensation, which is really about how we handle situations where people have had an amount of water in the past and now have less water.

Mr WINDSOR—You have a circumstance where the National Competition Council was actually set up with the power to withhold money from the states. That was the driver to reform—water being one of four things. That was eight years ago. In the original document there had to be recognition by the states that there be a property right. That has not happened, and the National Competition Council has continued, particularly in the case of New South Wales, to shovel the money across. From the council's point of view, at what stage is noncompliance triggered?

Ms Cope—The first point is that there was nothing in the original agreements that required compensation. It is an issue for governments; it is not an issue for the council. We cannot make a recommendation based on a particular government's willingness to pay or not pay compensation. We need to make a judgment based on the agreements that governments have given us.

Mr WINDSOR—How do you reconcile that with some sort of mortgagable asset if the right is worth nothing or is not recognised? It can go up and down with the allocation.

Ms Cope—The rights have always gone up and down over time. Water rights were never for a fixed volume of water. In New South Wales there is a volume of water written on the right, but irrigators never expected to get that volume of water. As the climatic conditions change each year, at the beginning of each season they say, 'This year you have got so much water available.'

Mr WINDSOR—That is in river water; it does not necessarily apply in groundwater systems.

Mr SCHULTZ—That is right.

Ms Cope—No, because there is less variability within groundwater systems. The nature of the bulk of the water is that it has varied over time. What you are talking about is an additional variation. There was the natural variation over time because of the climate. There is now an additional variation—namely, at the beginning of this planning process, when we have done our assessment on what the environmental needs are, there may be a need to reduce the volume of water.

The systems are tending to say that there is that risk—New South Wales and Queensland have this arrangement—and it happens at the beginning of a water planning period. The legislation then says that there is compensation available if we make a change between now and the next planning period. You have blocks of 10 years of certainty between those two points that say there will be an additional risk of change some time in the future, but you have a period of certainty between now and that second change.

Mr WINDSOR—Under what circumstances can the government withhold competition payments for nonrecognition of property rights? Are you saying that there are no circumstances under which that could occur?

Ms Cope—No.

Mr WINDSOR—I do not want to put words in your mouth. Are there circumstances under which the government could withhold competition policy payments from the states for noncompliance at the property rights level?

Ms Cope—Yes, if they do not complete the sorts of things we have outlined. Again, the outstanding issues that we will provide you with will indicate the things we have already raised as being significant property rights issues. If governments took no action on those, then that would be something that we would take into account when we were looking at our recommendations.

Mr WINDSOR—Would you suggest that New South Wales is in that particular league at the moment?

Ms Cope—I can tell you that they have outstanding commitments at the moment. We are in the middle of an assessment process which does not come out until the end of June this year, so it is too early for me to be able to give you any indication on that. We do not have all the information to be able to make that sort of assessment. But there are significant issues that we have identified in the past that are going to need to be addressed for that assessment.

Mr FORREST—You were due to report to the Treasurer at the end of last year. Is that report available to the committee?

Ms Cope—Last year's assessment report is available. It is available on our web site or we can provide it to you in hard copy form.

CHAIR—I think we need a hard copy.

Mr FORREST—The hard copy form would be useful if you could supply that.

Ms Cope—Okay.

Mr Campbell—Could you clarify what assessment you are talking about?

Mr FORREST—We are really only interested in the full broad assessment. For this inquiry, we are only interested in water. Of course, we are interested in taxis and everything else as well. Is it segregated for water?

Mr Campbell—With respect to the full broad assessment, there is a volume that deals with water reform, which is associated with the full annual assessment from last year. We can certainly give that to you.

Mr FORREST—It probably contains the answer to the question I am about to ask. Some states have performed better than others on water; some have performed worse than others on other aspects. Are you able to make a comment on that or a comparison on each of the states in terms of water reform?

Ms Cope—I think you are right: that is probably the best comparison there is because it has an introduction which gives a summary of each of the states. It is different for different areas in different states. It is difficult to say that one state is clearly ahead of the pack right across the gamut because different parts of the program have been implemented differently in different states. The other issue is that each of the states is different both in terms of the historical circumstances that they were dealing with—the historical institutions that they had—and in terms of the physical nature of their water resources. You need to be careful with the comparisons so that you are comparing apples with apples. You can have slightly different arrangements to deal with the different sorts of problems because of the nature of the water resources that we are dealing with.

Mr FORREST—Could I ask a different question from what we are pursuing on the compensation issue. It seems to be fairly complex. I am speaking from a Victorian perspective. You have secure water, which is a property right, and which is easily definable, and that is the water that is being traded. So even its commercial value is being established. Then you have the sales pool, and that is the unreliable one, yet people have been using that as the overdraft and have become reliant on it and have put infrastructure in, so there is an expectation. Is that a correct perception that I have? Secure water is easier to define as a property right but the real problem is with the sales pool.

Ms Cope—The systems in different states are slightly different as to how they treat secure and non-secure water, but I think it is true to say that if you have a right which is a priority right,

it is easier to define than a right that is more variable, but the right that is more variable should not be impossible to define. It is just a matter of assessing what the risks are. We have pretty long studies about what the water variability is and therefore people should be able to estimate the risks, and that will naturally affect the value of that sort of right.

The other issue which gets thrown in there, to add to the confusion, is that in some cases you have systems that are overallocated, not in the sense that there is too much water being used but in the sense that the value written on the licence is far greater than the physical amount of water that is available. So you would never be able to anticipate that you would use the paper value of the water that is out there. That has given people an expectation of water. With respect to some of the figures that show that water rights have been reduced by really high numbers, sometimes you need to ask what people are talking about, because sometimes they are talking about reductions in the amount of water that they can actually use from what they were using; sometimes they are talking about reductions from what was written on their licence, but they were never going to be able to use it because the water was not physically available in the system. Part of clawing back overallocation is about getting a more realistic level of allocations out there compared to what is physically available in the river.

Mr FORREST—My perception is that that is more of a problem in New South Wales than in Victoria. Sleeper licences—is that what you are talking about?

Ms Cope—Yes. It might be a sleeper licence or it might be licences which have a low proportion of usage compared to the total amount written on the licence.

Mr Campbell—The Queensland government recently conducted a scientific review of the Lower Balonne river system. That is a river system which is in the category of being overallocated, so that if all of the water was called upon at one time, there would not be much remaining, if any. They have had an issue whereby they have to manage the development of licensing arrangements for the Condamine-Balonne system following this report, which has also made some recommendations on environmental allocations. Queensland is now going through a water management process in relation to the Condamine-Balonne system which will do those things. So you have that type of issue there as well. It is true to say that there are more overallocated and stressed rivers in New South Wales, so the size of the task confronting New South Wales is larger.

Mr WINDSOR—There is not only overallocation of some systems; there is also overuse under current usage. If you activate—which the pricing policy will do—the sleepers, it creates a much worse situation. Parts of southern New South Wales and, I think, Victoria may have overallocated in a technical sense but they have not reached an overuse stage whereby to claw it back you have to lose real water and have real income effects.

Ms Cope—Yes. They are two very different problems that need to be looked at differently.

CHAIR—I would like to expand on that question about the Lower Balonne river system in Queensland. How long do you give the Queensland government to report back? No doubt in the assessment that you have done they have been given a time frame for reporting back. How serious are your threats of withholding national competition money?

Mr Campbell—The time frame for doing these things is set by the Council of Australian Governments agreements. This issue arose only recently in the assessment process, when evidence came to light that the Condamine-Balonne may have been overallocated. Queensland then undertook its scientific review and has, I am aware, provided some assurances to the Commonwealth on the process from here. These include developing a water management plan and what is called a water operations plan, which implements the targets in the management plan. That continues through to 2004. This is something which is before the council at the moment.

CHAIR—So the national competition funds will be withheld until that has been completed?

Mr Campbell—No. When this problem came to light, Queensland identified a course of action, which was that it would set up and conduct the scientific review and implement the findings of that through the development of a new water management plan and then the resource operations plan. That was the commitment which Queensland gave through the NCP process when the problem came to light and when it was looked at in 2001 or, more explicitly, in 2002. On the basis of those assurances, the council accepted that that was an appropriate process given that the issue had come to light only recently. Queensland has now conducted that scientific review and has provided some assurances on the process that it will take from here. The council will be looking at those undertakings and making recommendations. But in general terms the undertakings that Queensland has given, which include implementing the findings of the review through its water management process, fit within the obligations that COAG has established.

CHAIR—As members of parliament, we hear a lot of criticism of implementations being brought down in a hurry because governments have to look like they are doing something to get these funds. Sometimes it is very ad hoc and they are not making the right decisions because the decisions are being made solely on the fact that they will not get their NCC money if they do not look to be doing something, rather than waiting to see the facts before they do it.

Mr Campbell—One of the other obligations in the water agreements is public consultation and education. There needs to be adequate amounts of those for a government to be judged as complying. The Queensland process starts with a public process of about three months, which will put together a draft plan. The Queensland government has announced the start of that, and that is an opportunity for there to be public involvement in developing the targets and objectives that will go into the water management plan. Once that draft plan has been developed, I understand that there is a further opportunity for public submissions before the draft plan is finalised.

Ms Cope—The council has always had a preference for a government committing as quickly as is practical to progressing an issue in line with the agreements. It is our preference to get that agreement rather than to automatically penalise people or recommend penalties to the agreements. It is always better to get the reform and agreement to the reform than simply to impose a reduction in payments and not get the outcomes that we are looking for. So our focus is always on encouraging reform implementation.

I do not think the timing issue is a simple one at all and there are lots of argument for and against for moving quickly. If you move slowly on these things, you increase the interim period of uncertainty on property rights. If you are talking about moving slowly on a water planning

process, for example, that is a longer period where people do not know what their property rights are going to be at the end of that planning process. You also have a period where you increase the risk of environmental damage, if you are talking about an area where water is not currently being overused. However, on the other side, you do have the fact that there are complicated processes and people need time to be able to get on top of the issues in order to be able to contribute to them appropriately. You also have a problem because the research is often not available, so you need to do some of the work to be able to understand the systems that you are dealing with in order to make sensible decisions. I think the timing issues are very complex and there are arguments for being faster and there are arguments for being slower. It is difficult to get the balance in this area to get the right speed.

Mr SCHULTZ—Where is the research being coordinated and how are you going to get the states and the Commonwealth together on the issue of research to identify the problems across the country as a whole?

Ms Cope—There are some issues on which you will need to do research across the country; there are some issues on which you do not. For example, understanding the hydrology of a particular river system in a particular state in order to be able to work out what the dependent ecosystems are and what the impact of reducing water will be. I think that is very much a state specific issue and that is not the sort of thing that you necessarily need to coordinate, although it is useful to look at what other people have done to be able to inform processes elsewhere. Where you start to get the need for national coordination is on something like the Murray-Darling Basin. There you have the Murray-Darling Basin Commission already set up, which is doing joint research across the Murray-Darling Basin states. It is in those areas where you have the flow through of systems and where I think your need for a national approach is much greater.

Mr ADAMS—In 1995 when COAG set up the competition policy looking at this, there was no compensated package laid down about how the states had to spend their allocation of money for bringing these plans into place or moving forward. I say that because in my state of Tasmania pensioners have had to actually pay for water. Water reform is coming down to local government meters and people are paying for water. Therefore, we have had pensioners that now pay an allocation for water, which means people on lower incomes in our country have been affected by that to improve the environmental flow. I thought maybe we could compensate them in some way. There seems to be no laid down position. I note Mr Windsor's position about New South Wales battling to get compensation paid. Is there anything in those agreements between the Commonwealth and the states to stipulate that the money has to be allocated in certain ways?

Ms Cope—There is nothing that says that the competition payments need to be spent by the states in any particular way. There is nothing in the agreements that prevent states from providing community service obligations, and a lot of them do pay community service obligations to subsidise the water bills of precisely the people that you are talking about. I thought there was at least some CSO for pensioners in Tasmania, but I am not sure of the details of it.

What you are talking about there is the introduction of pricing reform in urban water authorities, where they have been looking at whether it is cost effective to implement two-part tariffs and recovering the costs of water businesses so that there are no significant subsidies

going to those businesses and so that people can have a lot more control over their bills. In a lot of areas we have found that water bills have gone down on average as a result of those changes because people are consuming less water. While the dollars per kilolitre have gone up, the actual amount people pay for their water bill has gone down.

Mr ADAMS—Not if they are paying for water and they never paid for it in the past, but the actual payment for the piping and the pumps might go down. The other issue I want to raise relates to water plans for catchments, working out how much water is in a catchment and working out the difference between those at the top of the catchment and those at the bottom, which is complex—and this is all going on while people have water rights and are getting on with their farming or other businesses. Has any work been done on how we are going to handle that situation from a water plan perspective?

Ms Cope—That is fundamentally what the water plans are about: identifying the nature of the water resource, the current level of usage and what the particular river system needs to be able to maintain that in the long term and identifying whether there is a positive or negative gap between the amount people are using and what needs to be left in the river.

Mr ADAMS—Is there a water plan that the committee could look at?

