



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

**HOUSE OF  
REPRESENTATIVES**

STANDING COMMITTEE ON AGRICULTURE, FISHERIES AND  
FORESTRY

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

WEDNESDAY, 5 NOVEMBER 2003

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**HOUSE OF REPRESENTATIVES**  
**STANDING COMMITTEE ON AGRICULTURE, FISHERIES AND FORESTRY**  
**Wednesday, 5 November 2003**

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

**Members in attendance:** Mr Adams, Mrs Elson, Mr Forrest, Ms Ley, Mr Schultz, Mr Secker 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**

**GRAY, Mr Tony, Public Affairs Manager, Pratt Water..... 703**  
**HURDITCH, Dr Bill, Project Adviser, Pratt Water..... 703**  
**WISKEN, Mr Ian, Assistant Project Director, Pratt Water ..... 703**



**Committee met at 5.15 p.m.**

**GRAY, Mr Tony, Public Affairs Manager, Pratt Water**

**HURDITCH, Dr Bill, Project Adviser, Pratt Water**

**WISKEN, Mr Ian, Assistant Project Director, Pratt Water**

**CHAIR**—I declare open this public hearing of the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry inquiry into future water supplies for Australia's rural industries and communities. The Pratt Group is appearing before us once again; we thank you for coming back to talk to us.

Although the committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of parliament; consequently they warrant the same respect as proceedings of the House itself. I would remind our witnesses that the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. Would you now like to make a brief statement in relation to your submission? We will then ask questions of you.

**Dr Hurditch**—The last time we met with this committee, which was on 7 April, we had just commenced this project and we now are six months into it. We thought that today we would quickly go through this handout by way of headings and then come back to discuss the details so that we can have a more informal discussion of the points that emerge. Since we last met the project team has been formed. Ian Wisken has been appointed assistant project director and reports directly to Helmut Konecsny, who is the project director. I remain in the role of project adviser. Tony Gray, as an adviser on the project, is the link with Visy Industries and the outside world.

By way of background, as you are aware, we produced a scoping report before this project got under way in August, and we discussed that last time we met. That report recommended two areas of further investigation: first, a major study into water saving investments, private or otherwise, that could lead to water saving or water efficiencies; and, secondly, investigation into public/private financing mechanisms. When we last met with this committee, we explained the water bond concept and went into quite a bit of detail; John Nixon-Smith was with me at that time. Since then, we have got under way the tripartite water saving study on the Murrumbidgee. That commenced in earnest in May, when funding from the national action plan started to flow. Expert teams have been formed and work plans have been devised. Detailed feasibility work from those teams is now under way, and we will talk more about that a little later.

I will just restate the objectives of this particular project in the Murrumbidgee. The project is clearly business focused rather than government or regulatory focused. It looks at a business case for alternative investment options to improve water use efficiency and to create water savings—to find and utilise them in the Murrumbidgee Valley. The idea is to have a project which again will use business principles to identify the economic, environmental and social impacts of those investments and look at their public and private aspects; give consideration to what implications they might have for environmental flows, expansion of irrigation and changes in the way agricultural production takes place; and to look at the broader regional opportunities

that could emerge from value adding in production. Importantly the project is to be a template so that the stakeholders—that is, state and federal government—and others can apply what we discover to other regions of Australia.

The next slide I might pass over. It is a fairly detailed one. We can come back to it, as it explains the structure of the project team. It is quite a detailed slide, as I say, and when we come back to explain some of the outcomes we can talk further about that.

As for work in progress, 60 or 70 people are involved in various phases and stages of the project. A lot of work is occurring. We have picked five examples of the work in progress. Piping of on-farm and near-farm irrigation systems is a high priority for the project, and we are undertaking a number of subprojects in that area. We are looking at the management of the whole system in terms of seasonal demand and flow; we have identified this as a major issue in perhaps being an impediment to better water use. We are looking at economic development in the upper catchment. Bearing in mind that this is not a Riverina-centric project but a whole valley project, the upper catchment needs to have some attention paid to it in terms of economic development.

**Mr ADAMS**—The catchment needs to be looked at.

**Dr Hurditch**—Yes, the whole catchment. We are looking at alternative crop assessments, identifying what other agricultural activities could be developed or introduced not only for broad social and economic development but also for better water use efficiency. We are also looking at financing mechanisms for conversion of pressurised drip irrigation. They are five examples, and there are many other examples which we can talk to further.

Another major component of the government's scope for our work is to identify corporate alliances that could be forged which recognise the need to acknowledge that water and water use efficiency is not just an issue for the government and the community; it is about applying the whole of the business community to identifying water savings. We have started to work at forging alliances with major corporations and other businesses. We have listed four or five: a major financial institution, a textile manufacturer in water delivery—'textile' being the material for water transport infrastructure—a number of major food processors, water storage engineers and an international beverage manufacturer. They are examples of some of the corporate alliances that we have formed.

I will now turn to early findings. As I say, we are about a third of the way through the project. We expect to report finally in October next year—at about this time next year. On an 18-month project, we are about a third of the way through. Not surprisingly, one of our early findings is that there is no consensus on water losses. Despite a lot of work and the spending of a lot of moneys, there is no broad agreement on where losses occur and what those losses represent. Another early finding is that we believe major gains are likely to be on farm or near farm rather than in the broad river channel and river system itself or the headwork storages.

Another issue we are starting to unpack is the disjunction between government and private interests. That sort of divide impedes whole-system innovation. We are trying to bridge the gap between government and private and get some integration of understanding, which we believe will be an important issue. There is unlikely to be a single solution to water saving. As one of



our members has said, there is no one killer application or king-hit that will save water. It will be a combination of a range of different innovations and solutions. There are major differences and issues between the upper and lower catchment. People do not think of the Murrumbidgee as the Murrumbidgee; they think about various regions within the Murrumbidgee. There are distinctive and unique differences between the upper, lower and middle.

