REPORT OF PROCEEDINGS BEFORE

STANDING COMMITTEE ON NATURAL RESOURCE MANAGEMENT

INQUIRY INTO NATURAL RESOURCE MANAGEMENT ISSUES

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At Sydney on Friday 31 October 2003

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The Committee met at 10.00 a.m.

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PRESENT

The Hon. P. D. Allan (Chair)

Mr G. J. Aplin
Mr G. F. Martin
Mr D. L. Page

ROSS MALCOLM CARTER, Acting Assistant Director General, Air and Water, Department of Environment and Conservation, 59 George Street, Sydney, and

JAMES RONALD WHITE, Chief Analyst, Economics and Strategy Policy, Department of Environment and Conservation, 59-61 Goulburn Street, Sydney, affirmed and examined:

ACTING-CHAIR (Mr Gerard Martin): Thank you, Mr Carter and Mr White, for appearing today before the Standing Committee on Natural Resource Management. The Committee is pleased to hear your evidence. I am advised that you have been issued with a copy of the Committee's terms of reference and also a copy of the Legislative Assembly's standing orders 332, 333 and 334, which relate to the examination of witnesses. Is that correct?

Mr CARTER: Yes.

Mr WHITE: Yes.

ACTING-CHAIR: The Committee has received a submission from your organisation. Is it your desire that that submission be part of your formal evidence?

Mr CARTER: Yes.

ACTING-CHAIR: Would you like to make an opening address or talk to the submission before Committee members ask questions?

Mr CARTER: Yes, thank you. The former Environment Protection Authority [EPA] made a submission, via the Minister, to the inquiry. The general thrust of that submission was to highlight that the former EPA had expertise particularly in economic instruments that might be of interest to management of salinity in the State. The indicative questions that the Committee has put back to us go to teasing out some of the detail of that submission. It is our intention to focus on the indicative questions that the Committee directed to us. Broadly, it seems the questions go to two areas. One relates to institutional arrangements. In answering the first indicative question, I can explore that from the perspective of the Department of Environment and Conservation. The second issue particularly related to the CSIRO and ABARE proposals for economic instruments. The questions lead us through some quite good opportunities to explore the veracity of some things that sit behind the economic instruments and how they might apply to water sharing and salinity issues.

Broadly, on the CSIRO and ABARE proposals, from our analysis of the proposals that they have put forward, they agree on main points regarding water trading and salinity: that water trading could lead to altered salinity impacts, depending on where the traded water is used; that water access and physical water use controls should be separated; and that salinity controls should be related to and implemented through physical water use controls, and not through measures applied to trade in water entitlements or allocations. I think the area disparate between the two views really is related more to the best instrument to control salinity impacts that arise from water use, rather than the fundamental principles that sit behind that. So, if the chair is happy, I will move on to the indicative questions that were provided.

ACTING-CHAIR: Certainly.

Mr CARTER: The first question was to explain the division of responsibility for salinity management between the Department of Infrastructure Planning and Natural Resources and the Environment Protection Authority. Recently, the Environment Protection Authority has been incorporated into a broader department, which is the Department of Environment and Conservation. Our Minister has put in place a department that now brings together a range of scientific and environment agencies within his portfolio to better focus and integrate both the science and the policy on those issues, as well as some of the regulatory mechanisms sitting within the portfolio.

In terms of the division of responsibilities, the Department of Infrastructure Planning and Natural Resources has primary responsibility for ensuring that natural resources are used sustainably,

and used in a way that ensures those resources will be available for future use. In relation to salinity, they manage people's access to water via water licences under the Water Act 1912 and the Water Management Act 2000; they monitor the condition of natural resources, including surface waters, groundwater and soils; manage the flows of regulated rivers; implement the New South Wales salinity strategy; and implement extensive salinity extension programs, as well as carrying out salinity mapping for the State.

