COMMONWEALTH OF AUSTRALIA

Proof Committee Hansard

SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT REFERENCES COMMITTEE

Reference: Plantation forests industry

THURSDAY, 20 FEBRUARY 2003

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SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT REFERENCES COMMITTEE

Thursday, 20 February 2003

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

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

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

Terms of reference for the inquiry:

To inquire into and report on:

The findings of the Private Forests Consultative Committee's review of the 'Plantations for Australia: The 2020 Vision' which is due to report to the Primary Industries Ministerial Council in November 2002:

(a) whether there are impediments to the achievement of the aims of 'Plantations for Australia: The 2020 Vision' strategy;

(b) whether there are elements of the strategy which should be altered in light of any impediments identified;

(c) whether there are further opportunities to maximise the benefits from plantations in respect of their potential to contribute environmental benefits, including whether there are opportunities to:

(i) better integrate plantations into achieving salinity and water quality objectives and targets,

(ii) optimise the environmental benefits of plantations in low rainfall areas, and

(iii) address the provision of public good services (environmental benefits) at the cost of private plantation growers;

(d) whether there is the need for government action to encourage longer rotation plantations, particularly in order to supply sawlogs; and

(e) whether other action is desirable to maintain and expand a viable and sustainable plantation forest sector, including the expansion of processing industries to enhance the contribution to regional economic development.

Question put and passed.

WITNESSES

Committee met at 9.01 a.m.

CHAIR—I declare open this public hearing of the Senate Rural and Regional Affairs and Transport References Committee. This is the committee's third hearing to consider matters in relation to its inquiry into the plantation forests industry and the 2020 vision strategy. The matter was referred to the committee on 27 June last year. The tabling date for the committee's report is on or before the last sitting day in August 2003. I should also mention that submissions are still being received. To date the committee has received 59 written submissions. The committee authorises for publication submission Nos 56 to 59 inclusive. For those of you who would like copies of the submissions, they are available from the secretariat.

Today's hearing is open to the public and a *Hansard* transcript of the proceedings is being made. The *Hansard* will be available also in hard copy from the committee secretariat next week or via the Parliament House Internet home page. It should also be noted that the committee has authorised the recording, broadcasting and rebroadcasting of these proceedings in accordance with the rules contained in the order of the Senate of 23 August 1990 concerning the broadcasting of committee proceedings.

Before the committee commences taking evidence, let me place on record that all witnesses are protected by parliamentary privilege with respect to submissions made to the committee and evidence given before it. Any act by any person which may operate to the disadvantage of a witness on account of evidence given by him or her before the Senate or any committee of the Senate is treated as a breach of privilege.

While the committee prefers to hear all evidence in public, if requested, the committee may agree to take evidence in camera and record that evidence. Should the committee take evidence in that manner, I remind the committee and those present that it is within the power of the committee at a later date to publish or present all or part of that evidence to the Senate. The Senate also has the power to order production and/or publication of such evidence. Any decision regarding publication of in camera evidence or confidential submissions would not be taken by the committee without prior reference to the person whose evidence the committee may consider publishing.

[9.04 a.m.]

CARNELL, Ms Kate, Executive Director, National Association of Forest Industries

TOWNSEND, Mr Phil, Deputy Executive Director, National Association of Forest Industries

CHAIR—Welcome. After your introductory remarks I will invite members of the committee to submit questions to you.

Ms Carnell—Thank you. This is a very important inquiry from the perspective of NAFI but more broadly from the perspective of the timber industry and rural and regional Australia. The reason I say that is that the timber industry is one of the very few industries in Australia that has the real opportunity to expand significantly in rural and regional areas and provide significant new jobs in those areas. There are very few industries that can go right from the beginning of their industry through to manufactured product and do so outside the major cities in this country. The timber industry is one of those. Plantations, through manufactured wood products right through to products ready for market, can be established in areas where we desperately need jobs in this country.

The reason the industry has a capacity to expand significantly is spelt out when you look at what the world market looks like for paper and wood products. We are all aware that China and India are expanding and that their economies are growing very quickly. As part of that economic growth in those countries the use of paper and wood products is increasing exponentially. It was not all that many years ago that China was using something like four kilos of paper per head of population. That has now gone up to something like 24 kilos. When you consider that countries like, say, Japan use over 400 kilos and Australia 270 you can see that the increase in the use of paper alone in a place like China is significant. If the use of paper increases from 24 kilos to 48 kilos, as is predicted over the next few years, when you have 2.2 billion people that is an awful lot of paper. As well as that, the use of wood products and manufactured wood products in China is also increasing very quickly. The same things occur in India as well.

So what we have is an export market that we know has a capacity to take a significant increase in paper and wood products. Where will those products come from? Australia is in a unique position simply because of our geographic position in the world to be a major supplier into the Chinese and Asia-Pacific markets. We can get our products to China significantly cheaper than our competitors from South America or, for that matter, South Africa. We have shown that there is going to be a very significant and predictable increase in the world market over the next 10, 20, 30, 50 years and longer for an increased output of paper and wood products.