As for the next stages of the project, we are going to continue until around April the detailed feasibility studies that are commencing now. We hope to have progressive reporting of particular study outcomes along the way, including peer reviews. We do not want to hold back information or wait until the final stages to report. We want to release information and to report as it goes along, because we believe that the community is watching this project and we want to make contributions along the way. We want to negotiate investment terms and contractual frameworks to deliver some of the feasibility assessments we are undertaking so that, rather than being an academic exercise, this project will stand to deliver investment on the ground.

We hope to recommend changes to rules and/or frameworks to encourage water saving, including regulatory and perhaps institutional changes. Finally, we hope to have a formal reporting to sponsors during the second half of next year. I will now go back to the project's structure, which is the detailed diagram. Perhaps Ian will give a little bit of an overview of how the project is being directed at this stage.

**Mr Wisken**—Since July, the project's structure has changed to the extent of setting up individual investment feasibility projects. Each of these projects has been resourced and funded and will carry forward. They will work to develop some specific outcomes. Perhaps I can go through those. For example, Lake Wyangan was chosen because it is a subcatchment within the Murrumbidgee irrigation area. It is a closed system but has all the elements of the entire system. It has degraded irrigation channels, urban pressures and salt issues. The areas outside the current irrigation zone may be better for crop production than the areas currently irrigated. It provides the Pratt Water project with a very good opportunity to introduce low-cost technology into the provision of pressurised systems for permanent cropping within that subcatchment. We will be trialling on the ground the actual pipe technologies that are being developed as a result of this project. One of our key parameters is to drive down the cost of pressurised irrigation systems.

The second project talks about managing summer demand, which is the single biggest problem in the catchment. Numerous savings can be made by the way the system is managed. Currently the system is governed by large storages at one end, and there is little opportunity for managing the water as it flows down the system. For example, it takes 26 days from the dam to Balranald. Water is ordered and released from the dam. For example, five days later, before the water even gets to MI, it rains; the water is not wanted by the irrigation company and goes past the front door. It is not very well managed. Again one of the projects is looking at mid-stream storages both above and below ground—maybe aquifer recharge is part of that—better to manage the system. A lot of work has been done in the past, but no-one has actually done anything about it. There have been lots of recommendations and reports, but no-one has actually done anything about this. So we are looking at that whole summer demand issue.

There is a secondary matter relating to summer demand. Any water savings that are achieved cannot be used during the summer period because the river system simply cannot cope. The limit of 9,300 megalitres a day in the Tumut River is the governing factor as to how much water can

be got out of the system. So any water savings that are achieved cannot be put back into that summer period without there being other significant consequences. We are looking at how you manage those savings.

We have followed the fundamental principle that people or organisations that invest in water savings would get to keep the savings. They could utilise those savings either through increased production or by trading them elsewhere in the system. Governments may wish to buy the water for the environment or to set up a mechanism where that can happen. There are all those things that could occur, and we do not want to get into that debate.

We simply say that, if you invest in the saving, you keep the saving—and that is both on farm and off farm. If that philosophy is followed through, over time it will provide a mechanism for significant private sector capital to be invested in the refurbishment of the irrigation systems. At the moment there is no incentive to achieve that. The pricing of the water is not the issue; it is the question of reliability. Again, as part of that summer demand project, we are looking at whether a mechanism could be put in place to provide greater reliability for those who make these investments. In other words, can the fact that someone is prepared to invest on farm to achieve water savings be translated into having greater reliability, and where does that person fit in the ranking order with those who have not made such investments? We are exploring that sort of option and those sorts of incentives to encourage people to change their behaviour and get an economic benefit from it.

**CHAIR**—I am sorry to have to interrupt, but our deputy chair has to leave as he has another commitment. He particularly wants to ask a question before going.

**Mr ADAMS**—Your original submission states:

Pratt Water sees government having a key role in financing infrastructure development, both directly and by facilitating private sector funding; and ensuring that non-market or unpriced benefits from better water management ....

I thought we were looking at improving the way water was delivered and that it was going to get a market outcome. Doesn't 'market' relate to what you grow or what the product is? If the product is not returning enough to put infrastructure back in, why are we producing it? Isn't that the whole logic of it, or am I losing something here?

**Dr Hurditch**—No. Our discussion in April related to water bonds and water bond infrastructure, and part of that discussion involved the question: why is there not a more efficient overall water supply infrastructure in Australia? Part of the answer is that governments have not seen a need to invest or had a mechanism by which they could continue to invest in major infrastructure. Once that has been dealt with, we have the consumptive use: how is the consumptive use managed and how are we going to reflect the cost of providing that infrastructure in the prices charged for water? We have made a very clear decision in this project to link everything back to the farm or to productive use—and it is not just farms. We can talk about timber plantation; there is a consumptive use for plantations, as we know from a lot of press and other things.

But how can you justify the cost of infrastructure by the productive enterprise? Part of our work on the business case studies—on that chart in the right-hand box—is to identify other

opportunities for new crops and new developments. We have work on rice—rice is not just rice; there are ways of growing rice, and you have probably heard all about that—other grains, industrial hemp and other regional opportunities and productive uses that can get better value out of the water that is utilised.

**Mr ADAMS**—Value adding—

**Dr Hurditch**—Value adding, absolutely; full value chain.

**Mr ADAMS**—to what is achievable?

**Dr Hurditch**—Yes.

**Mr ADAMS**—‘Identifying solutions to the barriers that exist to private sector investment.’ What is stopping that investment? Is it because the water is at the top end? Is the way it is delivered inefficient?