The Department of Environment and Conservation has primary responsibility for managing the environmental impacts of resource use, that is, the impacts beyond those on the resources themselves. The Department of Environment and Conservation's General objective—which is under the Protection of the Environment and Administration Act—is to protect, restore and enhance the quality of the environment in New South Wales having regard to the need to maintain ecologically sustainable development. In relation to that, the Department of Environment and Conservation's role is to ensure that the best practical measures are taken for environment protection in accordance with the legislation; inquire into and report on the efficacy of those measures, and monitor and report on the State of the New South Wales environment; and, specifically, in a regulatory role, to regulate the environmental impacts of discharges of pollutants, including salt, to water. By that I mean point source discharges. Also, we have a role in environment education in the State.

In terms of institution arrangements, the Director-General of the Department of Environment and Conservation chairs the Water Chief Executives Group, which has representatives from the Department of Infrastructure Planning and Natural Resources, Fisheries, Agriculture, Cabinet Office and Treasury on it. It is responsible for overseeing water reforms in New South Wales. Underneath that committee is what is called an Implementation Management Committee, which involves those agencies, at a more officer level, sorting through and providing input from the various agencies into that process. Additionally, our director-general is a Murray-Darling Basin Commission deputy commissioner. That broadly describes institutional arrangements. There are a couple of indicative questions later on that seek to tease that out further.

The second question asks whether the EPA currently has any role in water trading arrangements. The Department of Environment and Conservation has no direct statutory or administrative role but certainly has a role in establishing water management frameworks via some of those interagency committee processes as a water reform agency, and also by supporting the Minister in his role as a Murray-Darling Basin ministerial councillor and in his concurrence role in water sharing plans. Generally, the Department of Environment and Conservation finds that those arrangements to work well. We provide support to the Department of the Infrastructure, Planning and Natural Resources [DIPNR] by providing an integrated perspective on environmental outcomes from resource management decisions. I think the legislative and accountability requirements are quite clear for the Department of Infrastructure, Planning and Natural Resources in administering the resource management regime. From our perspective, having input on environmental objectives is a sound institutional approach to making sure that those issues are on the agenda.

ACTING CHAIR: On that point, the new structural arrangements of the department and the Ministry, have they clarified things are or made things easier?

Mr CARTER: Yes, they certainly have. What occurred previously was essentially interagency co-operation within the Environment portfolio. Having all of the agencies now within one department has enabled a lot more streamlining and integration of that advice so that it is more coherent and covers the full breadth of environment issues. I think the previous arrangements were in some ways a little artificial. For example, the Environment Protection Authority [EPA] had quite a focus on water quality and national parks had a focus on biodiversity, and there was not really an examination of the overlap between those areas. Indicative question No. 3 relates to the Australian Bureau of Agricultural and Resource Economics [ABARE] and Young and McColl in the papers that were provided to us. They warn of potentially negative impacts of water trading on salinity in some areas.

Part A of the question asks whether the EPA has a commitment to pursue stronger institutional arrangements to prevent water trading having a negative impact on salinity. The short answer to that is that the Department of Environment and Conservation has a commitment to preventing negative environmental impacts from salinity. We pursue that co-operatively with the

Department of Infrastructure, Planning and Natural Resources through the frameworks I described earlier. Roles and responsibilities are clear within that framework. The Department of Environment and Conservation does not see the need to change to ensure that negative impacts from water trading on salinity are taken into account. Part B of that question asks whether the EPA intends to pursue these issues as part of the national water initiative. Once again, the answer to that is yes.

The Department of Infrastructure, Planning and Natural Resources is the lead agency in representing New South Wales, with the Cabinet Office, in the national water initiative, but the Department of Environment and Conservation is in a co-operative and consultative arrangement with them on providing advice at each step through that process. That goes to question C, which asks whether we are represented on the working parties to the national water initiative. We are not directly represented, but we are working co-operatively with DIPNR in providing input into those processes.