Mr Campbell—New South Wales has gazetted a number. New South Wales has also gazetted what it calls a state management operations plan or maybe a state management water operations plan which sets the overarching targets, which are the things that the water management plans—they call them water sharing plans in New South Wales—need to address. So there is some material there. There are some draft water management plans available in Queensland that I am aware of that were released around the end of 2002 for public comment. I think those are probably the most useful sources.

Mr ADAMS—If water has to be withdrawn in order for a catchment to be healthy and to reach environmental standards and flows, and therefore there are compensation issues or a need for readjustment of rural industries, as the textile and steel industries were readjusted, what is the thinking about readjustment? Has any work been done on that and would it be your group who would do it? I should imagine the thinking on that should be starting to emerge.

Ms Cope—We are not the group that does that sort of work. There are a number of socioeconomic studies that are often—though not always—done in conjunction with the water plans. That then provides the basis on which the thinking of how we actually manage the process for this particular group could happen. That inputs into that process.

Mr ADAMS—So it is a state responsibility basically?

Ms Cope—Yes. In practice it is all a state responsibility. It is a national agreement, so it is more consistent than it would have been without that. But, fundamentally, water is a state responsibility.

Mr Campbell—On that matter, New South Wales has a groundwater structural adjustment program and has allocated $20 million for that, of which about $18 million is available for water withdrawn from high-level users. I think we have a publication which New South Wales

has provided on that which we could hand over, or maybe you could get it from New South Wales.

Mr ADAMS—That would be very good, thanks.

Ms LEY—I am interested in the roles and responsibilities that the council has in making environmental assessments. You are completing areas of assessments as an ongoing part of your process of monitoring water reform. How does that happen in the context of environmental assessments and what is the connection between the results of those assessments and payments?

Ms Cope—We do not redo all the work of the states. That is not the role we have been given. Our first role is to look at who conducted the assessments: was it an independent recognised body? A good example of that was the work on the Condamine-Balonne in Queensland which was conducted by Professor Cullen. We basically said that we were happy that that is the sort of credential that will deliver a good environmental assessment in this area and the council is not going to try to second guess the environmental results of that process. We rely on the work of recognised people with credentials in this area to be able to do that work.

Ms LEY—In the case of New South Wales, would you say that you gain a lot of your environmental information and data from studies commissioned by the New South Wales government? You mentioned the water sharing plans.

Ms Cope—I am sorry; could you repeat the question?

Ms LEY—In the case of New South Wales, would you say that you gain your impressions of the environmental credentials of what is happening from studies commissioned by the New South Wales government or the Department of Land and Water Conservation as it was?

Ms Cope—For the bulk of it, we would need to, simply because of the way the council is set up. We do not have the size. There are 20 staff in the whole of the council to cover all of national competition policy so we are not going to be able to redo the environmental assessments. Having said that, we do go through the reports provided to us and look at things like the assumptions that have been incorporated into them and at whether the sorts of issues that need to be looked at have been looked at and whether the outcome of those pass the reasonable person test: is it a reasonable outcome that you could expect to be drawn given the nature of the information that is available? However, we do not have the council's preferred view that we go in and overwrite somebody else's view.

Ms LEY—If communities are not happy with what has been provided to you, is there a submission process where they can say that they are not happy?

Mr Campbell—There are two other points to make on this issue, the first of which is the one you have just mentioned. The council's assessments involve the council publishing an assessment framework prior to that assessment outlining the issues that are going to be looked at, at least for water reform. Submissions are invited on that and the council receives a number of submissions from various groups, not just environmental groups but also irrigator groups and individuals. Those submissions are looked at and they often raise questions for us which we can then pursue with the relevant government. That is an important part of each assessment for water reform. The other issue in relation to environmental and other studies that are undertaken

in regard to water management planning is that information is seen by local water management committees and they are involved through a consultation process in looking at that research and at developing the water management arrangements. The council seeks to understand that the process involving management planning through a public consultation process has been sufficient.

CHAIR—Thank you very much. I am sorry but we have to leave it there; time has caught up with us. Thank you for taking the time to appear before us today.

[10.02 a.m.]

MANNERS, Mr Clay, General Manager, Policy, Victorian Farmers Federation

O'BRIEN, Mr John Laurence, Chairman, Water Resource Committee, Victorian Farmers Federation

CHAIR—Welcome. Thank you for your submission. Although this committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of the parliament and consequently warrant the same respect as proceedings of the House itself. It is customary to remind witnesses that the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. Would you like to make a brief statement, and we will then go into questions from committee members?

Mr O'Brien—On behalf of the Victorian Farmers Federation, thank you for the opportunity present the Victorian position on water. As you well know, the reforms have been going on with an accelerated process over the last 10 years. Victoria has led the way in lots of the reform process in the devolution from central management to rural management authorities. We have gone through the bulk entitlement process in the various catchments to ensure access, storage and the rest of it. With the COAG reforms we have definite property rights. There are still problems that crop up but the Victorian Farmers Federation strongly believe that we understand the issues. Sometimes I query whether COAG understands the differentials between the states. Unless you are very keen, it is difficult to understand the policies, the allocation procedures, the history of the catchments and the surety and security of supply. On behalf of the Victorian Farmers Federation I can say that we feel fairly comfortable with the water industry but, regarding the overall national perspective, particularly as we are members of the Murray-Darling Basin catchment, we have to understand the positions of the other states just as clearly as we understand our own.

Mr Manners—Madam Chair, we thought we would just run through some of the key points in our submission and then perhaps have some discussion. We—along with, I think, farmers across Australia—believe that secure access rights to water are very important in managing the business so that if farmers purchase water they understand what they are purchasing and know they are purchasing it for the long term and if they make investments on their farm they know they are making them for the long term and can invest with confidence. In general terms the VFF support the system of water rights and allocations that has been in operation in Victoria for 100 years. In fact, the history of water reform and policy development in Victoria goes back a long time, to Alfred Deakin at the turn of last century. A good process has been developed over a long period of time, certainly since we have been involved. Since I have been involved with the VFF I feel we have had a very good relationship with successive state governments and with bureaucracy in terms of managing the water system.

We are a little concerned in Victoria, at the VFF at least, that there is pressure for a national system of water rights. I guess there is apprehension within Victoria that a national system will in some way water down what we have developed and enjoyed in Victoria. There was some discussion earlier about the system in New South Wales, where there are 10-year water management plans. A system with a review of water rights every 10 years would not be seen

very well in Victoria. We view water rights as a permanent allocation to farm land and we would be very nervous about any system which implements an automatic 10-year or 15-year review of water rights in this state. That is not the way we have managed water rights for a long period. We would not like to see such a system introduced in Victoria.

That is not to say, of course, that there have not been adjustments to water rights in Victoria. One of the benchmark documents about water rights management in Victoria is called *Sharing the Murray*. That was developed after the cap was put in place on entitlements to the Murray and was about how we in Victoria identify the water rights that exist and ensure that there is no mismatch between perception and reality. The outcome of that was that there were some adjustments to water rights. As a matter of principle the VFF would like to see compensation where that occurs, but compensation did not occur. There was some reduction in what are called sales allocations to certain irrigators downstream of Nyah. We are concerned that those changes are not overlooked, that there is some recognition of the changes and adjustments that have been made in Victoria that were implemented as a result of the cap that was introduced.

Mr FORREST—You need to be clear, Clay, that that involved sales water.

Mr Manners—It is in our submission, John, where we say:

... the Bulk Entitlement process for the Murray River lost access to sales water, which were allocated to the environment. Similarly, the horticulture industry (from Nyah to the South Australia border) lost their full sales water rights in part to provide additional water to the environment. There has been no compensation for those changes.

The details of those changes are in the *Sharing the Murray* document, which, I might say, despite those reductions in rights, was well supported by the industry. There was good consultation; there were working groups up and down the Murray. It is one of the processes that is held up as working very well. It was conducted in the mid-nineties—about 1995 or 1996.

Mr FORREST—We should get a copy of that for our library.

Mr ADAMS—There was good participation, was there? Those people had ownership of it?

Mr O'Brien—Yes.

Mr WINDSOR—Were there circumstances where people actually lost real water, or was it water that they may have been allocated but, in terms of their history of use, had not been using up to that level?

Mr Manners—As I understand it, people may have used it from time to time. They would have had their water right and then they would have had access to what we call sales, which is a misunderstood concept. I think you could find irrigators who from time to time would have accessed the sales pool but who would not then have been able to do so.

Mr WINDSOR—There would have been people who made investments predicated on a certain level of water allocation and use who have lost water, which would have had a real impact on their return.

Mr Manners—To a minor degree, I would expect.

Mr O'Brien—I will give you an example from the Goulburn Valley. Approximately, the long-term average flows are 3.6 million megalitres. Water rights have been allocated for approximately 1.58 million or so. In 24 out of 25 years you will get your water right. In general, with the seasonality that comes with the climate, you will get a long-term average of 30 per cent sales water. There were periods in the late fifties and sixties when people enjoyed perhaps a 60 per cent sales component on top of their water rights due to higher rainfall periods.

Mr WINDSOR—Perhaps you should define 'sales water'.

Mr O'Brien—When the authorities look at the season and what is in storage, the first allocation is what can be guaranteed as your water right. The other part is sales water—'opportunity water' might be a better term. It is in storage; it is surplus. Section 11 of the original act allocated a volume of water to each of those authorities. It was at their discretion to store and use this water as they went along. In general, over a period this would normally grant you 30 per cent sales, but there were high rainfall years when they got 60 per cent. This is where people perhaps got caught. When the cap came in those discretionary areas were not available. This came back to the 130 on long-term average.

Mr WINDSOR—That is where the loss of water has been accepted, hasn't it, and not in their original allocation?

Mr O'Brien—Their water rights were honoured, but that sales component that is in storage—that second piece—is what guarantees your water right, because you have to have surplus and water in storage for part of next year's supply. It is the management of that water that guarantees you. That is why in general, apart from this drought year, we have a very high security of water and delivery. We have that one chance in 25 that we will not get it. We have a 96 per cent chance of delivery of a water right. That is very clear.

Along the Murray at that stage as well, people had applied for licences to divert individually—as had occurred in a lot of New South Wales systems—but had not used all those rights. Then some of the sleeper licences, or dozer licences as you call them, were reduced. As Clay has mentioned, down below Nyah the sales component was also reduced; it was already eliminated. That extra water has gone into that general pool of water that is running down the system. Whether it gets to the environment and is managed is another thing. You cannot put water into a stream and expect it to manage itself.

Mr Manners—In short, a series of compromises were made in order to ensure that people's rights were better understood, that the rights that they had could be delivered and that there was a better understanding of the security as a result of that process. The water rights system has developed over a long period of time. The cap initiated that. Prior to the cap, if sleeper rises were triggered they would just get extra licences, but with the cap it made it necessary to clarify the whole process. That was done with very good community consultation involving the VFF and all our members up and down the Murray. It was something that we certainly support as a process.

Mr FORREST—The outcome has been a positive one. A lot of that water was being inefficiently used. It has driven a process towards better efficiency, hasn't it?

Mr Manners—Yes, I think that is a fair call. As John indicated earlier, some people developed their business on the expectation that they could get 100 per cent sales water every year. I think the Living Murray process and the discussion about it helped to create a better understanding amongst irrigators of what their water rights actually were. They understand the issues that John was talking about that water rights delivered 96 years out of 100 and that they will receive on average 30 per cent sales water. There is a graph of reliability of supply which farmers understand and I think that has assisted them enormously in managing their business. This year is the one in 25 years that puts that knowledge to the test of course but, in general, it has helped a lot.

Mr O'Brien—This period immediately around the cap and the Living Murray initiative has seen many people take big strides in changing their irrigation management and their efficiencies—that is, their ability to water faster, to water in a different pattern, to use less water for an application and also to bring other systems into place like the centre pivots, the laterals and the drip irrigation schemes in the Sunraysia area. It was a real stimulus. We know we have a certain amount. We cannot punt on the season. We know what we have to do: we have to improve our efficiency.

Mr ADAMS—New technology has driven change and usage and that has resulted in an increase in productivity using less water.

Mr O'Brien—Correct.

Mr ADAMS—Is that happening generally right across Victoria?

Mr O'Brien—I would be guessing but at least half the farms—and most probably two-thirds of the farms—have adopted new types of schemes, relaid out irrigation to what is faster irrigation, so they are not leaving water on bays as long. They have put recovery systems in—that is, water that goes off an area is picked up into storage dams and then pumped back into the systems again. That is common and nearly every system that goes in is that kind of system.

Mr ADAMS—Do many channels still exist in Victoria?

Mr O'Brien—It is all a channel delivery system, apart from the pipe scheme in Werribee, Bacchus Marsh and up on the river schemes.

Mr ADAMS—So it is mostly still channels?

Mr O'Brien—Yes, because of the infrastructure, the size of it and the volumes of water that have to be moved.

Mr ADAMS—Is pasture flood irrigation still used?

Mr Manners—Yes, on the right soil types with proper lasered bays using all the latest whiz-bang technology. Flood irrigation gets a bad name. If it is done right, it is not as inefficient as the conventional wisdom would have you believe.

Mr ADAMS—There is a lot of evidence to say otherwise.

Ms LEY—It is water on, water off.

Mr FORREST—It depends what you are growing. If you are growing grapes, it is inefficient. But if you are growing pasture, it is different.