Another good thing about our industry from an investment perspective is that the price is really quite predictable in the paper and wood products arena. There are variations but they are not huge. We can be fairly confident about what the market will bear in 20, 30 or 50 years time simply because you cannot manufacture a tree, you have to plant it and grow it. So there is a predictable time frame.

Then go to the fact that Australia has some significant environmental issues to address. One that I think we would all agree needs to be addressed as a matter of urgency is the issue of salinity. You would be aware that BRS has recently released a report that suggests that there are 5.5 million hectares of Australia that could benefit from a salinity perspective by having trees planted. When you see that at the moment there are altogether only 1.6 million hectares of plantation in Australia, an increase of 5.5 million hectares is extraordinary and way beyond the predictions of vision 2020. The Murray-Darling Basin Commission has indicated three million hectares that need to be planted with trees. We are not for a moment suggesting that plantations solve the salinity problem, but both BRS and the Murray-Darling commission make it very clear that planting trees is part of the solution.

We then move to greenhouse. I think we would all agree that the greenhouse issues are a problem or an issue for Australia. If we plant 5.5 million hectares of new trees in this country, that goes a very long way to addressing Kyoto targets—or it goes considerably past meeting Kyoto targets for the first period and certainly would help significantly in whatever policy Australia adopts after that. So we have addressed in our submission that there is an export market and that increases in plantations go a long way to addressing our greenhouse obligations, help significantly with salinity and create very real jobs in rural and regional areas. I think that in itself means that as a nation we have to focus very heavily on planting more plantations, but that needs to be plantations in the right areas, of the right species, with the right silviculture approach, and in a way that is very market focused. I will hand over now to Mr Townsend to continue.

Mr Townsend—We see that using the 2020 approach is quite important because this is a national strategy that can, if properly utilised, bring together those policy areas where plantations can be incorporated. As Kate has suggested, we are talking about greenhouse, salinity planning and industry development. There are a lot of policy objectives and drivers there for getting trees in the ground. What most people do not seem to understand about *Plantations for Australia: the 2020 vision* is that it is a document that sets out a blueprint: what are the impediments to investment and what do we need to address at a national level?

As you would have seen in many of the submissions you got in written and oral form, many people have tried to take the local issues and have them reflected in a national strategy. We see the 2020 vision as an evolving document, responding over time to some of these policy changes. What we need coming from that national strategy, what is in the 2020 vision at the moment, is for the states and the Commonwealth to at least respond through developing second-tier strategies. How can they bring their policies together to help industry establish the plantations that are required?

We see in the states the problems at the moment where we do not have a comprehensive policy approach to plantations. We run into a number of risks that face investors. New South Wales is a prime example: without a plantation strategy, or a way to deal with impediments to plantation establishment, no new trees are being established in New South Wales—or very few. I think less that five per cent of the establishment of new plantations occurs in New South Wales. Risk to investors is the major concern as well as the complex regulatory framework. They need to start dealing with these sorts of issues to attract investors and take away the risks and concerns.

There need to be mechanisms to assist local government. You would notice in the original 2020 vision document there has been a partnership between the Commonwealth, states and industry—local governments are not involved. But some of the actions said that local governments will be responsible for certain activities. There needs to be a way for local governments who have a concern or issues about plantation forestry to talk to one another and then go back and be able to talk to both state and Commonwealth governments about how they resolve their issues—down into areas like transport and infrastructure, planning approvals processes and understanding where the industry might be headed across time.

One of the key areas we are looking to have developed out of the revised vision as well is how we assess the development of the plantations across the landscape. As you would have heard, there are a number of negative concerns raised about where trees are going in and the loss of communities. But is this part of what is going on in rural Australia anyway? Nobody has been able to decipher whether this is part of the loss of rural community structure that is occurring over the longer term, or whether it is part of a new industry coming in. What are the benefits of this industry when we start harvesting and replanting and processing in the local areas?

So I think there are some opportunities for Australia to take advantage of the plantation industry and encourage investment. We need additional investment structures that bring people to a range of environmental and commercial forestry solutions. You would see at the back of our submission that we have an attachment that says we see a plan of how to go forward. We see there are other steps to take at the moment; the risks to investors are too great. We need to understand more about how plantations operate in the environment and therefore what the opportunities are. We need to lower the risks for investors in the way we design and manage our plantations to encourage the investment that is required.

CHAIR—One of the things that I am trying to establish—and, I have looked at the submissions for the witnesses that will be appearing over the next two days—are the roles played by the various associations. Can you tell the committee a little bit about how NAFI was established and what sets it apart from the PTAA? I am trying to understand who plays what role in relation to the industry itself.