Question 4 states:

> In his submission, the Minister for the Environment says that the EPA's experience with market-based instruments has the potential be applied more widely in tackling other natural resource challenges, including dry land salinity.

Part A of the question asks whether the EPA supports the use of market-based models to address the impacts of salinity on water trading. The Department of Environment and Conservation believes that market-based models are worth investigating as a means of addressing salinity impacts. We have had success in reducing environmental impacts of salt discharge under the Hunter River Salinity Trading Scheme. Once again, though, that was a point source trading scheme. I make the point though that our experience with market-based instruments has targeted point source salt discharges rather than diffuse salt discharges as more likely to occur through water trading. Our view is that market-based instruments for salinity control deserve investigation. However, we have found that market-based instruments require strong regulatory frameworks for monitoring and enforcement, to be effective.

Some of the constraints in using the market-based instruments for more diffuse salinity include increasing error bands around estimates of salinity impacts when measured at local or regional levels rather than at catchment or State levels. I guess an example of that would be the salinity and drainage scheme which operated from the Murray-Darling Basin Commission through the nineties. That was set at very, very broad State levels with salinity targets measured at Morgan and trading arrangements set at that sort of State level. If we contemplate bringing that down to a regional level, that increases the risks of error in estimating the salt impacts. That goes to the need for significant modelling requirements to be able to identify local or regional salinity responses to water use, and significant information monitoring requirements—for example, the number of ground water and surface water monitoring stations and telemetry required, and, additionally, with possible within-zone salinity problems.

Water trading is based on regions rather than on site-specific characteristics. I might illustrate that a little with some of the salinity hazarded mapping that the Department of Infrastructure, Planning and Natural Resources undertook. The department identified an area—and the Bogan River catchment is a good example of this—where, on the basis of the soils, topography and vegetation characteristics among other things, that catchment was seen to have a high potential hazard for generating salinity impacts. But the current monitoring is indicating that it is not being expressed at this point in time. There would be opportunities to explore whether market-based instruments could influence the water trading into such an area that had the potential to generate salinity problems, but I guess overlapped with that is that it is at a catchment or zone scale level. Within that it would be possible to have water use in a way that was not generating salinity impacts, if appropriate soils and management practices were put in place. There are a number of layers of complexity in exploring market-based instruments which will need to be worked through as part of considering their veracity for managing those impacts.

Part B of the question asks whether the EPA should play a role in institutional arrangements to prevent the impact of water trading on salinity. As I indicated earlier, there are certainly clear responsibilities outlined in legislation and policy on roles and responsibilities of the different agencies. We certainly think that there are opportunities which the Department of Infrastructure, Planning and Natural Resources is aware of and that the department is actively seeking from us which is making our experience available in market-based instruments into that process. Indeed, jointly with that department, we have been involved in some of the national action plan for salinity and water quality

and its market based instruments program in coming forward with some pilots—once again, point source pilots. Question 5 states:

> ABARE suggests a number of market-based models that seem to favour establishing water regions for trade and applying the pricing mechanisms, such as exchange rates or a set of taxes and subsidies, to encourage water trade out of high salinity impacts areas into low ones.

The question asks what would be the advantages and disadvantages of this model from our perspective. Once again I restate that we think that market-based instruments are worthy of investigation, but there are some threshold issues that need to be examined. For example, we need to know whether we have the technical capacity to run this type of market-based instrument. That goes to the scale threshold of the Department of Infrastructure, Planning and Natural Resources's capacity to model salinity outcomes with water use and additionally how much cost obtaining the information and running such a system puts into setting up that process.

Is the cost benefit of that worthwhile? I guess in terms of which market-based instrument and how it might be applied, one needs to answer the information questions and the modelling questions first and then examine which type of market-based instrument might best fit with the information that is there. I think that, theoretically, any type of market-based instrument—both types that are proposed here—would work effectively, if the perfect market assumptions were met. Clearly, until we have actually defined the problems with data monitoring and measurement within that market, it is difficult to say which particular model might be the most appropriate.