Mr Manners—The strides that have been made in improving flood irrigation have been quite significant. There is a financial incentive for a farmer to improve his water use efficiency in a tradeable market with water. This year it was worth $500 a megalitre at the peak, which is a very strong financial incentive to farmers to improve their water use efficiency, to sell what they save or whatever. The dollar is a very strong driver.

Mr ADAMS—Is that driving change? Is there a changing pattern now in water usage in Victoria or will that take another 10 years to emerge? Are there changes occurring in how people are using that water because the water has more value? Therefore, are they saying, 'We are not going to flood irrigate pasture. We can get $500 for this water, I can get a better return than I can for milk'?

Mr Manners—Irrigating pastures for dairy cows is quite a good use of water. It certainly beats rice hands down.

Mr ADAMS—I am not going to argue that. The point is that something may emerge which will pay more. Do you think the price of water will drive that change?

Mr Manners—There are certainly moves to greater horticulture, but you are moving off a very small base. We do not see in the foreseeable future significant shifts out of dairy, which I think is about 50 per cent of water use. I stand corrected on that percentage, but it is a large user of water in Victoria. We do not anticipate large shifts of water out of dairy into horticulture simply because the amount of water horticulture uses is relatively small. There will presumably be movements of water out of some irrigated fat lands, beef, those sorts of issues, probably into horticulture, and also movement of water off land that is less productive. The Tragowal Plains arrangement is a classic example of how, with advice and community plans, there has been a shifting of water from poor soils to good soils. That is what is occurring and, in my view, they are very largely driven by the water market. Farmers in Victoria are becoming very sophisticated with the water market. If you go to irrigators in the Goulburn Valley, they will talk about the price of water last week. They are thinking about water values all the time. It is becoming quite a sophisticated market.

Mr FORREST—For the benefit of the committee, could you describe the way the water trade market is operating in Victoria? There are two aspects: you can sell your 12-month allotment of water or you can sell your permanent water.

Mr O'Brien—With the temporary water, which is the seasonal water, you can do it two ways: you can do it through a private broker or a private trade between farmers, or through the water market organised by Goulburn-Murray irrigation. Every week people put in bids showing what they are prepared to pay for water and the sellers say what they are prepared to accept. You might find that 2,500 megalitres of water are traded one week and the average price is $245. Last year, the price of water went right up to $120 a megalitre in December and January for the horticulture and the tomato crop as it was essential to have that water finished, and at the end of the season it got down to $20 a megalitre. People can bid freely on it; it is free to access. You

have to be able to deliver the water from your location in the system. There is a rearrangement. It does not have to be physically your water but it has to be physically capable of being delivered from one section to another.

The other aspect is permanent trade of water. Not a lot of water has been traded; probably between 50,000 and 100,000 megalitres have been permanently traded. That trade at present is around $1,200 a megalitre in northern Victoria. That has risen dramatically in a three-year period from $400 to $500 to that level. This means that areas that are perhaps marginal or at the retiring stage can either lease the water through a private broker or sell it permanently to another customer. Some of the high intensity developments and the newer enterprises have bought water in the market and transferred it. However, that market is probably between three and five per cent of the volume of water in the area. The volume is not huge. However, it enables new enterprises to start up when they do not have access to that water. The only alternative is to buy a property with a water right on it and then, when you have it, transfer it back to the existing property or to the new development. However, it has to be capable of being delivered or to be put into a river and pumped out again.

Mr ADAMS—Is there any fear about water barons emerging? I know farmers, certainly in my electorate, have a genuine fear of people gaining control of so much water that it will become a monopolistic situation in their region. They are concerned that it may become too expensive to get sufficient water for production purposes or that there will be another kind of leverage imposed.

Mr Manners—There is that concern. Currently the rules state that you have to be an irrigator to participate in the market.

Mr ADAMS—Is that written into your act?

Mr Manners—Yes.

Mr O'Brien—There are trading rules.

Mr Manners—There is a lot of apprehension about changing that. The members of our organisation are not in favour of changing that.

Mr ADAMS—They are?

Mr Manners—They are not. They would like the status quo to remain. There is discussion about whether that element should be changed. My view is that the gains in terms of improved competition would be negligible if you did change it and the risks would outweigh the gains.

Mr WINDSOR—Where is the pressure coming from?

Mr Manners—I think it is coming from some parts of the bureaucracy. Some of the banks feel it will improve their security if they can hold the water, so it is coming from banks, some elements of the bureaucracy and it may also come from—and I stand to be corrected on this—the National Competition Council.

Mr ADAMS—There seem to be some very big companies now involved in water. There is some pressure to make sure that water can be tradeable by buying and selling.

Mr O'Brien—That perception is there, certainly with COAG people and others. Having regard to the reality of the market and the practical application, I gave you the example before of how the market in the last five years would peak at around the Christmas-January period and then, depending on how much water was left in storage, they would say, 'We've got this water; we've got to pay the deliver costs, the $30 a megalitre or whatever it is. We're not going to use it so we're going to try to trade it.' That is when the price came down to $20 or $18 a megalitre, in order to get something back for it. It is enabling it to be freed up and it enables those people that have a need for extra water to purchase it. The rule of thumb used to be that a megalitre of water grew a tonne of pasture. We have people now who are growing a tonne and a half of pasture, 1.6 tonnes, and we also have others that are only growing 0.7 tonnes. People were not aware 10 years ago of how much we were growing. Now there are the skills and the means to measure this. People are much keener because they watch the market every week, the price is quoted in the regional papers, and they plan part of their risk management for it.

Mr ADAMS—It has increased productivity and efficiency and there has been a positive gain for the country overall.

Mr O'Brien—Yes.

Mr SCHULTZ—Is that as a result of better utilisation of the same amount of water?

Mr O'Brien—Yes, getting more productivity.

Mr ADAMS—Increased price through production.

Mr O'Brien—Yes.

Mr SCHULTZ—On page 3 of your submission you state your opposition to the compulsory introduction of on-farm water saving measures. What kinds of measures are you referring to? Have there been attempts to force their introduction? Is there any evidence that farmers are adopting these measures voluntarily?

Mr Manners—The measures we are referring to might involve spray or drip irrigation as opposed to flood. There have not been any proposals that I am aware of to force that sort of change in Victoria. As I said, the water market is driving those changes by farmers in any case, because if a farmer has 100 megalitres of water right, for example, and he installs a drip irrigation system and only uses 50 megalitres, he has 50 megalitres to sell on to the market. At current prices that offers him a very strong financial incentive to do so. We would not oppose a government scheme to the effect that the government would provide some financial incentive to install a drip irrigation system and the government would take X megalitres of water in return. We would not oppose that provided it was a voluntary system.

Mr SCHULTZ—You would be happy to have a trade-off situation?

Mr Manners—Yes: the farmer can make a judgment himself about whether it is worthwhile doing that or whether he could do it outside the government's scheme and through the market. We would prefer to keep those options open to farmers.

Mr FORREST—But it is not even being suggested, is it?

Mr O'Brien—Well, yes.

Mr Manners—If we are talking about the volumes of water that are required for the Living Murray process, the Living Murray process is talking about 1,500 gigalitres of water, which is an enormous amount of water. Some novel ways have to be found to obtain that volume of water—1,500 gigalitres is not much short of the Goulburn-Murray water right. To pull that amount of water out of the Murray or lower Murray—we are basically talking about southern New South Wales and Victoria and, to a large extent, the Murrumbidgee and the Goulburn because they both come in below the Barmah Choke—you are talking about very large volumes of water, relative to what is there.

Ms LEY—I think we should point out that the 1,500 is just a reference point for the Living Murray discussion. It has not been predetermined that it will be 1,500.

Mr Manners—No; that is true. The South Australian government has made statements about 1,500 being the minimum required. Environment groups are, in fact, bidding that 1,500 up to even higher levels. So, from our point of view, it is very important that the political process understands the implications of such a large volume of water.

Ms LEY—I think we do. From our point of view we are not giving away 1,500 in this process.

Mr Manners—That is very comforting to hear!

Ms LEY—I do not want to make a political statement in the committee hearing, but it is just not the case that 1,500 has been decided on.

Mr SCHULTZ—I would like to make a comment with regard to understanding the concerns and apprehensions of farmers and producers about the whole water issue. This is in an environment where New South Wales farmers have been told by the New South Wales government that they own the water that falls out of the cloud before it hits the ground. That is basically what they have said. In other words, you are restricted to the amount of water that you can trap that comes out of the rains on your property. That is a real concern to me. It creates a whole new ballgame in terms of the long held practice of farmers, in most instances, being very responsible regarding the water they trap and the way in which they handle the water as far as the ongoing flow-on effect to the environment is concerned. Would you like to make a comment about that?

Mr Manners—Those issues have been extraordinarily controversial in Victoria over the last couple of years, initiated by a piece of legislation called the farm dams bill. The Victorian government implemented regulatory control on irrigation dams on farms that were previously unregulated. I might say that the government has done that with the support of the VFF. After a fair bit of debate and argy-bargy, our organisation has actually supported the controls on the

construction of new irrigation dams on farms. It has been an extraordinarily controversial issue generating a lot of heat. It would be fair to say that our support for the proposals has cost us membership. In some areas—particularly the upper catchment areas—they disagree with the approach the organisation and the government have taken. On balance, our organisation felt it was a fair thing to do.

Also, I think it was misinterpreted a lot. The government has not changed its arrangements in relation to domestic and stock dams, nor is there any change about collecting water off roofs and all that sort of stuff. There was a lot of discussion about that, but it was never intended. I think it serves to illustrate that water management is a very difficult issue for governments—and farmer organisations, I might add—to handle. Water is a very emotional issue.

Mr SCHULTZ—It is also a very essential item in this country. Would you like to comment on water run-off catchment areas and the controls that governments may be involved in which would impact on the economic viability of rural and regional areas to survive—in other words, their ability to attract into rural and regional Australia industries that are not aesthetically acceptable in metropolitan areas, such as poultry farming and abattoir type operations in an environment where the governments of the day are concerned about contamination of aqua flows in catchment areas?

Mr O'Brien—Those industries would be out in regional areas rather than close to urban areas. As an individual farmer, I have a different view from that of the organisation. My view is resource management wide. This is not answering your question, but there has been a push for plantation forestry. Most of the water in our systems is coming off crown lands, off high mountain areas of the state, but we get some inflow into the catchments of private lands in the higher rainfall zones. A good rule of thumb is that for every hectare of forestry catchment we put in we lose a megalitre of water. If we put 500,000 hectares into plantation forestry in that catchment we will lose 500 megalitres of run-off.

At present, if people in those catchments want to put in storage, they can harvest the water that is going down those areas provided they buy an entitlement out of the river systems or catchment systems that they are in. It is not restricted. That is how they can do it. The rights of existing users such as those before the farm dams legislation to catch, store and use have been honoured. New projects in capped catchments such as the Murray-Darling Basin capped area have to comply because no new allocations are supposed to be issued in those areas. However, in the southern catchments in Victoria we can still put in systems provided we go through the appropriate planning procedures in the municipalities, plus get the right permits to do the constructions.

Mr SCHULTZ—I was trying to elicit from you your view on the concern that the industries that I mentioned might contaminate the water supply, and because of that excessive concern we are restricting those sorts of industries, depending on where they are, from maintaining the economic viability of rural and regional areas and keeping our communities in those rural and regional areas.

Mr O'Brien—You will find that such industries have to have captures or storages so that they can recycle and use that water on their lands without letting it go into the general run of streams below them. They must contain that effluent on their lands. The same procedure is gone through with the use of urban sewage reclaimed water. If you use that, you must not let any run-

off go off your property; it must be contained on your property. I have had some dealings with Melbourne Water, South East Water and out west in Werribee and that is the No. 1 stipulation: you shall put in a retaining basin so that you can recycle that water onto your farm and mix it in with the other water. It is so that we do not diminish the quality of the general water that leaves the property—that you do not contaminate it and move it downstream. Move the problem away and keep it on your place. It can be used efficiently to create feed to be used on your property. That is what Werribee farmers do. They can grow lucerne hay out there but they must keep it and use it on their stock on their property. They cannot put that produce onto the open market. That is the raw type sewage.

Mr WINDSOR—In terms of VFF's membership of the NFF, the NFF is currently calling on the Commonwealth government to withhold competition payments from the states. From what you said earlier, you seem quite happy with the arrangement that this state has at the moment. Is the VFF supporting the NFF in that proposal to the Commonwealth government?

Mr Manners—The answer is yes, but we would not see any requirement to withhold competition payments by the Commonwealth to Victoria in relation to water management. The only issue in relation to payments is that we would like to see national competition payments tagged. If there is a need for restructure or changes as a result of national competition policy in relation to water, we would like to see some formal tagging of the payments back to Victoria to ensure the Victorian government spends money, for example, on infrastructure development to help those communities adjust to those changes. That is the key issue from a Victorian perspective with NCP payments. In terms of security of water rights, we would not tolerate what appears from a distance to have happened to the allocation of water rights to farmers in some other states.

Mr WINDSOR—Say the Commonwealth did withhold some money because some states were noncompliant, would you see the money that was being withheld spread across all the states?