Ms Carnell—NAFI was established in the 1980s to represent forest industries in Australia. Over time there were some disagreements with some sectors, predominantly the pine sector. The pine sector believed that they could represent their interests better by forming their own association so they split from NAFI in 2000 and set up their own association. Before that, there was an association called Pine Australia that became PTAA. So, predominantly, PTAA's members are in the pine plantation arena and our members are in the native forest and hardwood sector. There are other associations as well—in fact, one of the issues for the industry is, I think, that we have too many associations. But that is another issue, and an issue for us. That is fundamentally how the split comes, but there are a number of NAFI members who are also members of PTAA, so there is a lot of overlap as well.

CHAIR—You talk about the focus of the industries you represent being more in relation to native forests. I guess you are aware that we have also been to various places including Tasmania where it was a highly contentious issue. Would you care to make any comments about how native forests should best be used to the advantage of the timber industry, and particularly how we can continue to use native forests as a timber resource whilst trying to maintain that

resource in the future? How do you arrive at some sort of balance, given the different views out there that are expressed, often passionately?

Ms Carnell—I think your comment about balance is the issue that we as an industry need to address and are addressing. You would be aware that recently something called the Australian Forest Standard was launched. The Australian Forest Standard is a standard that has been put together over a two-year period with Standards Australia to establish a set of requirements criteria that a forest manager would need to meet to show and to prove that they are managing their forests sustainably. This particular standard has been given interim certification by Standards Australia. It has third party accreditation. It is in the process of seeking mutual recognition with the Pan European Forest Certification Council. It is very much in line with international forest standards. I think it is really important for the native forest industry not just to be sustainable but to be able to show to the community that the forests that are working and production forests are being managed sustainably.

It is also important to remember that, although we are here today to encourage the expansion of plantations in Australia, there is very little chance in the foreseeable future that plantations can take over totally from native forests. Native forests will continue to be the major source of sawlogs, veneer and high quality products. The reason for that, of course, is that quick grown hardwood species have a tendency to have different density and appearance and are possibly not quite up to the same level of excellence from a sawlog perspective as are trees that are grown slowly over a longer period of time. So at the moment in Australia we have very few hardwood sawlog plantations. In fact the ones we have tend to have been planted quite a while ago or are on a very small scale.

I think it is a balance. Plantations certainly have their place in the industry, and we would contest an increasing place, but native forests will continue to be needed to provide for the wood that we need in Australia and of course for their great potential in the export arena as well. To finish, it is really important for the industry to show its credentials, that from a sustainability perspective we can manage our native forests for the long term.

CHAIR—I would like to follow on from one of the issues that you raised about the need for standards in the industry. The obvious question that comes to mind is why it is that NAFI or the industry more particularly decided not to look at signing up to the standards that were set by the World Stewardship Council. Was there a reason for that?

Ms Carnell—We actually have not decided not to. I am on the working party for FSC in Australia. We are very positive about having two sets of standards—I think a bit of competition never hurt anybody. The Australian Forest Standard, as I said, has been worked up by government, industry and the community over a long period of time. FSC had its first meeting early last year. That was followed by another one later last year.

The reason it has not progressed at this stage is that industry—not just NAFI but the pine industry too—feels really strongly that we should have one standard, or that the standard should cover both native forests and plantation forests. As you said earlier, it is really important from a native forest perspective to have standards that need to be addressed. Unfortunately, areas of the environment sector are uncomfortable or will not accept FSC covering native forests in this country, even though FSC was of course started to cover native forests. So there is a little bit of a stand-off, but from our perspective we are very keen for FSC to go ahead in this country, but

we do believe it should cover native forest because we probably believe that is where the big need is.

CHAIR—One final question from me and then I will open it to the other members. On page 10 of your submission you talk about the resource capacity in Australia to support at least one, if not three, world-scale pulp and paper mills, for a number of reasons—one being to reduce the deficit in paper products. How realistic a proposition do you believe that is? If it is realistic, where would you see one or three mills being located?

Mr Townsend—It is definitely realistic. The world pulp and paper companies are looking to establish 10 world-scale pulp and paper mills somewhere in the Asia-Pacific over this decade. We know there is a lot of interest to invest in world-scale mills using different resources from those they have used in the past—different technologies, different costs associated with the paper production—and targeting new markets, particularly in the Asia-Pacific region. Within Australia, the three pulp mills would actually operate with different resources to produce different paper grades, which is quite important for servicing the domestic market as well as getting the paper sold into the export arena.

We are competitive in virtually all facets of timber production in Australia, particularly on the growing side. It is when we start to move into the processing that we can encourage the investment in new mills to take that next step into the international arena and export, as well as meet our trade deficit. Where would the three mills be located? They would more than likely be located in Tasmania, the green triangle region and south-west Western Australia. It would depend on a number of factors because many of the companies associated with plantation developments in those areas are starting to think, 'Well, will I export woodchips or will I look at servicing a domestic mill if one gets up?'