**Dr Hurditch**—There is no linkage; there is no linkage with the water that is provided by government at the headworks. If we take the Griffith area, a farmer buys his water from Murrumbidgee Irrigation—start and finish. There is no connection up the system; there is no discussion about transmission charges or losses. It is all lumped into one mass of water.

**Mr ADAMS**—Is this the issue with the amount of water in a catchment? We still do not know the amount of water in every catchment. These are issues that are out there that we have not yet come to grips with.

**Mr Wisken**—Yes. One of our first targets was to do a water balance report for the Murrumbidgee. I was absolutely amazed that that information did not exist. Nobody had taken what was there and integrated it in a bookkeeper’s ledger, if you like, on water in and water out. We are finding that, all over the place, one of the most significant users of water in the system is somebody called ‘Mr Unaccounted Loss’. A part of one of our projects now is to go further and account for those losses. Some of those losses are good losses, such as the recharging of aquifers and the environment. We are trying to identify the bad losses. Having identified them, one of the things we will be doing, for example, in the next stage of this project is mapping the channel systems where the major leakages occur so that we can target specific engineering solutions for those areas. As that fundamental work had not been done, we have had to go back to first principles.

**Dr Hurditch**—As for that balance sheet, we have formed an alliance with CSIRO to come up with a whole-of-valley balance sheet. It is being peer reviewed and we do not want to release it until that review is finished. But an early finding we have come up with is that there has been no consensus on what the losses are or where they occur.

**CHAIR**—Ian, please return to where I interrupted you.

**Mr Wisken**—I will run quickly through some of these other projects. As I say, they are all investment related projects and so they are market driven; everything we have looked at is market driven. Let us make it very clear: farmers are not stupid people; they make good

decisions about which crops they get the best returns for—and that is what farmers are doing out there. A lot of people are finding a cultural issue in many of the irrigation areas where permanent horticulture has been in for many years: to change to something else is a very difficult decision and a costly transition. The price of water will not be the driver with any of this; it will simply be the reliability. Reliability equals security. As part of the project again we are looking at, where someone makes an investment in the saving, how that investment can then be translated into something that provides greater reliability over time. Perhaps a portion of that saving can be given a different form of title, a different right or a different access regime to underpin the investment. That is what we are trying to do. It is not the price. Water as a component of farm production is a pretty low input in terms of the total dollars to run a farm. You would have to increase the price of water dramatically before it hurt anybody. The issue is reliability.

**Ms LEY**—It was very much an issue with running a farm in the last drought.

**Mr Wisken**—But the Murrumbidgee is a very secure catchment, unlike other catchments.

**Dr Hurditch**—Ms Ley, your point is well made. It was about security, though, not the actual price of the water. It was about being able to get any at all; it was the security.

**Mr Wisken**—It was the security. In fact, during the whole of the drought, the high-security users maintained their high security. It came very close, but they maintained their high security—and that may not happen in the future. That has focused attention on water savings and people making investments in those savings. But if you ask a horticulturalist with a 20-hectare plot to spend \$80,000 to \$100,000, there has to be a good justification for doing that. We are looking at mechanisms, and one is a financing mechanism.

**Dr Hurditch**—Perhaps this is a good time for Tony to comment on the financing mechanism we have talked about.

**Mr Gray**—As Bill and Ian mentioned earlier, one early finding of the study was that one of the greatest opportunities for savings will be on farm. Members here today may be aware of media reports going back more than 12 months that Richard Pratt had committed \$100 million towards water in Australia; he has been refining exactly what form that pledge will take. We have got to the point where, coinciding with some of the work that has been done already—and we have identified that on-farm savings are potentially a major area—we are talking in detail to one major financial institution, and we are awaiting a proposal from a second, to come up with a financing mechanism where Mr Pratt will apply his \$100 million in the form of credit enhancement. We will develop a product with a bank, subject to mutually satisfactory outcomes. The way it might work is that a farmer, looking to switch to high-technology irrigation, will cost it out and apply to a bank or financial institution for a loan. If that meets the bank's or financial institution's credit assessments, it goes through. If it does not, the financial institution may be able to rely on the Pratt credit enhancement to get that loan across the line, which otherwise would not happen.

The way it looks at the moment is that the banks or financial institutions, which hopefully we will reach agreement with, will be able to leverage the \$100 million by a factor of several times. That will make available several hundred million dollars of funding, which otherwise might not have been made available, for conversion to high-technology irrigation on farm. The security for

that would be the equipment itself, because much of the reason some farmers have not been able to make these investments—even if they can justify them economically—is that they are already subject to a mortgage with the bank and additional security is required. We will know probably within several weeks whether we can get that across the line with one major financial institution and, as I mentioned earlier, we are still awaiting a proposal from a second. But, if we can reach agreement, we are looking to make an announcement about that and have a product in the marketplace for trial in the Murrumbidgee area in the first half of next year. If it proves successful and is attractive, we will roll it out nationally with the major institution in the second half of next year.

**Mr SECKER**—Will this only be pointed at people using the Murray-Darling system, or will it be available for other rivers?

**Mr Gray**—The trial will be in the Murrumbidgee, but the idea is to roll it out nationally for any farmer that is looking to—

**Mr SECKER**—Will that also include underground water?

**Mr Gray**—It is for on-farm irrigation systems, and so it is for conversion to—

**Dr Hurditch**—It could apply to utilisation of underground reservoirs.

**Mr Gray**—But it would not be for the infrastructure; it is only the on-farm system.

**Mr SECKER**—You are talking about reservoirs and river, but what about underground water? A lot of irrigation goes on with pumping from underground water.

**Mr Gray**—Using that as a source?

**Mr SECKER**—Yes.

**Mr Gray**—As long as the conversion is on farm, water saving and for high-technology drip irrigation, it would be covered.