Mr Manners—No, you have misinterpreted me. We would be quite happy for that to occur, but we do not see a need for that to occur in Victoria. We are actually quite comfortable with the system of water security.

Mr WINDSOR—Do you see a need for it to occur in New South Wales?

Mr Manners—It is not for me to call. I am not close enough.

Mr WINDSOR—Your association is a member of the federation that is supporting the move.

Mr Manners—We would not wear the water management plans that are happening in New South Wales. Our concern is that that approach might be acquired in Victoria. As I said earlier, if the Commonwealth makes payments to Victoria because of water payments, we would like to see some tying of that so that there is an obligation on the state government to spend it in the water industry.

Mr O'Brien—It is just going to general revenue otherwise.

Mr FORREST—The present circumstances, and with what is purported to be the worst drought we have ever had, are driving a lot of imperatives now which are a result of people going without their permanent water—this has occurred even in the Goulburn Valley, for example. I want to know why the VFF have not given me more support in my call for a greater investment in weather modification and cloud seeding. You need to bear in mind that the United States is spending $30 million plus per year on cloud seeding and other weather modification procedures; the South Africans are spending about $20 million; the Chinese are spending $100 million a year—this is all Australian dollars—the Russians are doing it; and there is a conference in East Africa in Casablanca as we speak, which is being monitored by the World Meteorological Organisation. Yet Australia, which probably has more need to be involved in some form of cloud seeding, has dropped the ball. Why isn't the VFF supporting my call for reinvestment of some capital and for more research?

Mr O'Brien—Personally, I would give you full support. I understand the process because I have quite a bit of background in trying to understand the benefits of cloud seeding and the procedures involved. I know the Snowy Mountains Authority are going to do far more work this winter using ground applications as a trial rather than cloud seeding from aircraft. At the present stage, I would give you full support and if you send your proposal down to us, we will certainly give you that support.

Mr FORREST—You have got it.

Mr O'Brien—Our weather systems in the past five years are in this low period and many of the systems are not rain bearing systems. We have had one or two each season that have got us out of the corner. The present one is a typical one that in a normal year would most probably have dropped buckets of water on us. But the systems are not capable of generating. The number of times that we can increase the precipitation is limited, but we must do the research. I fully support it and I think the state must give us the support for it. The state has so far ignored appeals from industry on this. I would certainly push to the utmost that research and trialling is done.

Mr FORREST—Where do you get the information? You said there have been no rain bearing systems: where did you get that information from?

Mr O'Brien—I am a fairly keen amateur weather man. I like looking at the systems. You may remember that about six weeks ago we had a system with fully supersaturated air to 20,000 feet over Adelaide. They got two inches and that rain then drifted over central New South Wales and gave that break. They got it in Mildura and there was some damage on the grapes at that period. What I am saying is that a lot of the systems are in the drier part of disturbances, but that system was a real one and we would probably have got another 30 or 40 per cent out of it if we had cloud seeded it because it was there to rain.

CHAIR—It has been very interesting speaking to you but we will have to move on. There are just two last quick questions.

Mr FORREST—This is an important question, Madam Chair.

CHAIR—I thought you had completed your questions, John.

Mr FORREST—No, I have not. What has the VFF called on the state to do? In Texas, for example, it is entirely funded by the state parliament. What has the VFF done in terms of representation to the Victorian government?

Mr O'Brien—We have not taken it up directly, but I know representations have been made to the bureaucracy and they have been ignored. This was 12 or 18 months back. I would be prepared, as chairman, to take it back through the VFF to push this up again.

Mr FORREST—You have got my report. Push it.

Mr O'Brien—Right. I certainly will.

Mr ADAMS—I want to ask about Lake Eildon—the committee has had a representation about it. Is it ever going to fill up again? What is your view about that?

Mr O'Brien—We have had minimal rainfall in the catchments. We have had very dry seasons and very low snow years. Yes, it will fill up—and it can fill up in two seasons without a worry. This area of the state is going through that period. It will come right again.

Mr ADAMS—Were mistakes made in the amount of water that has been taken out of it?

Mr O'Brien—No. In the year prior to this season we had left water in the system to supply water rights for that season—that was not this summer but the previous year. But the decision was made this year that we had to empty Eildon because there was very limited winter rainfall in. The managers took the decision that they were going to have to run the system down to virtually six per cent, leaving that for urban use. There was a disaster facing northern Victoria, and up to 57 per cent of water has actually now been allocated.

Mr ADAMS—So it has been managed efficiently, as far as you are concerned?

Mr O'Brien—I would say very well.

Mr Manners—There is a set of operating rules for Eildon. That is all part of what underpins a farmer's water right. We would be very nervous about changing those operating rules from a day-to-day basis. We support the concept of having a set of rules that then flows through to farmers' water rights.

Mr ADAMS—We have had a representation from a member of parliament saying that it has been very badly managed. I suggest you look at the transcripts.

Mr O'Brien—From a farmer's point of view, and one fairly closely associated with authorities, I would say it has been well managed. They have even reached the stage of hiring axial pumps on Waranga Basin in order to pump that water out into the system. That would never have come out by gravity. That water is still being delivered—slowly, but it is still being delivered into the Waranga main.

Mr FORREST—That is a statement about management from a water supply irrigator's point of view.

Mr O'Brien—Yes.

Mr FORREST—I think Bob Charles's submission was more from the tourist angle.

Mr ADAMS—He did make the allegation in his evidence to the committee, and in his submission, that it was badly managed and he blamed the management of that authority.

CHAIR—Overselling, yes.

Mr O'Brien—You have to remember what Lake Eildon was put there for. Lake Eildon was put there as a reservoir to manage and store water on behalf of the government authority at that time, which was State Rivers, which then became the Rural Water Commission, and now it is Goulburn-Murray Water. It was to manage and store their part of their entitlement for the irrigation farmers in northern Victoria. Unfortunately, recreation is a by-product of having water—and I can sympathise with the people there.

Mr WINDSOR—The other thing that Mr Charles was referring to was the sales component of the water. You have your normal allocation plus this sales component.

Mr O'Brien—Last year we did not have sales in northern Victoria, and we did not have sales in the previous season. We have run on the bottom of the curve—virtually, this is the end of the sixth season of low rainfall. I manage a farm in northern Victoria, so I know what I am speaking about.

Ms LEY—What do you think needs to happen for farming groups and all farmers in the Murray-Darling Basin to cooperate more? We have the VFF, New South Wales Farmers, South Australia, the ministerial council on MDBC representing four state governments and the Commonwealth, and everybody is looking after their turf. So much energy is being put into something which is not a productive outcome in the long term; it is mainly short term for a small group of users. How can the users of the basin as a whole do it better?

Mr O'Brien—I think it is a matter of understanding the problems of the individual areas—whether you are in SAMI in South Australia or the Border Group in Queensland—and also having constant dialogue with the Murray-Darling Basin Commission and having input into the policy and management changes that they propose. Professor Gary Jones, from the CRC, was here yesterday, along with Dennis Hussey, to discuss what procedure they envisage in the Living Murray initiative. We could spend an hour on the Living Murray initiative if we had time. There are key factors which we need to understand, and there are key irrigation people who have an understanding of it. We need to talk to the Don Blackmores, David Dole and others regarding the management of it. We need to do that, and we also need to have access to key ministers in the government, which is hard to get at times, although we are seeing David Kemp this afternoon. It is essential that we have doors open and that we have discussion. It is a critical issue in the Living Murray initiative.

Environmental flows are only one part of the solution. It is a matter of total environmental management of the Murray-Darling system, particularly the lower section. If we do not manage those five or six key factors, be adaptable and then audit what we are doing, no matter what water we throw at it, we will not fix the problem. I have spent a lifetime on the river systems in Victoria. I can see where the management has worked and where it has not worked. We have

problems; there is no doubt about it. Irrigators know that we must have a healthy river, but we also have to have a working river. Because of the extraction that we have been granted and the income and the social impacts of the removal of 1.5 million, you pick it up and they say it is not 1.5—

Ms LEY—The process will determine that.

Mr O'Brien—I know that.

Ms LEY—I very much hope that it is not 1.5.

Mr O'Brien—Its impact would have horrific implications for those regions and industries. When it first came out, I said to the manager of Murray Goulburn Cooperative, the biggest milk factory in Victoria, 'Ian, which factory in northern Victoria are you going to shut?' He said, 'We're not shutting any.' I said, 'If you lose water you will have to shut one.' It is very important environmentally to manage flows, manage what we have and know what we are doing. It cannot be left to the broader CMAs or the broader Murray irrigation; it must be combined with people with skills to manage it.

Mr ADAMS—What about new technology and looking not so much at broadacre farming but at more intensive farming? Would that overcome—

Mr O'Brien—There is a limit to intensive farming because you have to have markets and the necessary wherewithal. It costs a minimum of $20,000 an acre to set up most of these new industries but you must have the markets. You have only to compare the present grape price with what it was during the peak two years ago. The demand is not there. We have to have things in balance. That is not to say that in 10 or 15 years we will not double our production, but we have to have the processing capacity all tied in together.

Mr ADAMS—We do not have to grow grass in paddocks; we can grow it in other ways. A whole new era is starting to emerge.

Mr O'Brien—Grass in paddocks is good because it underpins other sections of the economy.

CHAIR—We might leave it there.

Mr O'Brien—Thank you very much for the opportunity.

CHAIR—I am sorry to cut it short; there are lots of questions that I would have liked to ask. Thank you very much for appearing before us today. When the report and recommendations are brought down we will make sure that a copy is handed to you.

[10.58 a.m.]

MANTON, Dr Mike, Chief of Bureau of Meteorology Research Centre, Commonwealth Bureau of Meteorology

STEWART, Mr Bruce, Assistant Director, Climate, Consultative and Hydrological Services, Commonwealth Bureau of Meteorology

ZILLMAN, Dr John, Director of Meteorology, Commonwealth Bureau of Meteorology

CHAIR—Welcome. Although the committee does not require you to give evidence under oath, I should advise that these proceedings are formal proceedings of the parliament and consequently warrant the same respect as proceedings of the House. I remind witnesses that the giving of false or misleading evidence is a serious matter and it may be regarded as a contempt of parliament. Would you like to make an opening statement, and then we will go to questions from the committee? I apologise for holding you up for a short time; it happens in these hearings.

Dr Zillman—I would like to take the opportunity to make a short opening statement. The Bureau of Meteorology is a Commonwealth organisation charged with meeting the needs of all sectors of the community and all levels of government for those weather, climate and related services that are essential to their safety and general wellbeing and for the support of Australia's overall social, economic and environmental goals.

The bureau operates under the Meteorology Act 1955. It has also been recently established as an executive agency under section 65 of the Public Service Act 1999. Its basic responsibilities under the Meteorology Act remain unchanged. Since November last year, it has also been advised by an external Bureau of Meteorology advisory board and I am pleased to table a little booklet that provides an overview of the bureau's role and operations, and the services it provides.

Meteorology is of both short- and long-term importance to most aspects of rural water supply because it is the spatial and temporal distribution of two key meteorological variables—rainfall and evaporation—that ultimately determine the availability of the resource. The bureau has a longstanding commitment to, and a role in, the assessment and management of Australia's water resources especially following the establishment of the Australian Water Resources Council in the early 1960s. The bureau operates the official national rainfall and evaporation networks and collaborates with relevant state agencies in the operation of stream flow networks. It provides weather and climate information including both short-term weather forecasts and long-term climate outlooks.

The bureau's written submission attempts to assist the inquiry by presenting three complementary cost cutting perspectives on the influence of meteorological and hydrological factors and services on future water supplies for Australia's rural industries and communities. First of all, in section 2 of our submission we have elaborated on each of a set of eight of what we believe to be key meteorological and related issues that are of essential importance to future water supply for rural Australia. Secondly, in section 3 of our submission we have essentially

mapped these issues and our views on to the five individual terms of reference of the inquiry. Thirdly, in section 4 of our submission we have elaborated a little on some current and future bureau services and service issues as they might bear on future rural water supply.

I will not use your time by repeating any of the detail of our submission but it may be helpful if I at least identify those eight key issues I referred to that we have elaborated on in section 2 of our submission. The first is the fact that the benefits of long-term monitoring of weather and climate, surface water and ground water are substantial in terms of informed management of Australia's water resources. Secondly, we draw attention to the need for appropriate standards and consistency of data collection. The quality of data, homogeneity of standards and continuity are absolutely essential if we are to understand the varying nature of the resource and use that information in a predictive sense. The third point is the benefit of improved management in research capabilities in a wide range of aspects of the water or hydrological cycle. The fourth point—and I understand the sensitivity and relevance of the question—is the limitation of cloud seeding as a water resource management tool. The fifth point is the fundamental role of good observations and networks in the detection, monitoring and prediction of climate variability and possible long-term climate change. The sixth point is the scientific basis for, and regrettably the limitations of, weather and climate forecasting. The seventh point is the status of climate forecast verification and the need to undertake rigorous forecast assessment prior to the adoption of new systems for forecasting, essentially on all time scales. The final point we have covered in a little detail in section 2 of our submission is the current Bureau of Meteorology public good prediction service, its strengths and weaknesses and the areas and scope for improvement. I should also acknowledge that, as the official national meteorological authority for Australia, the bureau is acutely conscious of the importance to our capacity to perform our statutory functions of the inquiries response to its fifth term of reference which relates quite directly to the adequacy of weather and climate forecasting and the national capacity to adapt to the variability of climate.