It is noted that both the Australian Bureau of Agricultural and Resource Economics [ABARE] and Young and McColl agree that water trading can lead to altered salinity impacts depending on where the traded water is used and the separation of water access and physical water use controls. The salinity controls should be related to and implemented through physical water use controls, not through measures applied to the trade itself. The regional or zone-based economic instruments to manage salinity are worth investigating, and we support that. The differences between the two approaches are in the relative merits of the instrument to be used. That warrants a lot of further investigation, as I have already stated.

Mr GERARD MARTIN: The Committee has received evidence in relation to the Young and McColl assertions, that they are based on assumptions rather than hard scientific facts. Is that a problem? Has no-one really been able to establish some credible charter that everyone is happy with? There has been some criticism also of the ABARE figures. How does the department view that, when it is using those figures?

Mr CARTER: Our approach to examining options like that is that pilot approaches are the best way to go; targeting an area where there is sufficient data to have reasonable go at monitoring and establishing. I think that the ABARE and Young and McColl data sat at a very broad level and as soon as you examine it across broad areas, there will be patchiness in data. That leads to fuzziness and inaccuracy at a broad scale. I guess that is one of the major concerns in setting up a market-based instrument; the more zonal or local you seek to make it the higher are the information and technical requirements. But if you make it very broad you can have undesirable impacts on local areas.

The example I gave of the Bogan catchment where you have you have this potential issue, and if you set up a market-based instrument that actually favoured water trading not into that area, you could disadvantage an individual proposal in that area. If it met certain soil and management practice it could set up and function without causing a salinity impact. It comes down to the level of information that is available and how well that can be modelled on salinity impacts. The ABARE and Young and McColl were doing it at a high level, and that patchiness of information has come out.

Mr WHITE: Our view is that they have both taken similar approaches. The ABARE approach was based on modelling that it had commissioned with the CSIRO. They have taken approaches of looking at particular types of economic instruments, whereas we are probably stepping back a level and asking whether we have the capability to run an economic instrument at the type of level where we will get those economic efficiency gains. As Ross said, it is possible that when things are set at a broad level like that, someone who is working on clay soils with good irrigation scheduling and dripper systems and so forth, who is not going to have salinity impacts but happens to be located

in a zone that at a more broad level, is considered to be at risk of generating high salinity impacts on the nearby watercourse.

We are probably stepping back from considering the relative merits of the two types of instruments that have been proposed and looking at whether the information is there to run one in the first place. Having said that, the instruments that ABARE and Young and McColl have proposed have theoretically equivalent economic efficiency outcomes if they are in a perfect market with zero transactions costs and everyone has perfect information, and so forth. In reality those perfect market do not exist. There is uncertainty over things such as supply and demand schedules. Once we get into that area of uncertainty the two instruments will have potentially differing efficiency outcomes. If it turns out that a market-based instrument was viable you would need to get into looking at the actual market that that instrument might be applied to and work out which of the two instruments was better suited to salinity trading or salinity pricing.

Mr CARTER: On the zonal issue, you could manage the individual application that might not have a salinity impact by having criteria that would discount that proposal, if it fell within a zone. Once again, that adds a whole range of complexity and assessment to the model that you might set up. There is quite a lot of detail in sorting through those. It is probably worth just reflecting on some of the difficulties we have had in establishing market-based instruments. The Hunter Salinity Trading Scheme is a good example of quite a successful trading scheme, but it took us some eight years to get it from a pilot through to a regulation and fully-functioning system.

The scheme is complex and involves point source discharges that are a bit easier to monitor and manage than are diffuse source discharges. It deals with single, individual catchments and has a known number of participants. It is complex but a lot more limited than dry-land diffuse source salinity issues. It was quite a long process for us to develop. That answers part of question six. Question seven7 asks about alternative institutional arrangements favoured by the Environment Protection Authority [EPA]. We find that the current arrangements are working well and recent changes to the Department of Environment and Conservation allow us to provide a more integrated perspective on environmental issues into that whole-of-government process.