The three mills will operate on different resources. It relates to one of your earlier questions where you were talking about the complementarity of the resources. The mill to go in in Tasmania would more than likely use a combination of plantation and native forest material. Why is this the case? It is because from native forest material you get higher density fibres that you can mix with the plantation fibres and produce the highest value paper grades. The pulp mill in the green triangle would most probably use a combination of pine and hardwood resources from plantations to make things like *Woman's Day* sort of paper. In Western Australia, the mill would run on pure plantation hardwood material.

Senator HEFFERNAN—You have stated that salinity is a big positive for plantation forests. How much funding have you put towards proving that suggestion, given that a lot of plantations occur where there is a knockdown of other trees? Our greatest salinity is in the lower rainfall areas. I am aware of research for pine plantations in 20-inch rainfall areas, but what money and what argument have you got to sustain that general proposition? I have to say that this is my first attendance at the plantation inquiry and I am strictly referring to New South Wales. I would be interested to know what your view was.

Mr Townsend—That is quite an important question because part of what the vision needs to address is how we go from looking after pure commercial plantations to looking after those that have commercial and environmental outcomes or those that have only environmental outcomes. You are right: in the low rainfall zone we are not going to cut it with plantations that are designed to produce timber for commercial purposes. That is just not going to work. They will

be environmentally based plantation activities that will require markets for the environmental services: the salinity benefit and the carbon benefit. We do know, though, that in the medium rainfall zone we can plant trees, grow them on relatively long rotations and produce timber on a commercial scale, but it will need some contribution from environmental service payments. Whether that is from carbon or some copayment that comes through salinity benefits or the government's programs under the National Action Plan for Salinity and Water Quality, there will be a gap and it will need to be filled. At the moment a lot of research is being undertaken. We have identified species that will grow in these areas and we have started to work out how we could manage them, but we do not really understand all the hydrological impacts. I imagine this is another area of concern for the committee. We do not know what the yield run-off impacts might be in these medium rainfall zones. We need to understand these impacts.

Senator HEFFERNAN—We need short answers because we are going to run out of time. What money have you put into the study of that?

Mr Townsend—We have not put it in. The federal government has put in a substantial amount. I could not give you the exact number off the top of my head.

Senator HEFFERNAN—Would there not be a case for the industry to put it in? The further up the mountain you go with your plantations, as it were, there will be less impact on salinity but more impact on the run-off. Are you aware of the science of the run-off? Plenty of statements have been made that every time there is an approval for a plantation there also ought to be the purchase of a water right to take it out of the system. Given that we have had evidence before another committee that over the next 70 years the run-off in the southern Murray-Darling Basin is going to decline by 30 per cent, one of the problems that this committee sees is the science of how much water you are taking out of the run-off.

Mr Townsend—The science needs to be improved. At the moment money has been put in, not necessarily by the industry, but to a degree. The majority has come from the federal government.

Ms Carnell—The FWPRDC, our R&D corps, which is half funded by the industry, has done a significant amount of research in this area, as have the CSIRO, the Bureau of Agricultural and Resource Economics and those sorts of bodies. So the industry has put in money via our R&D corps.

Senator HEFFERNAN—Do you have any conclusions from that research?

Ms Carnell—The conclusions are, as I said in my introductory statement, that there are a significant number—about five million hectares—of saline affected areas in Australia that the research indicates can support commercial plantations. Of the 600 million hectares that are saline affected, about 5.5 million will support—

Senator HEFFERNAN—What sort of rainfall country is that?

Ms Carnell—It is medium.

Senator HEFFERNAN—What do you call medium?

Mr Townsend—Medium is 500-plus millimetres.

Senator HEFFERNAN—Twenty inches.

Ms Carnell—Yes. It is that sort of area.

Senator HEFFERNAN—You stated earlier that 20-inch rainfall is marginal for pines.

Ms Carnell—We are probably talking about hardwood—eucalypt.

Senator HEFFERNAN—I really wanted to focus on the run-off. From my own personal experiences, if you go to the back of Bombala there are a lot of streams drying up because of plantations. What scientific conclusions have you drawn? I think a case will probably be made for the impact on the run-off and on the availability of water further down the river from plantations. Do you have a view? Do you think some sort of water right should go with the plantation right?

Mr Townsend—The same sort of approach should be taken with any dryland crop. How you manage those plantations will have an impact on your water run-off. Most of the research that has been done has used basic results, then that is multiplied by a large number representing the same number of hectares across the landscape. The researchers need to go out and do some more work. Where we had issues in Launceston last year, looking at water and run-off for the catchments in the Launceston area, they used scenarios that are not even applied by the industry. They did modelling work on that and said, 'These will be the water impacts running off the catchment.' A second study was done in that area which indicated that almost undetectable changes would occur even if all the suitable land was planted with trees.

What they have found in South Africa—and I can use the example of South Africa because they have been studying the water problem for plantations for a considerable time—is that if they take the plantations out of the streams and the drainage lines, even moving back just 20 metres, they get permanent flow back in the streams. What we are trying to find for the saline affected areas are ways to manage the trees so that—

Senator HEFFERNAN—I am not referring to saline affected areas.