The bureau representatives here would be pleased to respond to any of your questions. Bruce Stewart is the bureau's assistant director responsible for climate and hydrological services, including water resources assessment, flood forecasting and so on. He is Vice President of the World Meteorological Organisation's Commission for Hydrology and is the national focal point in Australia for the United Nations Year of Fresh Water. Dr Mike Manton is chief scientist of the bureau and an expert on global weather and climate prediction research. I may be damning him with this comment: he is former acting chief of the CSIRO Division of Cloud Physics, which pioneered weather modification research in Australia.

I have been Commonwealth Director of Meteorology since 1978. I am currently President of the World Meteorological Organisation and principal delegate of Australia to the Intergovernmental Panel on Climate Change. I have been a member of the Standing Committee of the Australian Water Resources Council, the AWRC and its various successor councils, since the mid-1970s. We thank you for the opportunity to make a submission on this very important issue and thank you also for your invitation to appear before the committee. We are pleased to attempt to answer your questions.

CHAIR—Thank you for outlining your submission.

Mr WINDSOR—We spoke a little about modelling the last time that we met. One of the dilemmas I believe this committee has, and the issue that water generally across Australia has, is

that we have interfered with the system by building structures, dams et cetera, yet we are trying to create a model in terms of environmental flows. Is it possible with the technology that you have now to model what was happening 100 years ago prior to the advent of the dams so we can get a better handle on what the environmental flows should be? Obviously, we have been wetting and drying farms and we have interfered with things like the Hume Dam et cetera. We asked the CSIRO the same question. They have all this whiz-bang modelling for the future but no-one has bothered to look back at what the past was actually suggesting to us. Have you done any work on that or can you do some work on that to assist the committee?

Dr Zillman—The bureau has modelling capabilities for both weather and climate and for river systems. With our climate models, we can explore the impacts of changes of boundary conditions on past climates. Mike can certainly elaborate on some of our capabilities in that area. In terms of modelling the behaviour of our river systems, our models are primarily directed towards handling the relationship between rainfall and runoff and stream flow and whatever with the objective ultimately of flood forecasting and warning. I think the models we use are not terribly amenable to looking back at the past by removing dams. Bruce is our hydrologist and I will ask him to comment.

Mr Stewart—Most of the models we operate in the bureau are event based, so they look at the extreme circumstances of high rainfalls and predict flood levels. As far as I am aware from my hydrological background, there are models that are available that we can use to determine what a set of natural river flows were pre dam construction. Probably the most difficult thing I think is accounting for the various changes in land use that have occurred and the sensitivity of the models. The accuracy of stream flow estimation, because of the way it is done with river height and discharge, means that small changes in land use probably would not show up or it would be picked up within the data. I would have thought the models we have available within the hydrological community enable us to identify long time series of stream flow that are unimpacted on by the construction of dams and those sorts of things.

Mr WINDSOR—Is it possible to get that information to the committee?

Mr Stewart—On the types of models and that sort of thing? If the committee wishes to talk to people, perhaps the best group would be the CRC for Catchment Hydrology. They operate such models, particularly from the point of view of the implications of forestry on water yield.

Dr Zillman—We can point to where the skills are, but our own models are not particularly well adapted for that sort of study.

Mr FORREST—I have asked CSIRO this question, and I am proud of the model you have developed. I have asked them to run it today, but with a saturated catchment—Lake Hindmarsh, Lake Albacutya, the 1956 flood down the river, the entirely different boundary conditions—and tell us if the current weather that is rolling across would change in its nature in terms of the delivery of rainfall. Their response was that they did not see that as a worthwhile investment of precious research funds. How much would it cost to run an exercise, but not a historic one? Do not bother about the landforms; leave the landforms as they are. How much would it cost to change the boundary conditions to reflect a more generous hydrological cycle? My view is that the hydrological cycle on the mainland is just so constipated—that is part of our problem. How much would research activity cost to look back but use up-to-date boundary conditions, only changing the nature of lakes?

Dr Manton—Perhaps I could discuss related activities that are being looked at. Since the early part of Federation, there was discussion about flooding inland Australia and changing the nature of that. There was a bureau study back in the forties on that proposal, known as the Bradfield scheme. The conclusion of a group of experts at the time was that it would have a limited impact—that is, the impact of flooding a region would be limited to the edges of that region; it would not have broadscale impacts. That was from a time before we had the models. In fact, work that is being done now, both in the Bureau of Meteorology Research Centre and, I believe, related research at CSIRO, is looking at the impact of having areas like Lake Eyre flooded. At this stage, our limited results suggest that the conclusions of the Bradfield inquiry in the 1940s are essentially confirmed. Yes, when you have a large lake area, it has some impact, but it tends to be restricted to the edges of that region.

Basically, this comes down to questions that you referred to earlier. Yes, local landform and so on does affect the local climate but, to a large extent, the climate of a region is affected by global scale phenomena. To put it in simple terms, if a front is not going to come through, then having different landform and so on is not going to have an impact. Similarly, when we look at changing the structure of a relatively small part of the whole continent, it is not going to have a large impact on the large-scale features that are coming through.

Mr FORREST—I do not believe that. We have been watching drought clouds out here for the past 18 months. It comes to the coast and it comes inland, but it evaporates. You can watch it happening. You have acknowledged the local effect, but we are talking about wetlands that have been dry since 1975. In my part of the world, Lake Albacutya has not had water in it since 1975. Lake Hindmarsh—another big lake in that region—is also dry. We have been watching drought clouds come across. They are clearly moisture bearing, but they are evaporating by the time they get inland beyond the dividing range. My hypothesis is that we should be spending some money on a research effort to understand why that is happening. There seems to be resistance all the time from CSIRO, who keep claiming these models are so good. Let us try and use them to look back a bit and understand more about why our weather has changed. Something happened in 1975 that has not been explained properly—why the weather has changed so much in the southern part of the continent since 1975.

Dr Zillman—The discontinuity—and whether it is a discontinuity or a trend is questioned—in the mid-seventies is usually, to the best of the global scientific community's capacity to attribute, attributed to the changed nature of the El Nino phenomenon—large scale and broad scale influences rather than local ones. I do not know if that is right. That is the consensus of scientific wisdom in the global climate community.

Mr FORREST—We have not spent any money to establish that. We have let the rest of the world tell us that but we have not made the investment in Australia. That is my pitch.

Dr Zillman—We have probably contributed to the global effort as well as any country. We have not, for example, taken models and looked at individual cases and local situations and downscaled them from global models because we do not yet believe that we have the confidence in the models to do things like that at that scale. But in answer to your question, when you say that you do not believe it, you may well be right but the fact is that those who work in those fields overseas have been unable to show anything other than a local effect. The very limited and crude model that Mike described that we have done here showed only a local effect. It is clearly an important issue; it is one of a large number that we see as well worth

investigating. But what we get from the 98 or 99 per cent of the rest of the world's science in the area does not suggest to us that we have much likelihood of showing that it has a meaningful effect.

Mr ADAMS—I was wondering about state government in Australia. Is there a good coming together of information? Do we need to improve the information that is available or do we do that pretty well?

Dr Zillman—For weather, climate and water?

Mr ADAMS—Yes.

Dr Zillman—The met bureau has no direct state counterpart because at federation the decision was taken to have a single Commonwealth Bureau of Meteorology that met equally and concurrently the needs of the Commonwealth and the states. We operate the national networks as they relate to rainfall, evaporation or whatever. There are, of course, many applications and areas of meteorology which require tailored, specific purpose networks. Many of those are state responsibilities: agriculture, water management and so on. In those areas, we historically have had pretty good cooperation. There are some problems of standardisation. Of course, the value of being a Commonwealth agency is that we can standardise around the country in the areas where different states have different approaches, budgets and strategies. I would have to say that since water became very much a business rather than a public good type responsibility many of the agencies which formerly provided us with free access to the data on a shared basis can no longer afford to do so. There are downsides in that sense, and the total environmental data—meteorological, hydrological and related—available to study many of these issues have fallen off as a result of that development.

Mr ADAMS—Have you heard of this chap, Mal Lamond, a Perth based private forecaster? He is talking about doing forecasts for 16 or 17 months based on research. Can we accept that this is some sort of reasonable forecast, or is this guy a bit of a shyster?

Dr Zillman—Mal Lamond was a very highly regarded regional director of the bureau in New South Wales, Queensland and Western Australia during my term as director so you will not have me ever calling him a shyster. Mal has a fervent belief in his methods for going that far out. I apologise for appealing to the global consensus of experts in climate prediction, but I would have to say that we have not yet discovered—and there have been huge international investments in the research to try to discover—any method that gives us significant skill beyond seasonal forecasting. We have huge international research programs, largely funded by the US, Europe and others, trying to get forecasting capability out to 12 or 18 months or, indeed, to a decade. We have not demonstrated that yet. We do not have huge confidence that Mal has found the answer but, equally, we respect his belief in his own capabilities.

Mr SCHULTZ—How do you explain Lennox Walker's long-range forecasting? What skills and data did he have, in most cases, to forecast accurately what is happening today?

Dr Zillman—As a young junior farmer in south-east Queensland aged about 15-plus just having joined the bureau, I was put up beside Lennox Walker at an evening event and asked to defend the bureau's approach versus his approach. My response now is pretty much the same. Lennox's techniques, as far as we in the weather and climate scientific community can

ascertain, are not based on any accepted or believable theoretical approach. They are a mixture of statistical and some theoretical approaches that we believe are unsound. Let me backtrack and say Lennox, as we all know, is the son-in-law of Inigo Jones. Certainly, when I grew up on farms in south-east Queensland, everybody believed in Inigo. The Commonwealth government held a major inquiry into Inigo's forecasting methods in the 1950s and they were shown to have no scientific basis. If you believe in Lennox, you will believe in Lennox and you will believe that his forecasts have been verified in individual situations. If you stand back and look a little from the statistical performance basis, we believe that his long-range forecasts have no more accuracy than ours would beyond the limit of current skill, which we believe to be a few seasons. I have to say that the official bureau position on Lennox Walker's forecasts is that we do not consider that he has demonstrated useful skill.

CHAIR—I would like to expand on your predictions. You said in your submission that there was scope for improvement. Do finances or technology restrict your predictions when it comes to reliability?

Dr Zillman—The limitations are essentially four-fold. The first is that the atmosphere—the climate system—is an extraordinary tricky creature. It includes chaos and all those things and it is inherently not totally predictable. Second is the international state of the science; we are learning more and more about it. We are gradually improving our understanding and our ability to use that understanding for predictive purposes but we have clearly got a long way to go. The progress is slow and the international research effort is still moving on. The third limitation is technology—and I make that point by demonstrating the significant improvement that certain technologies did allow us to make in forecast skill. Before the 1980s, we had a pretty strong intuitive understanding that the sea temperature patterns in the Pacific had a huge control over Australia's seasons and climate. It was not until we could put permanently measuring ocean buoys with satellites looking down at them and then put the data into computers that we were able to model that. Then we could show that we actually did have skill in taking the signal from the ocean temperatures and that could tell us how the odds would be for rain over eastern Australia some months hence. The fourth limitation is obviously resources. The Bureau of Meteorology is an organisation with a service role supported by a research role. We do our little part in the total global effort. Because Australia is such a big country, we have to put a lot of our effort into our basic data collection networks. We would like, as any organisation trying to do its job better, to put more effort into data collection and into research but I guess we try to do the best we can with what we have.

CHAIR—What is your budget per annum?

Dr Zillman—The bureau's operating budget now is about $210 million a year. Ninety per cent of that is appropriation funding and some is recovered from aviation.

Mr ADAMS—The Reference Climate Station Network and the Global Climate Observing System are two different bodies. Can you give us a quick explanation?

Dr Zillman—Yes. The Australian reference climate network is our attempt to take a subset of our total network—which has many purposes, supporting aviation, forecasting and all that—that appears to have been high quality for a significant time in the past. We have reasonable confidence it will remain high quality in the future—high quality in terms of constant exposure, the likelihood that we will not have to physically shift it and so on. We want to use that as a

benchmark to look for very long-term trends that might be due to greenhouse warming or whatever. The Global Climate Observing System is essentially a global scale-up of that. It is particularly driven by the belief that we have to have a better overall global network to provide the data needed to support both season to interannual drought forecasting and to study greenhouse effect.

Mr ADAMS—Are we paying our way in an international sense?

Dr Zillman—Yes. In the global community that does these things, in terms of dollar contributions, I think we could regard ourselves as probably almost paying our way. In terms of intellectual contribution, I think we probably more than pay our way.

Mr ADAMS—Somebody predicted some flash flooding after a downpour. There was a media release on that. It was quite an interesting situation that somebody happened to forecast that there would be flash flooding in a particular area, because there had not been rain for a certain amount of time and quite a large amount of rain had fallen. He predicted that. It got onto the radio and achieved a result, because people were aware that there was going to be a fair bit of water coming down. That must have been significant. It was the first time that it had ever been done where the bureau had actually got it onto radio that quickly.