CHAIR: Under the proposed catchment management authorities, how do you anticipate the EPA participating in a decentralised series of structures? Earlier you said that the Department of Infrastructure, Planning and Natural Resources [DIPNA] is the lead agency on the national water initiative. At a State level in the past we have had various water task forces across inter-agency groups. What do we have now to make sure that the EPA continues to be concerned about these issues, and puts forward its point of view?

Mr CARTER: We still have the water reform structures in place and functioning. Our director-general still chairs the Water Chief Executive Officers group and the Implementation Management Committee, which sits under it. The primary detail policy is still in place and functioning effectively. With the formation of the two larger departments, DIPNA and ourselves, there was discussion about how those arrangements would function and whether there should be any changes. It was determined that they should remain in place, that they are effective mechanisms.

CHAIR: How do you anticipate your role with the catchment management bodies? Do you expect that there will be regional EPA representation? You are still one of the regionalised departments and I appreciate the comments of the Minister and the Government that the departments will be local and will be the major flavour. You have some strong local agencies. Do you anticipate that there will be representation on those bodies, or is that not something you are seeking?

Mr CARTER: My understanding of how the catchment management authorities will be set up was that there will be no agency representation on them at the regional level. We are still looking at how that proposal is unfolding. Conceptually we see involvement at two levels: first, at the higher strategic level in assisting the resource commission and other agencies in what sort of standards and environmental objectives should be in place to guide the work of the catchment management authorities; second, at the regional level, working with other departments to provide technical expertise and access to it, particularly in relation to some of the more modelling tools that we are developing in sustainable loads and biodiversity as well as cultural heritage, vegetation mapping and other areas. We are really providing an expertise service to the authority that it can tap into and we are

putting a lot of work in at the State level in making sure that the frameworks, standards and objectives are sound. Also, we would assist the commission in its work in that regard.

CHAIR: You still anticipate playing a very significant role, but you are not in retreat from the strong position that the EPA has had?

Mr CARTER: No.

CHAIR: You will have to be clever about how you exert your influence. I do not know what this scenario will be.

Mr CARTER: My understanding is that there is a desire by Government to have great deal more regional autonomy and decision-making through the authorities. We think we have important technical expertise and services to provide to that decision-making body and we would be very intent on making that available.

Question eight related to the model by Young and McColl being more challenging to implement than the Hunter River Salinity Trading Scheme and the South Creek Nutrient Offset Scheme. I answered that in relation to the Hunter Salinity Trading Scheme. Yes, it would be more challenging. Both those schemes dealt with individual catchments and relatively small numbers of participants. They were also point-sourced discharges, which are a lot easier to monitor and manage than are diffuse salt discharge. That goes a bit to our earlier discussion on data and modelling capacities.

It is a lot easier when we can measure a stream that is coming from a particular activity. I note that both those smaller schemes presented significant challenges to us in their technical complexity. I have spoken about the Hunter. The South Creek pilot development scheme required technical ability to identify the likely nutrient loads that run off from land use in the offset projects, such as market gardens, under different, control measures. It involved the use of both a GIS system to identify impact sources and a purpose-built diffuse water pollution estimator. To date, getting the pilot development scheme to a working stage has taken us three years. With any of those water pollution estimators we continue to run up against site-specific and data-hungry needs when we get to the detail of how different land use management approaches operate on different parts of the topography.

In rolling that into technical modelling there is always a trade-off between the data we have and getting a robust answer that will apply across the area. For a salinity market-based instrument or pilot scheme those technical issues would still have to be addressed. That could be quite challenging, although there has been a lot of progress in mapping salinity hazard areas of understanding groundwater systems and of modelling discharges from them. That leads into question nine, which was whether it would be feasible to implement the scheme suggested by the ABARE and Young and McColl now, or does underpinning work need to be done. We think significant underpinning work needs to be carried out before implementation of any market-based instrument. The critical issues relating to that are water delivery and metering, water use and efficiency monitoring and the extent to which we can accurately predict salinity impacts from water use in different areas.