Mr Townsend—Any of the areas where we understand water is an issue—

Senator HEFFERNAN—I am referring to the areas that run off into our water systems.

Mr Townsend—We understand water is an issue. What we are looking at is how we change the silviculture management, which can include getting out—

Senator HEFFERNAN—Is it an issue that the industry has ducked?

Ms Carnell—We do not believe the industry has ducked it. The industry is like any agricultural industry—it is a crop. Plantations have been planted on old farms sites—that is true—but on a competitive basis. Farmers have obviously believed that a tree crop was better for their property than other options and they have gone ahead with it. That is at one end of the

scale—that is the straight commercial end of the plantation arena. Then, as Mr Townsend has talked about, there is a whole range of different areas where you would plant plantations. I do not think it is appropriate only to focus on those at the straight commercial end.

Senator HEFFERNAN—That is fair enough. All I was trying to nail was that the science is incomplete on the impact on run-off of open-ended plantations in high rainfall areas.

Ms Carnell—It varies in every single site.

Senator HEFFERNAN—But the science is incomplete.

Ms Carnell—There is a lot of science, but you would have to say—

Senator HEFFERNAN—It is incomplete.

Ms Carnell—There are actual results that are at odds with each other—that is what we have got at the moment.

Senator HEFFERNAN—So the science is incomplete.

Ms Carnell—As science always is. Very rarely do you have a categorical outcome from a science perspective, do you?

Senator BUCKLAND—An area I am interested in is farm forestry, particularly hardwoods, given that I come from South Australia, where we have pretty well denuded the Yorke and Eyre peninsulas. What acreage would you need to make a plantation viable?

Ms Carnell—I think the issue of viability goes to providing enough wood to justify a processing facility within 100 kilometres—that is usually regarded as the distance you can take wood. That is really the issue, but Mr Townsend is the expert here.

Mr Townsend—You would be looking at quite a low rainfall area on the Eyre Peninsula, so the area would have to be quite substantial. You would be looking at 50,000-plus hectares—of that order—to get a viable industry of any sort. Because the rainfall limits the growth capacity of the trees in the area, the low growth rates mean you are looking at longer rotations, therefore a substantial resource is required.

Ms Carnell—That does not mean that we are necessarily looking only at a model whereby people go and buy 50,000 hectares. We are looking at a range of different models, such as joint ventures or leasing land from farmers. There is a whole range of ways of getting to that level.

Senator BUCKLAND—I understand that. In terms of transport, you would have to have a justifiable crop of trees.

Ms Carnell—Yes.

Senator BUCKLAND—I am not really clear on this point: when people talk about long-term plantings, what is a long term? Is it 20 years or 50 years?

Mr Townsend—Twenty to 80 years. It depends on the species and the climate.

Ms Carnell—And what you are growing it for.

Senator BUCKLAND—One of the things I have seen in forests that concerns me where you have farm plantings or plantings next to farms is fugitive weeds. I have seen that problem in Tasmania. It must be controllable. Has NAFI got a policy on controlling fugitive weeds?

Ms Carnell—We do not have an association policy on that. As you would imagine, that is really a matter of silviculture and the management of the plantations. Similarly, it is important for the industry to be good neighbours and ensure that we manage our plantations in a way that is appropriate for the whole environment. Certainly for our neighbours in the farming community that is absolutely fundamental if we are to be able to expand our current resource. In our submission we have spoken about the importance of community attitude, of the local community understanding and accepting the expansion of plantations in their area. Part of that is managing them well from an environmental perspective.

Senator BUCKLAND—What is the best way to establish and maintain farm plantings? Do you need a cooperative with a group of farmers? How do you manage that, given that many of the areas you would be looking at would be more than the 100 kilometres distance from a mill?

Ms Carnell—Almost all the areas we are looking at, particularly when you talk about the salinity affected areas, are on private property and small to medium holdings on lots of different farms. One of the challenges for the industry and government at all three levels is to come up with methods to allow investors to jointly deal with a range of farmers as a group. One of the impediments for investment in plantings in environmental areas or saline affected areas at the moment is the fact that investors potentially have to deal with 200 different land-holders to get the areas we have been talking about. Obviously, that is a huge impediment to a potential investor—a superannuation fund, a sawmiller or whatever. In order to overcome those risks or impediments, there is a need to find methods to do exactly what you are talking about, and the National Farmers Federation and the New South Wales Farmers Association believe that that is totally achievable.

Senator BUCKLAND—Have there been discussions with those organisations?

Mr Townsend—It is extremely preliminary, but we are starting to work on the question of how to bring land-holders together. They are aware, now, that trees can be a solution if they wish to deal with salinity and potentially have a commercial crop on that land and that they may be able to bring in investors. But nobody has really worked out how we are going to draw it together. The main reason it has not occurred is that we have not reduced the risk enough for investors to start bringing in the superannuation companies. They are the people who are interested in planting trees in these sorts of areas—the ones who can bring the money that is required to start to develop the environmental solutions. But, until we can lower the risks that face investors sufficiently, they will not bring in the money. Therefore, we have not come up with a way of coordinating the resource; there is no requirement at the moment. But we know it is an important issue that we have to deal with.