**Dr Hurditch**—But it could apply to broadacre.

**Mr Gray**—Yes. The source of the water will not be material; it will be lending specifically for the system.

**CHAIR**—Can that \$100 million be spread all over Australia?

**Mr Gray**—Potentially, yes. Obviously we are still in negotiations with the financial institution about how it might work, but at this point it is looking good. One thing we have to ensure is that we are not lining the bank's pocket. We have to get an arrangement in place whereby it will be clear that the bank is going to come up with a very competitive product and that the money will be loaned to applicants who under normal criteria would not get financing.

**Dr Hurditch**—Not to those who would not get financing because they were bad operators but to those who just cannot get the collateral for pressurised drip irrigation. As we discussed in April, the asset is the drip irrigation system, which cannot be recovered in the event of a default. This is part of the problem and an issue we are trying to address.

**Mr SCHULTZ**—With your drip irrigation systems, are you only talking about specific agricultural pursuits?

**Mr Wisken**—No. We are also talking about broadacre. We are looking at broadacre high-technology irrigation systems that farmers cannot afford to put in. One of the impediments has been that existing financial packages require mortgage security over the land. That is pretty difficult because usually, with mortgages, you have to get the agreement of the mortgage holder to do that. So we are looking at a system where you do not put that requirement on the farmer.

**Mr SECKER**—When you say ‘drip’, do you also mean subsurface irrigation?

**Mr Wisken**—Yes; it could be a whole range.

**Mr SECKER**—But in some areas they still say ‘flood’ is as good as any type because of the soils. I know that is not the popular thing to say because, if you have soils with a very shallow water basin, what is not used by the plant goes straight back into the basin.

**Mr Wisken**—Exactly.

**Ms LEY**—It is feasible say that, when you move to more efficient irrigation, you do not end up with a whole lot of water; it just does not work like that.

**Mr Wisken**—That is right, and it is a more complex issue than that. One problem is that the suppliers of this equipment only sell it, and that is the end of it. We have seen examples of a pressurised system being used on a horticultural operation and the farmer knows it is working because he can see the water flooding down the drain. That is not what is meant to happen. So, as part of this package we are putting together, there has to be some accreditation process, some training and some after-market support. We have met with representatives of the irrigation supply industry with a view to supplying better after-market support. It is no good just selling the equipment and leaving it there. There has to be an ongoing program to ensure that farmers are using it correctly; otherwise it just defeats the purpose.

**Mr SCHULTZ**—What about the upstream supplier, like the Department of Infrastructure, Planning and Natural Resources in New South Wales with the Tumut River? What contribution is it making? How will your proposal to save water on farm impact on the bad practices that have destroyed the head of the Tumut River—you know what I am talking about—where the release of water in excessive amounts has destroyed the river’s ecology? How is the upstream supplier going to make an impact? Have you done any work in that area?

**Mr Wisken**—Absolutely. That is being done under our project for managing summer demand. We need better management of the system. We need to be able to release water at other times of the year other than in the peak demand period. We have to avoid having 9,300 megalitres a day rushing down and tearing the guts out of the side of the Tumut River and causing all sorts of

difficulties. One way to do that is to have mid-stream storages. That allows you better management with the timing of releases not only for irrigation purposes but also for environmental purposes. One of the subprojects within that group would look at, for example, whether there are existing wetland areas that could be utilised as winter and shoulder period storages for water.

**Mr SCHULTZ**—That was my next question.

**Mr Wisken**—There are a large number of those; a lot of work has already been done in that area. I think one problem in the past has been that people have been too afraid of engineering solutions. There are good engineering solutions for the environment, besides there being engineering solutions for providing water for productive uses. People forget that we can deliver good engineering outcomes that help the environment while at the same time perhaps—this is part of the feasibility study—wetlands that have been traditionally drained and left dry could be returned to some sort of semblance of wetting and drying effect, as would have happened in nature.

**Ms LEY**—Are you referring to the lower Murrumbidgee area?

**Mr Wisken**—Yes, and other parts of it. Within irrigation areas themselves, there are areas of Crown land and state forest that traditionally have been wetland areas but effectively have been drained and not utilised as storages. They are the sorts of lateral type issues we are looking at in saying: can you release the water from the dams at a different time and use it down the system in a better way; and, more importantly, can you avoid this nonsense of water being ordered from the dam and, having rained, the irrigation company not wanting it and then for it to race past the front door? That may not be the most appropriate time to deliver water further down the system; it might be better to have that water captured and then released at a more appropriate time.

**Mr WINDSOR**—You have mentioned using aquifer storage. Have you done any modelling on that?

**Dr Hurditch**—A meeting is coming up next week in Eden, and that has been looking at existing work that has been undertaken on aquifer storage and other mid-stream storages. There has been quite a bit of work done on aquifer storage but not a lot of practice.

**Mr WINDSOR**—This committee visited storage north of Adelaide; it was relatively small, but the general principle is working over there.

**Mr SECKER**—They have used it at Langdon Creek for 30 years.

**Mr Wisken**—Yes. In the Murrumbidgee, not enough work has been done on the geophysical characteristics of the substrate to determine whether aquifer storage is appropriate; however, the work done by CSIRO suggests that at least it should be looked at as a viable option. There are all sorts of other issues—infiltration rate; how do you get the water out once it is in there; is it appropriate—is it the best way of recharging the aquifer, for example? It may only be suitable for certain locations, which certainly is the experience in the US. You cannot just say, 'We can recharge the aquifer.' We have to do a lot of identification and geophysical assessment of areas that may be suitable.

**Dr Hurditch**—Some of the aquifers in the lower Murrumbidgee Valley, for example, are quite saline. You need to identify the saline aquifers and the non-saline ones so that you are not adding to the salinity problem by pumping and recharging.