In addition, there needs to be provision of a cost-effective and enforceable framework through which the market-based instrument could be applied. Some of the precursor work needs to be done to test out the practicality and cost of those elements to determine whether a market-based instrument could be technically and economically feasible before going into the detail of designing the instrument itself. The other part of that question relates to the need for significant community input into the design and implementation of such an instrument, and community acceptance of the approach. We have found different levels of acceptance of models, depending on their transparency and an understanding of how they work.

Mr WHITE: The Hunter River salinity trading scheme was implemented or piloted at a time when there was quite distinct opposition within the community. Water users in the Hunter were not particularly happy with what they thought were the activities of mining and power stations. Having a pilot scheme was part of building up community endorsement of the whole approach. The community could see that a framework was in place, that the monitoring worked properly and the instructions

about when mines and power stations could discharge actually worked. You could see the results at that pilot level that the river was being kept within its salinity targets.

There has been strong community endorsement by all groups of the salinity trading scheme. They have had an input into how that scheme should work and it has been formalised through regulation. We set up the Salinity Trading Scheme Operations Committee to continue to have community involvement with interest groups, irrigators and participants in the scheme. An important part of the success of that instrument is the community going along with it, being involved in it, seeing its success, having an involvement, believing that the market-based instrument can work, and seeing that the modelling and monitoring regulatory frameworks actually deliver the outcomes.

Mr CARTER: It ensures also that, as a result of working through the detail, the outcomes are fair and equitable and that there is not a twist in the detail that disadvantages someone who is competing within that market. That is one of the areas that requires quite a lot of work. Question 10 refers to the following:

> In order to value water for water trading, the NSW Government needs to know how much water is actually being used by farmers, industry and in residential areas. Currently monitoring and metering is not universal and there are particular problems in unregulated river systems.
>
> · What role does the EPA have in improving the monitoring and metering of water?

The Department of Environment and Conservation does not have a direct role in water metering or volume monitoring. The Department of Infrastructure, Planning and Natural Resources has a program to roll out metering and monitoring across New South Wales. I refer to question 11, which is as follows:

> The NSW Farmers Association has recommended that metering and monitoring be in place across all 30 Water Sharing Plans before they are subject to the five-year review.

Both the Department of Infrastructure, Planning and Natural Resources and the Department of Environment and Conservation see monitoring and metering of water as essential. The time frame for that is something that will be a little open because of the impact it will have on individual water users, and the scale of the issue across the State. Whether or not that must be in place before a five-year review is something that I think is a little arguable. From our point of view, in any review of water-sharing plans we are interested in whether or not it is achieving its environmental outcomes and whether you can make adjustments within a plan at that point if things are not occurring in the way that was originally predicted. Obviously, the more detailed data and information you have, the better review you can undertake. But I think the history of waiting for perfect data is one we should not let prevent us from moving forward in a lot of these areas. That was the last of the formal indicative questions that were provided to us.

Mr DONALD PAGE: I seek clarification on your last point. Once the meters are put in, the Environment Protection Authority does not have a role, as an environmental regulator, to ensure that people keep within their licences. Are you saying that that is the responsibility of the Department of Infrastructure, Planning and Natural Resources?

Mr CARTER: Yes. The department issues the water access licences through the Water Management Act and it is responsible for regulating compliance with those licences and determining what role monitoring and metering can play within that compliance regime. So from a policy and broad management perspective we are interested in having good data on water use and metering, but from an administrative and regulatory point of view that responsibility clearly sits with the Department of Infrastructure, Planning and Natural Resources.

CHAIR: That has always been the case, has it not?

Mr CARTER: Yes.

(The witnesses withdrew)