Senator BUCKLAND—Has the problem of species been considered? For example, a crop can be grown but you then find that they want a species change because of market demand. It is

bit more difficult with trees that are growing for 20 to 80 years. Is there a guarantee when you develop a plantation that in 80 years time there is going to be a market for it? That could be of two-way benefit.

Mr Townsend—That is a really important question. It is essential that when people look into planting trees they look at versatile species and at what is changing in the industry at the moment. We have some activities occurring on long rotations but we have got a continuing shift to shorter rotations and planting species that could be used for a number of purposes. Globulus is a perfect example. Not only can it be used for paper production; it can also be sliced and used for structural veneer products. It can also produce furniture grades, which they are doing in Spain at the present time. So, out of what is seen by some people as a pulpwood only crop, its management can be changed to produce a range of different products, depending on the markets available.

Senator BUCKLAND—We have talked a lot about salinity and I do not want to go over that—although there are a lot of questions yet to be answered on that and I would like to pursue those at another time—but, apart from salinity and trying to lower the watertable to reclaim some of that affected land, are plantings done to try to stop soil erosion? Again, I refer to those areas of the peninsulas, where you would really run a long way to find a tree when you need one. Soil degradation is a real problem; there are canyons running down the place now.

Mr Townsend—A number of trials were run through what was the original farm forestry program of the Natural Heritage Trust and there are some very good examples in Wagga of where they have stabilised the soils to control not only the water table but also the erosion impact. I cannot give you the figures off the top of my head but the study that was done on one of the farms demonstrated how they were able to stabilise the soil and retain the productivity in the headlands of that drainage area on the farm.

Senator O'BRIEN—Obviously, the security of this resource is an issue for everyone in the forestry supply chain. Can you give us some idea of how much of the plantation forestry stock has been destroyed in the recent fires?

Ms Carnell—We do not know yet. We certainly know how much has gone in the ACT area but that is a drop in the ocean.

Senator O'BRIEN—That is the easy one.

Ms Carnell—Absolutely, because it is almost all of it. We do not have any final figures. We certainly know the amount of national park that has gone. There is anecdotal evidence that it is not terminal, shall we say, for the plantation forests. The vast percentage has been national park or other reserve areas. The plantation forests have fared okay.

Mr Townsend—While we do not have figures on what has been lost out of the plantation resource, we do know that when the main lightning strikes hit the Kosciuszko National Park and the Brindabella National Park close to Canberra, several plantations were hit with lightning strikes in the Tumut area and they were controlled the next day. One group lost two hectares and another five hectares. It was a minimal loss.

Ms Carnell—Kosciuszko lost 330,000 hectares—different fire management.

Mr Townsend—There were some more lightning strikes just recently but the amount that has been lost has been quite minimal outside the ACT region, mainly because of the industry's capacity to deal with fires.

Senator O'BRIEN—I understand that plantation forests often require fire insurance, particularly to protect investors. Are you hearing any noises from these insurers or re-insurers as to the likely effect of the recent fires on insurance premiums? If so, are they talking about requirements for higher standards of fire abatement measures?

Ms Carnell—There certainly have been some noises. Obviously insurance companies are concerned and are seeking more information on what has been lost. We have not got any feedback on that but if you ask a bit later you might get a bit more from these guys.

Senator O'BRIEN—Okay, that is a good lead. In that context, does NAFI have a view on the need for a national approach to fire management?

Ms Carnell—We believe really strongly that there needs to be a national approach to fire management. We hope that a national inquiry will at the very least set a minimum standard for fire management in national parks and forests generally. Until that occurs, our capacity to ensure that our plantations, farms and production forests generally are protected to the best of all of our abilities is simply non-existent. When you have just lost 3.1 million hectares of Australia over a fire season and had the biggest fires ever in Australia's history, something has got to be done. Part of that has to be setting at least minimum fire management strategies right across the board.

Senator O'BRIEN—On page 16 of your submission you talk about the need for a centre for market excellence. Can you expand on this in terms of how it would be paid for? Is it possible for the information coming from the proposed centre to be used for public information rather than simply for industry needs?

Mr Townsend—We see that as an important communication effort all round about what the industry is up to. During the 2020 vision review process, most of the concerns raised about plantations generally revolved around a lack of understanding about where the opportunities lay in things like markets: where is the wood going to be sold? Who can utilise it? Why are we planting these trees? The idea of the centre for market excellence is to make sure that university graduates have a really good understanding of economic principles to match their skills in silviculture and management of forest resources, including plantations.

At the moment it is a proposal that is on the table. It is being considered by the Forest and Wood Products R&D Council for funding at the present time. Its aim would be to release a lot of public information as well—collect information from companies and produce material that can be utilised not only by students as real data but by the general public.