Dr Zillman—Reserving, modelling and communication technologies have certainly improved our capabilities enormously for that short time scale which is so critical. We will still make mistakes, as we did, for example—I would not say we made a mistake; yes, we got it wrong—in the Sydney hailstorm in 1998. We still do not know quite why that hailstorm behaved as it did, and there will still always be problems. But the technologies in data collection, radar—the huge capabilities of weather radar and the capacity for computers to take that and instantly turn it into a projection of where the storm will go—and another model to give that in terms of run-off and communication to the community have certainly improved our capabilities enormously.

Ms LEY—There has been some talk—and it is even accepted wisdom in some circles—that the present drought is as bad as it is because of human induced global warming. What is the science behind that and what is your view of it? I think I have the terminology right.

Dr Zillman—You do. I will ask Mike to speak to the science, then I will give my view.

Dr Manton—The current drought has occurred at a time when the rainfall has been about as low as it has been during other major droughts. However, it has also occurred at a time when the temperature over much of the country has been significantly higher than it has been at other times when we had low rainfall. It suggests, and some observations confirm, that evaporation has been higher during this drought than at other times when the rainfall has been as low as this. So it does support the suggestion that in fact this drought has been more severe than other droughts when the rainfall has been similarly low due to the high temperature.

The high temperature during this year can be seen as part of a trend over the last several decades of an increase in rainfall over much of the country. As a simple extrapolation, we could say that if the rainfall continues to vary as it does now we will have other events in the future when the rainfall is as low as it is now, but there is a possibility that the temperature may be higher if these sorts of trends continue. This is something that we need to be aware of: the

potential that if there is a trend in temperature then there is a tendency for droughts to get worse. The fact that there has been a trend in temperature over the last few decades is something we have observed. There is lots of variability there but there has been a trend. So, as I said, by extrapolation we can see that that may continue for the next decade or so at least.

To attribute a trend to a particular cause, such as greenhouse climate change, is something that we do not know how to do. The Intergovernmental Panel on Climate Change, which has been doing assessments of the science for the last 15 years, at its second assessment in the mid-nineties said that the balance of evidence suggests that a change in global climate can be linked to human induced effects. That result was confirmed at the last assessment report, in 2001. So at the global scale there has been an attribution of variations in climate to anthropogenic or human induced effects. At the regional scale, I am not aware of anyone demonstrating an attribution of a cause of a local trend. So to say, as the first part of the argument, that, yes, there has been a trend in temperature and it would seem to be affecting the severity of this current drought is one thing; but then to say that that trend is due to human induced climate change is something we do not know how to do at present.

Dr Zillman—I agree; I do not think we can attribute the severity of this particular drought to greenhouse influence.

Ms LEY—That is interesting, because there are people and organisations who would do that.

Dr Zillman—Yes. It is a matter for vigorous scientific debate at the moment.

Dr Manton—It is a research activity that many groups are putting effort into, including us.

Dr Zillman—One can make the point, perhaps a little extremely, by saying that if you look at Australia for the last century there has been a net warming of between half a degree and a degree; if you look at the Murray-Darling Basin for the last century there has been net cooling of about half a degree.

Ms LEY—What area do you include in the Murray-Darling Basin?

Dr Zillman—Central New South Wales and whatever.

Ms LEY—There has been a net cooling?

Dr Zillman—Yes.

Ms LEY—That is very regional, isn't it? The climate systems are varied.

Dr Zillman—It is very regional, and that is exactly my point. I do not attribute that to greenhouse warming and I do not think you can attribute the regional characteristics to that human influence at this stage.

Ms LEY—So all you can really say is that meteorologists have observed that temperature on a global scale is increasing—was it by half a degree?

Dr Zillman—Point six of a degree over the past century.

Ms LEY—And that is all you can really say?

Dr Zillman—You can say that we have a pretty high level of confidence that that global average trend is due to human induced greenhouse gases. But because the spatial variability is so huge—parts of south-west Western Australia have got very much drier, parts of the country have got very much wetter; and that sort of natural variability has always been in the climate—you cannot attribute any of those particular things to greenhouse at this stage, in our view.

Mr SCHULTZ—Have the COAG water reforms impacted on the bureau and what do you regard as the key outstanding water reform issues?

Dr Zillman—The second part of your question is really beyond our area of competence. On the first part, the main impact of the COAG water reforms is the one I referred to earlier—its impact on our access to data that used to be available free, on the basis of everybody cooperating on a quid pro quo basis in giving each other data. The COAG reforms have forced the water authorities into a much more business mode of operations, and the whole competitive environment has had that unintended negative spin-off for us.

Mr SCHULTZ—How will that reaction affect the bureau?

Dr Zillman—In some areas we are seeking to get by with less and less continuous and homogeneous data for some of our purposes than we previously were able to count on. There are some opposing influences, of course, as you would expect: the effort that went into the National Land and Water Resources Audit, the recognition that it is an issue and the state of the environment report. The recognition that data continuity, quality and so on are an issue is triggering state and local governments to think about the issues. We have to find some solutions.

Mr SCHULTZ—Basically you are saying that it is triggering an in-house exercise that is going to stop the free flow of information that could assist the bureau to have some more positive outcomes regarding some decisions or suggestions that need to be made to assist the whole issue.

Dr Zillman—Very fortunately, in the national interest, recent government decisions on charging for information from Commonwealth agencies have reaffirmed the worldwide meteorological concept that all the data we collect should be freely available for everybody to use for the cost of access—that is, no charge for the cost of data collection. As for the other way around, for water agencies, that is a problem for us. I am now speaking slightly outside my area of competence but, in the general area of Commonwealth-state relations in spatial data, Commonwealth policy is now that data should be freely available but some state agencies have not yet signed on to that approach.

CHAIR—When we visited the bureau you had a great computer package that had climate information on it. How many people visit the site? Is it well used? You had two data systems. You had to pay for one system to be upgraded, and it was generally so that farmers had an idea of forecasts. Are the packages well used by farmers? Do you know how many farmers have computers? How do you know whether that information is being used?

Mr ADAMS—How many people hit your web site?

Dr Zillman—Five million a day. That is the bureau's general meteorological web site.

CHAIR—The other system you had was called Rainman. I was quite impressed with that, and I think the committee was too, but we were concerned about how you let farmers know what was available and how many farmers had computers to use a system like that.

Dr Zillman—I do not have the answers off the top of my head.

Mr Stewart—I do not have the specific number of how many are used, but it is a product that was developed by the bureau in association with the Queensland department of natural resources or primary industries.

Dr Zillman—Both of them.

Mr Stewart—They are the main group that market and sell it around Australia. I think it is of the order of hundreds, not thousands.

Mr ADAMS—I think it is about a thousand at this stage.

Mr Stewart—But you do not know the flow-on use of it within a region or among groups.

CHAIR—Do you have figures showing how many farmers have computers?

Mr Stewart—No.

CHAIR—I did not know whether you would have that information; I just thought that I would ask.

Mr Stewart—The ABS might have that sort of information.

Dr Zillman—In terms of general meteorological, weather and climate information, by a significant margin the bureau's web site is the most accessed Commonwealth or state government web site in Australia.

Mr FORREST—Of those 5 million hits a day, are you able to establish the complexity of those inquiries? Sometimes it will be people just wanting to know what the temperature is going to be and not after more detailed information.

Dr Zillman—Quite frankly it could be someone who leaves the weather radar on, and the weather radar image updates every 10 minutes so, in all honesty, that counts as another hit. But we are able to break that down to quite a lot of detail in terms of which products they are interested in.

Mr FORREST—That would be useful feedback. I am one of them every day. I look at the radar.

Dr Zillman—Do you find it useful?

Mr FORREST—I check out Mildura and Mt Gambier. I am interested in the criticism of the adequacy of the bureau rain gauges that the bureau has recently been under in terms of communities trying to demonstrate their eligibility for government drought support purposes. With the nature of rainfall changing to thunderstorms, one thunderstorm record throws out a whole region. Is the bureau satisfied with its network of rain gauges from that perspective?

Dr Zillman—The Australian rain gauge network in my view is only now marginally equal to the task that it is being expected to carry out, in other words to inform very important decisions that impact on individual farmers in individual areas. Our rainfall network is essentially made up of volunteers, people who offer to do it for no pay. Our network used to be about 12,000 nationally, but people are less and less willing to volunteer. I think our total network now is about 7,000. In some areas it is dense enough and they are close enough to use internal checks to see if they are reliable. The short answer your question is no, I do not think so. I think the networks are now at the limit of their capability for some purposes. For general synoptic patterns of weather, I think they are fine. But for guiding important decisions they are being pushed now right to their limit.

Mr FORREST—What do you need to be satisfied with the network? What is your request?

Mr ADAMS—More budget?

Dr Zillman—Yes, only in the sense that the task of recruiting volunteers is very person intensive. You have to get out and see who is willing to do it, day in and day out. It is essentially a staff thing. We just do not have the staff to go out trying to find and recruit volunteers then train them.

Mr SCHULTZ—There used to be a network set up within government organisations like Australia Post. Is that still operating? Is it because of the way in which those government agencies have been corporatised that those services have diminished?

Dr Zillman—Yes. It is not quite relevant to rural issues but lighthouses, for example, were key observing points for us. They have all been demanned. Yes, in Australia Post, every postmaster and postmistress used to be a rainfall observer. That has essentially gone.

Mr FORREST—Have any approaches been made to, say, the VFF in Victoria? I am asking this question because one rain gauge at Noradjuha threw out the entire Wimmera in its qualifying for drought support.

Mr ADAMS—That is the criterion used for making assessment for drought support.

Mr FORREST—I understand that. That is not why the network is there but, I am sorry, it has become relied on.

Dr Zillman—That is right. I cannot answer your specific question of whether we have gone to the farmers federation to enlist their help but what we have in Victoria in our regional office two or maybe three of our so-called observer inspectors who spend their lives trying to maintain the quality of all those field networks. They say, 'Look, that observer there has died, resigned or dropped out. We have to get someone else in that area.' They contact the local council to ask who they know in that area that might be willing to be a rainfall observer. It is pretty much an

on the ground approach to try and keep the network together. I am sure we have used different intermediary groups, but I am not sure about the Farmers Federation specifically.

Mr FORREST—What methods to you have in place to be confident of the veracity? There could be a mistake if, say, the gauge had not been emptied for two days or something like that.

Dr Zillman—For individual errors that could be a simple mistake or a very localised thunderstorm over the place, we really cannot find the error. There are some very person-intensive ways of trying to do so. For example, if you have radar over the area and somebody comes in with 25 millimetres and there is no evidence of a raining cloud over the past 24 hours, you are pretty sure that they have just got it wrong or got the date wrong. But there are other occasions where there could be errors in the record and we do not know.

Mr FORREST—There are not any procedures in place so that that is done automatically? We do not have good radar everywhere.

Dr Zillman—It is done as automatically as we can. Every day the analysis program that tries to draw the isopleth of 10 millimetres or 20 millimetres on the web or whatever checks for consistency with neighbouring stations. If it is too big or too small, it essentially poses the question to a human: does this look reasonable? The human can then look at the weather situation, see if it could have been right and basically has to make a judgment. Yes, there are quality checks, but I could not guarantee that sometimes an error does not get through.

Mr SCHULTZ—Why do we have to be so reliant on volunteers? In today's technological age, surely we can set up an automatic rain reading gauge that is monitored over a 24-hour period, registers what is in it at the 24-hour period, then empties it and sends the information on. Surely, we have that sort of technology available.

Dr Zillman—That sort of technology exists. It is down to a few thousand dollars for a reliable piece of such technology, but of course it has to be reliable; it then has to be serviced. It is largely a budgetary issue. We have a network of automatic weather stations around Australia of about 500 or 600, which are capable of doing that. In the more remote places, where we want fairly comprehensive observations in addition to rainfall, temperature and whatever, where people are no longer willing or able to do it, we go to the automatic weather stations. But the equipment is expensive. Of course, it means yet more persons to go out to maintain it every three months or whatever.

Mr SCHULTZ—I think John mentioned the farmers organisations doing something for you. I am sure local government would be only too happy to assist in that regard as well.

Dr Zillman—We work increasingly with local government. I would have to say that these days when somebody from a shire writes to the minister or the bureau and says, 'We don't appear on television; our rainfall or temperature isn't read out; please can a weather station be put in our place,' our response increasingly these days has to be, 'Look, we simply can't do it as part of our taxpayer funded network, but if you're willing to find some local money to put in a station, we'll advise on standards, the quality of data and whatever, and then we'll put it into the total data bank.'

Mr SCHULTZ—It opens up a whole new scenario, doesn't it—the old cost shifting exercise?

Dr Zillman—Yes.

Mr FORREST—Are you getting a positive response to that? I am sure the Wimmera shires would be interested.

Dr Zillman—It is patchy. Sometimes it is very positive and at other times it is a case of saying, 'Hang on, that's your responsibility, you damn well do it.' So there are both extremes.

Mr ADAMS—The shifting of the station from Queenstown to Strahan because people wanted to promote Strahan caused a lot of angst. It was a decision made by the bureau but it was certainly something that upset an enormous number of locals, because Queenstown had been the traditional place where rainfall had been collected for 120 years, and then somebody in the bureau made a decision to move it to Strahan. One would have to ask why that decision was made.