**Ms LEY**—I do not think we know enough about the aquifers to be able to give that any serious consideration at all.

**Mr Wisken**—You are absolutely right. That is why we are doing a feasibility study.

**Dr Hurditch**—Quite a lot of what you might call ‘academic’ work has been done on it but not a lot of practical work. As this committee probably knows, there is aquifer use in the US, in Arizona and other places.

**Mr SCHULTZ**—There is some very good scientific data where high-tech equipment has been used from Yass right through to the Temora area that you should be able to tap into. With what you are doing, have you looked at any innovative technical equipment that could be used? Have you looked at any other high-tech equipment apart from high-pressure drip irrigated systems?

**Mr Wisken**—For irrigation purposes?

**Mr SCHULTZ**—For any of the work.

**Dr Hurditch**—All the channel control works and all the telemetry that is available.

**Mr Gray**—We have a technology committee that has searched international best practice.

**Dr Hurditch**—We have a database being prepared—and it will be web available—which identifies appropriate and emerging technology and a whole range of different applications. To provide that synthesised service is one of our deliverables.

**Mr Wisken**—The work that Coleambally Irrigation has done on total channel control is the model. The technology is not rocket science; it is how you apply and integrate it. It is the same with on farm. It is not good enough to just simply put a pressurised drip irrigation system in on a farm. There has to be moisture monitoring. Basically information such as soil type analysis, before you even take that first step, needs to be done. That is what I mean by the package I referred to earlier. If you are going to offer something to a farmer, it has to be more than just supplying the equipment; it has to be providing the service to make the best possible investment decision.

**Mr SECKER**—Do you have any measured efficiency gains yet from comparing piping with open channels?

**Mr Wisken**—No, because it is horses for courses. But just doing a horticultural conversion there is a potential saving of three to four megalitres per hectare.

**Mr SECKER**—What would it be in percentage terms?



**Mr Wisken**—It is hard to say over the system. One project we will be doing will identify the losses in the channel system. As I say, you cannot just make a glib statement and say, 'We need to pipe the entire system.' There may be parts of the system that need to be piped. There is certain technology that has been developed here in Australia as a result of Richard Pratt's initiative. Resulting from that, we have a manufacturer looking at pipe technologies that exist nowhere else in the world. This is the first place in the world where this is being done.

**Mr Gray**—That is a cost factor more than technology; it is just a cheaper form of piping.

**Mr SECKER**—The test will be as to how long it lasts.

**Dr Hurditch**—It is 'textile'.

**Mr Wisken**—Yes. But a whole range of those are going through validation right now, with such things as pressure testing. CSIRO are involved in that process in looking at the best technologies to drive the cost down. It is not just supplying water on farm; it is also supplying water off farm. Pratt Water engineers are working with Murrumbidgee irrigation right now, looking at supplying a new farm area with piped water using low-cost pipes. Traditionally they would have been steel, concrete or whatever—very expensive pipe. In working with Murray Irrigation, we are looking at trialling some of those opportunities in particular.

**Mr SECKER**—It is all right to have the pipes, but you have to have the outlets, and they are often the expensive part of it. I can image working with a great big gauge or something like that where it might be a fairly simple set-up with just a slide-in slide-up thing.

**Mr Wisken**—Yes. The great advantage of this technology is that it is low cost, can be replaced quite easily, can be repaired and can be moved around. You can do all sorts of things with it. Again that is one of the areas we are looking at trialling right now. We are doing a conceptual engineering study on a degraded irrigation area. It is an area that is close to Griffith and is subject to urban growth.

In the next 20 years that land, which is currently irrigation land, will be covered with houses. We need a solution for 20 years—not for 100 years. We need a solution that can grow with the area rather than having a very expensive refurbishment which is not going to be relevant in a few years time. Those are the sorts of things we are looking at doing. There is no single solution which can be applied right across the board.

**Mr SCHULTZ**—What about the issue of water bonds and trading? What have you come up with there? That is a contentious issue.

**CHAIR**—Have you had any chats with any government bodies about that?

**Mr Wisken**—Yes, indeed.

**Dr Hurditch**—Before we go onto water bonds, Mr Schultz asked a question about the government authorities and the upriver storages. The committee may be aware that, quite recently—in fact a week or so ago—the New South Wales government announced the intention to corporatise State Water and separate it from the old department of land and water

conservation, or what is now DIPNR. So there will be two organisations in New South Wales—State Water being the water owning and delivering body and DIPNR being the assessment and regulatory agency. It will be quite useful to separate those, to enable some clear objectives. We have had meetings and formed an alliance with State Water in anticipation of our new role as a water deliverer and someone interested in being involved in investment decisions and making those sorts of connections to the market. Everyone acknowledges that there have been institutional problems and mixed objectives in the past, but this water project is one way of catalysing a new way of thinking by those organisations. They see it as very welcome.

**Mr Wisken**—It is interesting to note that public-private partnerships have been utilised in just about every other form of government infrastructure delivery—water is probably the last. Particularly in New South Wales, or within the Murrumbidgee, there is an opportunity to look at how that can be applied. Within the time frame of our project it would be easy for us to simply come forward with a series of recommendations. I do not think that would be particularly useful. It simply hands the problem back to the government, to say that the government has to put in a lot of money to fund the refurbishment of infrastructure. We are saying, ‘Can we look a little more innovatively at this? Is there a role for the private sector, and how should that role be applied? As I say, work has been done in the past on many of these projects but they have not been carried through.

**Dr Hurditch**—In fact, we are doing work at the moment on one which was produced in 1984—Lake Mejum—as an en route storage. The whole case was to develop a ‘feasibility’ to hand back to government and say, ‘Give us the money to build this’, rather than, ‘Let us work out the partnership which can be developed between the growers, the suppliers and infrastructure, and fund it and build it together.’