Ms Carnell—I think there is a proposal from the ANU—

Mr Townsend—And from Melbourne university and the CRC for wood innovation.

Senator O'BRIEN—On page 9 of the submission you point out that only five per cent of plantation resources can be regarded as farm forestry. Are you aware of the percentage of

farmers who have taken up this option? I would have thought it is possibly a strong driver for farmers.

Mr Townsend—I think you would have to look into a Landcare study that was done for ABARE—I think the results were released in 2000 or 2001. Something like two per cent of farmers have taken up the opportunity for commercial plantation development. A significant number more are planting trees on their farms for multiple reasons, but I think it is around two or five per cent—I cannot be sure off the top of my head. It was a Landcare supplementary study done for ABARE's farm surveys and released in either 2000 or 2001.

Senator O'BRIEN—We will look that up. While I think of it, you mentioned southern African studies about plantation forestry and hydrology. Can you give the committee—not now but later on—the references or copies of those studies?

Mr Townsend—I am quite happy to give you a rundown. I went over to have a look at it to see exactly what they were doing in terms of hydrology. I can point you to some of the work that has been completed. There are volumes of material.

Senator O'BRIEN—You say that you are quite happy to give us a rundown in addition to the answers you gave to Senator Heffernan. What were you intending to tell us?

Mr Townsend—Whatever sorts of questions you would like to raise. You want to know certain things about what was found there. We can provide you with written material or references—that is fine. If you want to ask other questions about what is going on in terms of the research programs and what their findings are, I am quite happy to go through that with you at some later time.

Senator O'BRIEN—If we can get that written material first, perhaps we can come back to that.

Mr Townsend—Yes. We can certainly provide the references to you.

Senator O'BRIEN—On the first page of the attachment to your submission you suggest that a small tree subsidy could be used to fund a task force which would look at developing markets for environmental services. Do I take it that you have modelled the potential amount of subsidy that would be required? Over what period would the subsidy be needed?

Ms Carnell—I will hand over to Mr Townsend in a minute but, as you can imagine, the amount of subsidy will vary dramatically depending on where the planting is. We would rather not call it a subsidy. We know that if you can bring down the cost of planting obviously and the cost of silviculture then in some areas, even in saline affected areas, there will be no need at all for subsidy to produce an eight per cent internal rate of return.

Senator O'BRIEN—You did call it a subsidy in your submission. That is why I use that term.

Ms Carnell—I do not like 'subsidy'. You are right, absolutely. In areas that are more affected, that may be further from market, a whole range of things then—greenhouse credits and possibly salinity credits—will become more important to produce that minimum eight per cent

that industry will need for investment purposes. So it varies depending on the area. But we believe that there will be some style of greenhouse or carbon credit introduced in Australia. Depending which way policy goes—whether it is internal in Australia or a deal with the US or a more global approach—it will happen. So that will plug some of it. Then in areas that are more saline affected than others it is really a matter of balancing the environmental benefit with the salinity credit. It is important to remember that if we do not do it this way the projected costs of planting these saline affected areas with trees is over $20 billion.

Mr Townsend—Twenty-five billion dollars.

Ms Carnell—That was the New South Wales Farmers Association and the ACF approach. No government is ever going to be able to afford that so we have simply got to be able to bring the private sector in and make these equations work, which we can.

Mr Townsend—Since we put in the submission we have found, in talking to the institutional investors, that they still see a lot of risk involved in the nature of the projects. We have approached the federal government to look at bringing together all the research available on plantation forestry and to start getting a real commercial focus on the options for planting trees. How should trees be managed in the landscape and what are the impacts? Potentially, what are the environmental benefits that may be covered by environmental services programs and copayments rather than subsidies, as you correctly point out, to fill that gap? Until we get that research done we just do not know how the money should be provided to fill the copayments.

Senator O'BRIEN—Finally, the Environment Australia submission calls for the revised 2020 strategy to 'explicitly acknowledge the need to retain remnant patches on previously cleared land' for the purposes of providing refugia for biodiversity. Can you address the practicality of doing this and any history of the plantation industry's approach to this matter?

Mr Townsend—This is a very important point for the plantation industry. I have to say that, where the managed investment companies have taken a step towards developing plantations over the last five years, they have worked to retain remnant vegetation. When we looked at the potential and the opportunities for conserving the remnant vegetation, we found that about one-third of the land that has been purchased for plantation establishment has been retained for remnant vegetation. That is quite a substantial effort on the part of the companies. There are number of reasons for that. Firstly, the remnant vegetation exists and may not be allowed to be cleared due to the codes of practice operating in states and, secondly, it is probably marginal for plantation growing.

Ms Carnell—But it does come down to the fact that we will not make this industry grow if we do not bring the community with us. These sorts of issues do have to be addressed.

Senator O'BRIEN—You might find a few remnant patches on roadsides.

Mr Townsend—One-third is what was found, of the land they had purchased.