Mr FORREST—I have a question about why there is no Australian presence at the World Meteorological Organisation conference in Morocco, which is happening this week. It is a program discussing weather modification. There are representatives from all over the world, and the only country that is not represented and has the greatest need is Australia. Why has that happened?

Dr Zillman—None of your people are there, Dr Manton, to the best of my knowledge, and there is nobody from CSIRO there.

Dr Manton—But CSIRO was planning to have someone there. As I discussed with you earlier, we are in dialogue with CSIRO on this. It is an issue where CSIRO have maintained a watching brief since they stopped the formal research. They have a member of the WMO expert committee related to this. They did have a senior scientist who was planning to go to Morocco but, given the international situation, he decided at the last minute that it was not appropriate to go. So, Australia was planning to have a senior scientist there from CSIRO.

Dr Zillman—It is a World Meteorological Organisation sponsored conference. All the papers will be presented. A summary of the conclusions and findings will go out to all member countries. We would expect to learn quite quickly of anything new, helpful or relevant that comes out of those sorts of scientific conferences. There are huge numbers of such conferences that we simply cannot afford to go to.

Mr FORREST—Given the dire situation we are in, I have the view that we ought to leave no stone unturned to finance this. Can you make sure that the response of that conference is made available to the committee? Is that something I could ask you to guarantee?

Dr Zillman—We can certainly get from the WMO the summary or whatever is produced after the conference and get that material to the committee.

CHAIR—That would be appreciated. I apologise for having to wind it up. You are always very interesting to talk to and we will no doubt contact you again before the committee's report is brought down. I thank you all for attending today and for your submission.

[11.59 a.m.]

BLAKE, Mrs Janet Mary (Private capacity)

CHAIR—I welcome you to our committee hearing today. I am looking forward to hearing more about your property and your ideas. Do you have any comment to make on the capacity in which you appear today?

Mrs Blake—I am just appearing on behalf of K. and J. Blake of Dashwood. We are simply ordinary farmers. K.J. Blake was a former shire councillor with the Shire of Leigh. He chaired the Corangamite salinity forum for six years. He was involved in the indicators of catchment health with the CSIRO. He was chair of the framework for waterway management in the Barwon, Moorabool and Leigh catchments. He was also chair of the Leigh catchment Ballarat to Barwon million dollar project. So we have wandered around water and catchments for a fair while. We won the 1993 Landcare award.

When we get this display going, I will be showing you foxes and trees, successes and failures, warts and all. We purchased a soldier settlement property 24 years ago and we farm sustainably. We are right at the coalface and, yes, we are successful, but in comparison with the Murray-Darling Basin, we are play farms. They are little blips on the map, but our farms are real farms because they are based on real sustainability. We do not have irrigation, we do not have a lot of water, we do not have good quality water and we do not have cotton or rice, but we are the food bowl of Australia because we are sustainable.

Mr FORREST—Whereabouts are you?

Mrs Blake—I actually have the *Corangamite regional catchment strategy community draft* here. We are west of Melbourne; we are centrally located between Geelong, Ballarat and Colac when you look at a map. What we are saying is that something needs to happen. Water is the biggest crisis in Australia at the moment, and we have been wandering around these issues for far too long. Everybody brings out a strategy, and then another strategy and then another strategy. This Corangamite catchment draft lists the strategies that impact on the Corangamite catchment strategy. How many bureaucrats has it taken to write all of them? That is what is really driving K.J. and me. We are not happy about what goes on.

Do you know what happens to these strategies? They gather dust. Half of them are never implemented. You write one and maybe one or two people get it to work, and that is what we are on about. We have made restoring the balance—which was the Corangamite salinity forum's process—work, but they are doing another strategy and a strategy on top of that to look at salinity in the Corangamite catchment, rather than concentrating on getting one strategy right, making it work and getting it going.

You are the people who make the decisions, and it is about time you sat down and really made some decisions. You need to take the good, hard issues and get them to work. I am really pleased that this is an all-party parliamentary inquiry, because that is what has got to happen. You have to go above elections. You have got to start to look at this issue in a bipartisan manner that covers 20 years. Forget the next election: it has got to cover the next 20 years.

So the real issue is water quality. We have got problems with salinity, nutrients and algae, and the biggest problem is the bureaucrats who are telling us what to do with it. We have got the importance of water and good quality stock water. Governments really need to decide whether they want stock to feed and clothe the community or not. In Victoria, they are talking about taxing us for water that falls on our land. Once you get one tax, you will get another. We are already taxing commercial dams. So, really and truly, where does it end?

In recent years in our region, we have had 4½ years of dry—no run-off at all. All we were offered was groceries, when what we really needed was some low interest loans to develop our infrastructure so that when it did rain we could catch the water that fell on our land. When we attempted to apply for exceptional circumstances to create sustainability, a heap of bureaucrats came down from Canberra, and it was a joke. I presented them with the best farmers for probably 100 kilometres around, and they looked at us as if we were dills. Exceptional circumstances, as it stands—as obviously John Forrest has found out—is a joke. Just one minor blip will throw your calculations out and you are not then eligible. It is hopeless.

What we wanted as farmers on the ground were small infrastructure loans so that we could sludge out our dams—get rid of the sludge so that we could have stock watering points and so that when it rained we could catch the water. We could not get them. What is happening is that the current assistance supports the poor producing farmers rather than assists those who plan for the future, who are productive and who in the long run are sustainable.

In Victoria water management has gone from Southern Rural Water to the CMAs, which is absolutely hopeless due to the inexperience of half the people, who have no vision other than to fence off the streams and waterways. To fence everything out is not necessarily the answer. If you want to have a stock watering point you had better have a jolly big wallet.

The issue is really important on the basalt plains because on the basalt plains you can't get dams down. In one area of our property, where you might have thought you would have put a dam because it was the where natural depression was, we could get two feet under the ground. You have to put a rod down. We would have ended up having to put the dam probably a quarter of a mile up the paddock and having to run drains to it, which now probably we wouldn't be allowed to do either. There are some real issues.

Our creeks and our water frontages are crucial to being able to access water for our stock. A few years ago—before the changes, when we had sensible people in the department and they had not all moved off to become consultants and do something or other else—we negotiated to put together the waterway that we thought we might look at. The video is ready, so let's have a look at the wetland.

A video was then shown—

Mrs Blake—We were able to put a stock crossing there. It also developed this wetland. Here we are; we are looking at it. That is now not only a nutrient sink—and if we can get this one going you will see the nutrients—but also provides a sanctuary for water fowl. Every year the brolgas come and they nest there. Mind you, it is a bit hard to get offspring from there because they usually get taken by the foxes. But you would not now be able to do that. You would not be able to put the bit of crossing across with the drainpipes to ensure that the creek was not stopped from flowing. You could not do it.

Mr FORREST—Why not?

Mrs Blake—It is against the law. Goodness gracious me, you cannot do that. You cannot create a wetland where you want to have a wetland. Don't be ridiculous. The creek's got to be allowed to silt up. It's got to be allowed to stop flowing.

There are the brolga eggs. That used to never be quite like that, but it retains its water now well into January. It has become a nutrient sink so that the water that flows through the pipes and on to the rest of the Mia Mia Creek is a darn sight cleaner and purer than it was upstream. The other thing we did when this sensible bureaucrat was there was to get a CATO in and desilt a stock watering point further upstream. We had to batter it with rocks but it enabled us to have a watering point for our stock. I can tell you now you can't do that legally anymore either. It causes some real problems. That is the end of that one. Moving on to this one, this is Dashwood from 1982. It is just rolling through so you can just watch that as I bash your ears a bit.

It has gone from Southern Rural Water to CMAs. We have a lot of people who simply do not understand the issues of getting water in the basalt. They just don't understand it. Further upstream we had a dam put on a spring, which actually jiggered up the whole creek. In recent years we have not been able to get the good water flow we should have had because this spring has been stopped. Springs are funny things. They go up and down and under. The hydrology is really interesting. When we took it to the CMA and said, 'This is really bad,' they said, 'Oh, no, he is allowed to do that.' The younger generation do not understand some of the issues that relate to it. At that point in the creek it was designated as a drain. Once you climbed over the fence, it became a creek. Therefore they would have been able to stop him. Those are the stupid things that are happening with water management in Victoria at the minute.

A lot of the issues come back to, in our view, the fact that the bureaucrats are making the decisions—not you people, the politicians. Half of them are based in Melbourne, though sometimes they try and get them out to Bendigo, but that is just as bad. The R&D is an absolute disgrace at both the federal and state levels. The red gum clones are a clear example of something that should really have been a success story, but which has failed. In 1982, we planted the first red gum clones, which came out via Vic Hartley from Canberra. This was to be an issue looking at salinity control. We have had one clone survive out of, I think, 120. Clone 85 is a success story. It is growing—it is there. Despite the fact that over 1,500 of the rest died, no-one has ever done the follow-up research to find out why clone 85 is surviving and if it would be of use in the salinity mitigation control works. No-one has come back to follow it up.

Mr FORREST—What is clone 85?

Mrs Blake—It is just a red gum clone. They came out of Willandra and Wilka and all sorts of places. With regard to bore monitoring, we got a grant through the old Leigh Landcare group to put in a number of bores to monitor salinity, but there was no follow-up. No one has ever done it. The funding was used. When you get the bureaucrats in, the problem is that they land on your desk as undergraduates, and then they move up the pipeline. The research is never followed up. We have all the base data from 24 years sitting on our bookshelf gathering dust. The problem is, 20 years on, no-one has come back to see what has happened—and a jolly lot has happened. We have actually managed to implement restoring the balance. Yet, when you start to tell scientists this, they say, 'That's anecdotal. It doesn't count. It's not recordable.'

The scientists are their own worst enemies, because they do not come back and do the research. We have to remember that people need jobs. The thing with NAP—there is a Landcare group there. We have worked with one of these groups. Restoring the balance has worked but, again, we have people reinventing the wheel and drawing up more and more strategies. I am giving you a bit of a hammering on this, but this is a real issue to us.

The other thing is that in our Corangamite region, when they did the framework for waterway management, we negotiated a catchment levy that, had it been implemented at $15, would have been very effective in raising funding to do on-ground works for salinity and for purer water. But it got politicised, became a $33 levy and got missed. In our area, we are saying that some of the current water use issues in the irrigation areas have to be addressed. Can we continue growing cotton and rice? Can we really continue to do that, when we have these huge issues? Normally that area would be a desert. Should we be growing cotton and rice? Down in the south, should we be looking at issues such as pumping into the storage supplies on the high-flow regimes? Should we be saying, 'Let's actually harvest this water; let's not have it run past the blooming dam in a flood'? In fact, should some of our dams be enlarged, so that we would have better urban water supplies?

One of the interesting things when you came to Barunah Park was that the group turned, not from quantity of supply, but from quality of supply. It really became evident that we needed to be working very hard toward an outcome that provides a quality of supply, so that it can be then utilised in a prudent, cost-effective and sustainable manner.

Joe Argento was there and he was telling us how much water he needed for his cattle each day. That is really valuable stuff. I spoke to a farmer just recently who is selling off his whole herd because he does not have what he deems to be sufficient water to carry him through to the end of the drought. I said, 'For goodness sake, please ring Joe Argento, because he has done the work. He knows what you need. He has done the figures.' This is where you guys have to continue to do what you have done, which is to come out and talk to those real on-ground people who have runs on the board and to stop writing strategies. The one thing that is going to make things work—what works on the ground—is a taxation system that assists us rather than penalises us. When we have a good year—goodness gracious!—the tax man rubs his hands together, instead of us being able to say, 'Golly gosh, I am going to put this money back into infrastructure on the land.'

The other thing when looking at local government is that we have to start looking at saying that you cannot have a greenfield site development without dual piping. You cannot have rural residential subdivisions without having small town sewerage schemes. We have to start looking at some things. We have to look at saying to some of our people who are developing big sheds on big allotments, 'You have to have tanks. You have to harvest some of that water that comes down so you are not tapping into the town water supply.' I have probably spoken enough and might get some questions out of you guys.

Mr FORREST—What is the significance of all these slides?

Mrs Blake—They are for showing you guys that we are productive. When we went to Dashwood there was a plantation of trees around the house. We have planted some 50,000 trees at Dashwood. We have harvested the water. We could not grow crops on some of those paddocks because they were salt affected. With the proper planting of trees and deep-rooted

perennial pastures we have made our farm very productive. We started with 1,200 acres. We now run 3,000 acres, and have done so through very difficult times. We have been through the 1983 drought. We have been through what has been a water drought when we had no water.

This slide is of red gum clones, grown in what was a swamp. We utilised what was a swamp—we have grown red gums in it—and we have managed to turn that into productive ground, because that was going to be a salt swamp. In 200 years time, we might get sawlogs out of it—it is a jolly long time—but they were planted in about 1996. When you get to the end of these slides, you will see the work that we have done along the Mia Mia Creek where in the first year, or the first five or six years, it took us five different plantings of kangaroo paperbarks to get one kangaroo paperbark to grow in the salt. This is right along the creek but it is in a laneway. Had we not taken action when we started in 1982 to do this work a lot of this land would now be severely degraded. We are a catchment within a catchment, and we were starting to get knocked about.