Funding was the issue. In fact, the minister of the day, who I think was Lin Gordon, in the New South Wales government, committed publicly to making this happen; but when he went to Treasury and said, ‘We want \$30 million or \$40million’, Treasury said: ‘Hang on. Where is the economic case?’ They could not find it, because they had not forged the proper business partnership—and we need to start to forge that.

**Mr Wisken**—Part of this project is the hydrologic economic ranking of various water saving redistribution options. We are trying to establish a living economic model, where we can factor in, for example, changes in crop returns to farmers and changes in technology costs, and look at the cost benefit analysis of each of the options we put up.

That model could also be utilised to look into the future. As new technologies come along, new cost arrangements can be inputted into the model to give you an outcome. We can make business decisions as to the best way of allocating the investment. That is what we are on about—looking at the investment. It is no good, for example, encouraging every farmer in the irrigation areas to convert to high technology systems if the water cannot be delivered to the farm gate.

We have to look at how we do that and, in the course of doing that, we have to ask whether we can achieve savings. Having identified those savings, we have to ask what is the best use for those savings. Are there other productive uses for the savings? Are there other mechanisms for the savings to be used for the environment? It is not our role to get into that debate. But if the government says, ‘We’re going to acquire water for the environment,’ and they do it by way of

purchasing water, that is fine. We are saying that we will identify the savings and help you achieve them. The fundamental principle we have applied is that if the farmer invests in those savings, the farmer can utilise the savings and, in many cases, the farmers will trade those savings.

**CHAIR**—What about the issue of bonds?

**Mr Wisken**—I was going to come back to the bonds.

**Dr Hurditch**—I think we need to separate the two issues. The water bond concept that Pratt Water has developed, not as part of the Murrumbidgee project per se but on the broader issue, was a model whereby the government would actually guarantee a base rate of return for funds invested or offered by superannuation funds or patient capital organisations looking for a secure but perhaps not the normal high market rate investment return. That fund would then be utilised to fund identified public and private water infrastructure. That is the bond structure which we described last time. In terms of the trading in the buying of water entitlements, which is a quite separate issue, we have in fact taken a fairly strong policy decision in this group that we will not be getting into the water trading debate per se.

**Mr Gray**—There are plenty of people who are.

**Dr Hurditch**—That space is fairly crowded. The only exception though, as Ian mentioned earlier, is this whole question of saving water through specific investments where you effectively make new water because you have saved it from evaporation. Is there a chance that that saved water could have a different property right because you have exerted real energy, financial innovation and intellectual capacity to actually save water? Is there scope for a different type of title, a stronger title, for that saved component? It is an open question but we are exploring it.

**CHAIR**—Have you been talking to government about setting up bonds and how far have you got with that?

**Dr Hurditch**—No. It is fair to say that we have put that to one side. It is certainly not off the agenda, but we specifically did commit to our stakeholders—that is, the New South Wales and federal governments—that we would focus on the water saving and water efficiency component first, and hope to return to the water bond concept as a means of achieving some of the investments that we have identified in this study. Rather than identifying the public infrastructure financing per se now, we have said that we will identify where the savings can be made, where the investments are and then look at the bonds—so it is sequential.

**Mr Gray**—Notwithstanding that—not that it is not part of the study and that it was agreed as part of the early scoping—Richard Pratt has continued his personal lobbying of federal and state politicians on the issue, as have I in certain circumstances as his representative. So there is some going on, but it is not part of the study.

**CHAIR**—I just remember that, when you were previously before the committee, you said there was 80 per cent loss in the channel system.

**Mr Gray**—Up to that, depending on the system. For example in the Wimmera-Mallee system, the losses are up to 90 per cent. In regard to the Murrumbidgee we were asked this question before, and it is too hard to generalise. That is one of the things we have learnt from the specific Murrumbidgee study, but it is probably 30 per cent.

**CHAIR**—I remember you said it would cost up to \$11 billion to put it in.

**Mr Gray**—Ten billion dollars was the back of the envelope figure that Richard calculated when he was asked how much he thought it would cost. He said, ‘I think at least \$10 billion.’

**CHAIR**—Would the savings warrant that investment cost of \$10 billion to put that channel system in? Is that investment warranted for the savings and the use of the water?

**Mr Gray**—That is a very simple question with a complex answer.

**CHAIR**—You would want a feasibility study before you would invest.

**Mr Gray**—When you look at it globally, it is very easy to say that it cannot possibly be justified. But the analogy that we use, although it is slightly flawed, is nevertheless applicable. We use the analogy of Telstra: if the federal government had taken the view that communications infrastructure was a matter for the private sector only in the 1800s, there would be no public communications asset now that is available to sell off. Nobody would have put the telegraph poles across the centre of Australia from Adelaide to Darwin; nobody would have done a lot of that regional communications infrastructure. Our view is that water is at least as important as communications because you do not need communications if you do not have water. The federal government should take a long-term view and justify it on public infrastructure. Water is not the only infrastructure where government investment is required, but we believe it is absolutely required.

**Mr WINDSOR**—You are starting to move into the area on which this committee is going to make recommendations to the government. I was interested in what you were saying about a different property right for saved water and those sorts of things. What would be the key recommendations that Pratt Water would give to this committee in relation to broader water policy? What do you think your contribution could be? What should we be telling the parliament that you guys think should be happening with policy? I realise you do not want to get into water trading—

**Dr Hurditch**—That is a very simple question with a very complex answer as well.

**Mr WINDSOR**—What are the key issues as you see them?

**Mr Wisken**—Water dictates the growth and development of Australia. There has been a lot of focus on providing infrastructure for the cities—Sydney is growing at the rate of 1,000 people a week—but not a lot of effort has been put into providing infrastructure for delivering economic growth in other parts of Australia. Part of this project, even though it is limited to the Murrumbidgee, will be looking at where you can get the best utilisation of the water. It may well be that there are other areas within the catchment that are currently economically depressed where we can deliver water and get better outcomes. It may be better, for example, to utilise the

saline water that is coming from the Tarcutta and Kyeamba creek systems closer to those communities—areas that are on unregulated streams who have really missed out on opportunities for growth associated with irrigation. It may be better to utilise that water in that area than to allow it to go to other areas.

There are other issues that we are looking at with regard to crop types. One of the reasons why we have put plantations on the agenda is that they are one of the single biggest land use commitments in the Murrumbidgee catchment. The economic value of the current plantation crop and its associated activities is equivalent to the value produced from rice, so it is a pretty significant land use. We have to start looking at where the best use of water is.

I come back to what recommendations you can make. It is very important for government to get involved in building the infrastructure for rural and regional Australia associated with water. The private sector alone cannot do it, but the government can make a contribution via water bonds and providing the same sort of underpinning capital investment on a national level that Richard Pratt is doing at a smaller level. That is the message: the model has been set by Richard Pratt; why can't governments actually start putting their dollars into infrastructure development and then set up the mechanisms to allow private capital to boost that investment?

To date the entire infrastructure in most of the major areas has been developed by government over time. It was really easy for the private sector to cop out because the system was run by the government—funded, managed and regulated by the government. It is only in recent times that we have seen private irrigation companies come into being. We are now seeing the actual supplier of water in New South Wales being corporatised. That is going to change the mind-set of how people look at water. All of a sudden we are now saying that, as a business case, we can see significant opportunities for private sector capital to be invested in the provision of infrastructure but that will require something like a water bond arrangement if it is going to have national significance.

**Mr SCHULTZ**—That particular scenario is behind what is occurring already between here and Marulan, where in the next two years about 2,000 homes will be built but there will be no water supply for their sewerage and household use; it is just crazy stuff.

**CHAIR**—It is occurring in Queensland too.

**Mr FORREST**—I go back to bonds, but my question relates also to what we have just discussed. The challenge for Mr Wisken concerns governments. Governments have been putting funds into different models. Much of the irrigation infrastructure in South Australia has been on a 40-40-20 basis. There the private sector is required to put in because there has to be a massive amount of on-farm upgrade as well. The northern Mallee pipeline was one-third, one-third, one-third, with major investment from landholders. There are other models. The current proposal for the Wimmera section of the pipeline is one quarter, one quarter and, from private enterprise, half. Those models are there. It needs to be recognised that the private sector is required already to make a major investment on farm.

We talked about bonds when we met with Dr Hurditch in Melbourne. My worry was that a pure economist will simply say that governments guaranteeing bonds is equivalent to governments borrowing money. You did not have an answer then and you have said already that

you have not given it much more thought—but I would be interested if you do have an answer now. When checking your list, I was pleased to see that Chris Stoltz is on your team, but I could not identify there being an economist as such.

**Dr Hurditch**—Steve Beare, who is on our reference panel, is chief of research at the Australian Bureau of Agricultural Resource Economics; he heads up our summer demand project as well. A number of other economists are on the team.

I would answer your question by saying ‘borrowing is borrowing’. But we have structured the bonds concept so that the government would guarantee a minimum return. That is, for example, if we were to pick a figure of six per cent, on every \$100 million of private money put into the water bond system government would guarantee \$6 million per annum of interest if the water bond vehicle—that is, the commercial entity managing that fund—were effectively a credit enhancement or guarantee. I would come back and say that government is already committing billions of dollars to water through the NHT, the MDBC and every other program. I believe most of that money at the moment is being spent in what you might call recurrent funding of research activities. It also goes to other agencies and, quite rightly, some land care groups get it. But with the stewardship—I think Mr Schultz and I discussed this at the last hearing—if even half of the aggregation of all funds from the public domain that are allocated for water were put to the bottom line of a bond system, a much more effective result might be developed than the result we have at the moment.

**Mr Gray**—Mr Forrest, I infer from your question that perhaps there is a concern about increased government debt as a result of bonds. At Visy we take a simplistic view: it is okay if your debt goes up as long as your asset side goes up as well; that debt is not being increased just for its own sake but that the asset side of the national balance sheet is also increasing. There are plenty of examples where, on the grounds of national interest, government invests in public infrastructure, and we argue that water should be elevated to that level and considered in that context. There is recent research—which we would be happy to draw to the attention of the inquiry, if it is not aware of it already—that says that in certain circumstances it is much more efficient to fund infrastructure with government funding or a combination of government and private funding than with just private funding. I think that is from an Ernst and Young sponsored report.

**Mr FORREST**—It does not need a mortgage and so on.

**Mr Gray**—If the inquiry is not already aware of that research, I would be happy to send it the relevant information.

**Dr Hurditch**—Mr Windsor asked about recommendations. One small but not insignificant issue involves the tax treatment of near-farm infrastructure. At the moment a farmer who invests in water-saving infrastructure can obtain a deduction for that expenditure as a primary producer. However, with certain cooperatives, quangos or quasi public or private water companies or incorporated bodies who have to supply, as Ian said earlier, the near-farm infrastructure to allow that pressurised irrigation, there is a major gap in the tax treatment of that investment which I think has been kicked back and forward for five years between various portfolios and Treasury. I believe there would be a very strong case for recommending an equivalent tax treatment for that type of infrastructure; it may need a public ruling or something of that nature.