CHAIR—Thank you very much. It was a very frank and thought provoking presentation.

Mr ADAMS—I cannot comment on the bureaucrats writing things up constantly, but the basalt plain out there is pretty hard country to farm. You believe that people can farm it if they do things differently. Some of the country that we saw was pretty tough. Will people want to keep farming there in the long term? Do you think that the aim is to stay there? I know that that it is your aim, but do you think people will?

Mrs Blake—Our biggest problem is return for dollar, and that is not a water issue. We are looking at water; that is a sustainable issue that is really based on level playing fields, commodity prices and crops. But we are 100 kilometres from Melbourne. We are close to markets, we are close to the ports. We do not have the cartage bills that a lot of people have.

Mr ADAMS—What are you growing? Is it sheep and wool?

Mrs Blake—Sheep and wool, and we have grown oats. We have had the only oats in—

Mr ADAMS—There is no relationship to the market when you are talking about those things. You can cart fat lambs from 500 miles away.

Mrs Blake—But we are sustainable. Also, as you saw, next to the Leigh River there is really good potential for growing vegetables. Coming out into the Golden Plains Shire, there is increasing growth in intensive agriculture—pigs and chooks. That is going to be the go.

Mr ADAMS—That will take a substantial amount of water. This farming has to be sustainable.

Mrs Blake—That is why we need to have quality water. There is water underground, but most of it is mineral affected.

Mr ADAMS—And there is a lot of salt, as I understand it. We saw those plains and lakes. Some of those lakes are salt lakes now, which was not the case 50 years ago. So there is a changing pattern taking place in your area. You have studied it much more than I have but I got

the impression that there were some areas where it would be tough to keep farming on a sustainable basis in the long term.

Mrs Blake—I disagree entirely, because we are not dependent on irrigation. A lot of Australia is dependent on irrigation, and we are not. If we learn to harvest our water effectively and efficiently, which we can do, we can weather the storms. But we have to be able to put our dams down. We have to be able to have our stock watering points. We have to be able to utilise what is there, and we need some research to get some purer water.

Mr ADAMS—You talked about low interest loans. You are basically talking about subsidising your region. There are areas in my region which I am sure we could subsidise as well. Isn't it about standing on your own two feet? It is either a profitable, economic, sustainable region to farm or it is not. Won't that be the telling point?

Mrs Blake—I think you had better go and tell the rest of Victoria and Australia that, because we are the only ones that are profitable this year. In many cases, when our farmers were asking for some low interest loans to help us build dams and get things going, they would have had a better water supply to take them into the next drought. That is what we have to do. We have to build the infrastructure. But they are doing it this year. You should see the dozers out there this year. We have to spend our dough, anyway, or else it will all go in tax. So the infrastructure is being looked at. You have to remember we had four to five years of absolutely no rain, so we did not have the margins to enable us to clean out our dams. We did not have the margins to enable us to do the infrastructure work to put us in a position to carry on. This was when we should have been doing the infrastructure work, because the dams were empty.

Mr ADAMS—One would argue that that should have been done five years ago when you had a return. You can spread your profits and pay your tax over a period of time. I forget the name of the scheme.

Ms LEY—Farm management deposits.

Mr ADAMS—That is a scheme that is very much appreciated in rural areas.

Mrs Blake—Have you ever started off with nothing?

Mr ADAMS—Yes, I certainly have.

Mrs Blake—We started off with absolutely nothing. We didn't have someone backing us to put the money aside. We have always put every cent back into our farm. Around our area, there are a lot of people in the same position. You have to wait until you are middle aged before you have the farm deposit loans.

The other point is that one bloke was spending $1,000 to $1,500 a week carting water to his prime hereford herd, but that was one of the prime hereford herds in Australia. It is a genetic pool that we should not be losing. However, he could not get even a little bit of help. He put in a deep bore.

Mr ADAMS—He could sell it.

Mrs Blake—What is he going to do if he sells it? He has sold his gene pool. This is about sustainable farming. You do not sell your genetics. This is one of the problems we are going to have throughout Australia following the drought. A hell of a lot of people have had to sell their genetics. To get quality stock and quality produce, you have got to have water.

Mr FORREST—What are you asking for, Jenny? Do you want the government to get the hell out of the road so you can go on and do it?

Mrs Blake—Yes.

Mr FORREST—Or are you asking for hand-outs?

Mrs Blake—We are not asking for hand-outs or groceries. All we could have got out of EC was jolly groceries. That was not what we needed when we needed help to secure our water supplies. We needed a little bit of incentive to help people to get the money to do the infrastructure work. As Joe Argento said, they went to the bank time and time again but they did not want enough money. Do you remember that? They didn't want enough money to get the loan.

Mr FORREST—But if what you are doing is sustainable and profitable, why do you need help from the government? Why don't you go to the banks which is where every other business goes?

Mrs Blake—Because if you only want $10,000 or $20,000 you cannot get it. You have got to want $100,000. You can get $100,000 like falling off a log, but if you only want $10,000 or $20,000 because you are jolly well broke and you are battling in those circumstances, you cannot get it. It does not work that way.

Mr ADAMS—You could get an overdraft or something like that.

Mrs Blake—My farmers are all at the end of their overdrafts at the moment. If you are spending $1,000 a week on water and you have been doing that for three years, even the best farmers—

Mr ADAMS—I am sorry; you have changed the question. You were saying that you could not get money.

Mrs Blake—Yes, that is the thing. Some of the people only wanted small amounts of money. You are not helping the people who are productive farmers. That is what happens and that is what we need to ensure does not happen again. Instead of letting people get to the end of their tether and degrading land, if we had had a bit of help to get fodder earlier, we would not have degraded the land so much. I have heard that from a lot of people. You have to be absolutely broke before you can get what you need to keep going. Looking at this drought, the dairy farmers are getting assistance, but woe betide the fruit industry which has poor crops, or the grain farmers. I do not think it is about groceries; it is about building your infrastructure and keeping it and ensuring that people can keep going.

Mr ADAMS—Whether or not exceptional circumstances is good or bad, the concept is that we have to learn in this country to farm sustainably and that drought is a part of that. It is a bit

like fire. Fire is a part of this country like drought. It will continue to occur. It is not something that is going to go away. The idea is that we can continue to tip money into rural industries for drought relief, but exceptional circumstances was one thing so we will not continue to do that as a country. Basically the decision has been made. But we will do that under exceptional circumstances because there will be times when we need to do that. The old concept is to say that we have to make things sustainable and think about five years in front and where the water, food and fodder is going to be in five years if we have a drought. It is then a matter of putting taxation regimes in place. You are telling me that that has not occurred or that people do not have the skills or the education within your catchment or your area to do that.

Mrs Blake—That is pretty harsh; we did not have the seasons.

Mr ADAMS—I am asking you whether it is true.

Mrs Blake—I am sorry; we did not have the wherewithal to do it. This slide shows the trees we started off with. They are now 20 years on.

Mr ADAMS—They are tremendous.

Mrs Blake—It is much better to help people build infrastructure to make them sustainable, even if the times are tough. We are not asking you to prop us up. What we are saying is: give us the wherewithal and the assistance to make us more sustainable. There was a wool downturn and, at the time, Joan Kirner was either the Minister for Conservation, Forests and Lands, or the Premier of Victoria. You saw the laneway that went through that property. It was built with a low-interest infrastructure loan and lifted the productivity of Dashwood by 10 per cent, I would say. What I am saying to you is: look at the issues. Where can you assist farmers to lift their productivity in the future?

Mr ADAMS—To get up to world's best practice—

Mr FORREST—Did you pay that back?

Mrs Blake—Absolutely.

Mr ADAMS—I agree it is one way to go. To improve water usage we need to have best practice, and assistance will be needed to get farmers up there. They are things this committee will consider—how to drop old practices, old ways of doing things and use less water but get the same or more productivity out of new processes. It is a way of doing that. There has to be a public benefit out of it, because if people are going to put public money into private operations there has to be a public benefit. I think that defining those things, Jenny, is one of the ways to go.

Mrs Blake—That is all very well. People in cities want good water.

Mr ADAMS—Sure; they demand it.

Mrs Blake—They demand good water, but they have not been prepared to pay for it, and that is another issue. You guys have got to start setting proper pricing regimes, and your proper pricing regimes can then go back into assisting farmers to develop best practice.

Mr FORREST—You realise that we are a federal inquiry. A lot of what you have raised is a state related catchment management thing. We have tried to put in place incentives to encourage you. All of that Landcare investment, which seems to be what you are doing, is 100 per cent tax deductible. We have done that.

Mrs Blake—Absolutely; that is what has happened with it. This slide shows this nutrient—

Mr ADAMS—Is that salt?

Mr FORREST—You are trying to tell us that we have not done anything, but parliament has recognised that we have to dangle carrots in front of you and encourage you to do this. You have obviously derived an economic advantage by making that advertisement. Is that right? Can you acknowledge that?

Mrs Blake—I am happy to acknowledge it; I am not having a go at you. What we are saying is: for goodness sake, someone has to start making some hard decisions. You have just put your finger on the problem. You are sitting at the federal level, and you have however many states sitting there arguing with you and fighting for the funding. Really and truly, the hard issue has to be tackled, and perhaps you need—we need—an overriding body that looks at water for the whole of the continent so that we get out of this states rights argument—

Ms LEY—Yes, definitely. You cannot make it effective.

Mrs Blake—and get away from worrying about which state the creek is in.

Mr FORREST—We need a referendum to change the Constitution.

Mrs Blake—No, I am not sure you do. I think you can put in a body and get around that.

Ms LEY—Constitutionally, the states have control over their resources. The word 'irrigation', for example, and other water control things are written into the constitution of the states. We do not have control over them.

Mr ADAMS—No, but the states could quite easily come together as a body, along with the Commonwealth—and I think this is what Jenny was saying. You could have an overriding body at either a ministerial level or an official level with very good expertise that could take some control over this. Moving on from the Competition Council, which has been driving some of these reforms, I would say that maybe we need another body that has a different agenda.

Ms LEY—The states would have to agree to it and that is the problem.

Mr FORREST—You would not be in the Murray-Darling Basin, would you?

Mrs Blake—No.

Mr FORREST—You are on the south—

Mrs Blake—Going back to the Corangamite salinity forum, there were three areas in Victoria that did not get funding for salinity. The three chairmen of those salinity forums fought like mad and eventually got good funding for salinity mitigation, which has been good. We were deemed to be out of the salinity areas, but it is popping up. We were aware of it in Corangamite. We have the inhibitor grasses and you do not necessarily see the bed of salt that you see once you get up into the northern regions. Down our way you do not see salt; you only see it when the crop is not growing up the slope. That is when you realise, 'Hang on, we have a problem.'

There are issues as a result of what went on in the early days. In this slide where that crop was, 20 years ago you could not have grown a crop there because it was too salty. But by doing the work that we have done, we have reduced it back. That is tall wheat grass that you can see and it has been reduced back. The actual header lines used to be way out from there. That used to be just a mat of barley grass, which is an inhibitor grass for that area; whereas, now we have tall wheat grass growing and you can see where we can put in phalaris.

Mr ADAMS—Would they have farmed that land for wheat 100 years ago?

Mrs Blake—I doubt it because it was rock that you could not walk over before we went there.

Mr ADAMS—Right. Why has it gone to salt? Has it just come up?

Mrs Blake—It was a primary salting creek. There is primary and secondary salting, and the boffins tell us that that was primary salting. It would always have been there but the fact was that it was starting to get worse. It was starting to move up the slope and that is why we had to really get in and do a bit of work.

Mr ADAMS—So it is not always water that brings it up; it is not because of irrigation.

Mrs Blake—No.

Mr ADAMS—There is actually a lot of salt in that local region.

Mrs Blake—This catchment is a single little catchment. If you look at the catchment up towards Ballarat, the hills around Ballarat were cleared of trees. It has probably taken quite a long time for the hydrology to get down here. The Warrambeen Creek is the neighbouring creek—we are looking at the Mia Mia—and it is now nearly as salty as this one is. It is saltier than the sea—I cannot tell you the ECs. When the kids were little they could actually drink out of the Warrambeen Creek. We have heard people who are 100 saying, 'You used to be able to drink out of that creek,' whereas now they cannot. That has obviously been an effect from the clearing further up. Through farm forestry we are working pretty hard. I sit on the west RFA steering committee to look at trying to push trees into those hilltops that were cleared.

CHAIR—Unfortunately, we have to finish now because we have to catch our flights. Thank you for your very frank and honest input into our inquiry, and especially for the visit by the members to your farm. I am sorry I missed it. We will make sure that a copy of the report is in your hands when it is finalised. Thank you for your time today.

Mrs Blake—I do hope that something comes out of this because we have been working on this now for more than 12 months. We just cannot afford to have a 'do nothing' strategy come out of this—something has to happen.

CHAIR—Definitely. Thank you very much for that.

Resolved (on motion by **Mr Adams**):

That this committee authorises publication, including publication on the parliamentary database, of the proof transcript of the evidence given before it at public hearing this day.

Committee adjourned at 12.38 p.m.