**Mr WINDSOR**—I suggest that we follow up on that. Perhaps the secretariat could flesh out a bit of a document.

**Ms LEY**—There are a lot of happenings around that with both Murrumbidgee and Murray irrigation. It would probably be useful if this committee were to make a recommendation about what Bill has just said. It is very much an issue that is alive at the moment with Treasury. I am interested in your views on the new world after the national water initiative as it applies to plantation forestry. You obviously know that I am referring to purchasing water for trees.

**Dr Hurditch**—As Ian said, it is all about output in terms of what you might call ‘community wellbeing’—economic, social and environmental output for the water consumed. My view is that, if there were to be some sort of requirement for all users, and it would have to be all users to have a level playing field—

**Ms LEY**—So you would not distinguish between trees and, say, lucerne?

**Dr Hurditch**—Absolutely not. I would say that on any case timber plantations, for example, would more than carry their day in terms of the requirement to pay for water, provided that was a level playing field with other uses. That would shake out in the wash. There is a problem in that, if you had discrimination between one land use and another land use, that would then provide a perverse incentive or disincentive towards one use against another.

**Ms LEY**—What about the issue of regions where it may apply as opposed to regions where it would not?

**Dr Hurditch**—I think perhaps the Constitution would prohibit that.

**Ms LEY**—Would you find that offensive?

**Dr Hurditch**—I believe that it would not bear scrutiny.

**Mr Wisken**—We are approaching this from a business case. We are looking at what is the best outcome for the redistribution of water. If you save water in irrigation areas, is it a good idea to continue to use the water in the same irrigation area? We need to answer that question. Many of these areas are the productive powerhouses of the nation. In fact, in many of them there are incredible labour shortages. Simply directing more investment into more productive activities in existing irrigation areas may not be the best use in redistributing that water. It may be better to take the water somewhere else. It may be better if the water saved in the lower Murrumbidgee were used in the upper Murrumbidgee.

Part of our economic ranking project will hopefully answer that question and give us some real numbers to be able to say, ‘This is the output from plantations; if we were to apply that water somewhere else, what would be the output in other crops in other areas?’ for example. We will be able to answer some of those questions. But, from a social point of view, it may well be better to use water in some other areas that currently are not irrigated. There may be soil types and areas that are more suitable for other crop varieties that are not grown during the summer period. We hope to get those answers during the course of this project.

**Mr SCHULTZ**—Could it also, because of the efficiencies that are created by the water-saving initiatives, create a compounding problem for what you have just described by not requiring as much labour as already exists in there to run the businesses as they are currently operating?

**Dr Hurditch**—That could be an issue, although we have tended to find that where you have technology improvements in one particular location, the flow-on benefits are greater because you have servicing, technology and other things supplied. The timber plantations project, No. 3 on our investment project list, is looking specifically at hydrology impacts, salinity impacts and design issues of plantations. A hillside of plantations is not what we are about. We are talking about appropriate design to actually optimise water yield and water quality. That is part of that, and we will be reporting on that.

**Mr WINDSOR**—The water monitoring fascinates me, but I am not totally on top of it. You might be able to provide the committee with an exercise on the totality of the problem. Assuming we have a \$10 billion problem, if you set up a bond structure to operate that, what would be the likely annual cost to government of that arrangement? If you are talking about \$10 billion and, say, six per cent, am I correct in saying that the maximum annual cost to government could be \$600 million and probably more likely \$100 million to \$200 million to fund something like a \$10 billion fix-it campaign? It is chickenfeed.

**Mr Gray**—It is not the cash out that worries Treasury, it is the increase in government debt.

**Mr FORREST**—It is a contingent liability.

**Mr Wisken**—But if you think a little laterally about this, why would you not apply the water bond concept to the environment? If you have to deliver the infrastructure for environmental purposes, there is no reason why the same principle could not apply.

**Mr WINDSOR**—Could you develop a model with one page on how it works for the committee?

**Mr Gray**—Yes. We have the basis for that already, and we will flesh it out.

**CHAIR**—I want to go back to something that you said earlier. You said that Pratt was going to invest \$100 million into irrigation upgrades in conjunction with a bank. Is that a grant or a loan, and do you have a second mortgage on their property?

**Mr Gray**—No. The security for that lending would be the equipment. The model that we are talking to the financial institution about is on the premise that there would be no additional security required in terms of mortgage from the farmer to the bank; the security would be the equipment. Pratt is basically lending its balance sheet to provide credit enhancement for that so that if the loan goes bad the bank can call on Pratt to top it up. That is how it works. It is not an investment; it is actually a backstop, a credit enhancement.

**CHAIR**—What is in it for Pratt?



**Mr Gray**—It is an altruistic gesture which confirms his original pledge that, if the federal government took up water as a national issue and invested billions in infrastructure, he would put \$100 million towards it in one form or another. He made that pledge perhaps two years ago, I think—it feels like that to me; I am not sure exactly. He has been refining that as we, as a group, have learned more about where the water-saving opportunities are, and as he has learned that a big part of the opportunity for saving is actually on farm. That was not his level of knowledge when he first made the offer to the federal government that said, ‘If you spend billions on infrastructure, I will put in \$100 million.’

**CHAIR**—I was under the impression that it was going into the channel system.

**Mr Gray**—He has refined that now. He has been giving speeches over the last 12 months or so and you can see that his thinking has developed on that. I am happy to send you a copy of one of the first speeches in which he outlined that concept, which was in Wagga in March this year. The Deputy Prime Minister was on the same platform. It was there that he made them the \$100 million offer. He had been giving some thought to how that might be applied and his thinking was along those lines. That has resulted in these conversations with the major financial institution that we have been having.

**CHAIR**—There are no more pressing questions. Thank you very much for your input today. Our inquiry is almost finished and by early next year we should have a report to present to parliament. We will ensure that you get a copy of that report with its recommendations. Thank you again for your time and your submission.

**Committee adjourned at 6.25 p.m.**