Senator MURPHY—Mr Townsend, I think you are right in saying that remnant vegetation is either protected for environmental reasons or it has proved to be an unsuitable area for planting. My experience in my own state and in other states that I have visited is that managed investment companies who buy land seek to plant out whatever they can of it. That is really a

decision based on economics, and that is the right decision. But I am sure a lot more can be done about remnant vegetation. With regard to some of the issues you have raised on page 10 of your submission, you say in the fourth paragraph:

The true value of the plantation resource expansion envisaged by the 2020 Vision proponents is only now starting to become a reality. Australia is close to having the regional timber resources in a number of areas which could support up to eighteen brown and green field investment opportunities ...

You have in brackets what I assume is your reference:

(Investment Opportunities in the Australian Forest Products Industry, Jaakko Poyry, 2001)

Could you provide that reference?

Mr Townsend—You can obtain it from the AFFA web site.

Senator MURPHY—Thank you. You then go on to say:

From the supply side of the market, Australia either has, or will have in the near future, the resource capacity to support at least one, if not three, world-scale pulp and paper mills.

What do you base that on?

Mr Townsend—Information such as that which you have on the desk in front of you. We have information on wood flows and the potential for those wood flows to come out of the various plantation regions, particularly those established hardwood plantations. But it can be a combination of what we know of wood flows from the hardwood and softwood regions.

Senator MURPHY—What is the information on those wood flows based on? Is it based on statements from prospectuses as to the anticipated volumes to be generated or is it based on some research that gives you an actual volume generated?

Mr Townsend—It is based on a number of things. The Jaakko Poyry report points to the potential of those three regions for pulp and paper production. The BRS report that you have on the table in front of you gives an indication of what can come out of those regions as well. That is not based on managed investment company figures.

Senator MURPHY—Tell me then what it is based on.

Mr Townsend—It is based on what we know about the modelling of wood production out of those areas.

Senator MURPHY—Is that current wood production?

Mr Townsend—No, wood production out of the plantations that have been established. I think if you looked at that BRS information that is sitting right in front of you, you would get an indication that they took a range of possibilities of timber production from the woodland that has been planted and looked at the potential of those various regions. It has been broken down on a regional basis in that document.

Senator MURPHY—What research has NAFI done with regard to plantations that have been more recently harvested—for instance, in Western Australia, in the Greater Green Triangle Region or in Tasmania? What research have you done?

Ms Carnell—The Western Australia government has also done a chunk of research which—

Senator MURPHY—Let me rephrase the question: what analysis have you done with regard to the production of the plantations currently being harvested?

Ms Carnell—We as NAFI have not done any, but we are not an association that has those sorts of resources. As you have heard, BRS has. I heard a presentation from the Western Australian government and they have had a look at what they believed the outputs were going to be from the plantations that have been planted in Western Australia. They believe also that the outputs will be more than enough to support a pulp and paper mill in the south-west of Western Australia and they are out there with glossy brochures and overseas trips trying to convince investors to come to the west.

Senator MURPHY—Who seem to remain unconvinced at this point in time.

Ms Carnell—We are absolutely convinced that the capacity of the plantations that currently exist, and the native forests that back that up, can produce product for one to three pulp and paper mills in Australia. I am sure that you would agree, Senator, coming from Tasmania, that it is a tragedy to see all of those chips head off to Japan when we could be manufacturing with them here in this country.

Senator MURPHY—I will get to the pulp and paper mill in a minute. I am interested in the first instance about the issue of production out of the plantations. Certainly the research that I have done questions whether or not you are going to get the same growth rates in production from the existing plantations that have been harvested already and the likelihood of those being harvested in the future—particularly when you are looking at second rotations, on which little work has been done from a hydrological point of view. I know there has been in softwood. I understand that; it has been around for a little longer. But with regard to hardwood plantations, it would seem on the face of it at least that the yield is way below projected yields.

Mr Townsend—We rely on the experts in this area. You can defy the experts that have put forward the BRS report and say that people like Ian Ferguson do not really understand what is going on. He is using what information is available—not out of prospectus documents, but what the understanding is about timber production. You are right about the hydrological impacts: we do not know what they are in terms of second rotation. A number of the companies are undertaking research to understand what is going on there in terms of potential second rotation decline and how that might be resolved.

Senator MURPHY—I do not claim to be a greater or a lesser expert than some of the experts who put together the BRS report. But facts are facts; that is the reality. I base my questions on information provided to me by people involved in the harvesting of these plantations. I do not claim to be an expert—not one little bit. I have a responsibility as a politician to ask questions with regard to the veracity or otherwise of claims that people make in their submissions to this committee.

Mr Townsend—We agree quite strongly.

Ms Carnell—I think there are two issues though. One is what return investors may have been promised, and that is at one end of the scale. The other issue is whether there is enough—

Senator MURPHY—We will get there. That is not necessarily a question for you; that will be a question for the tax office and a few other people in AFFA.

Ms Carnell—I understand. I was going to say that really is not our issue. Is there sufficient wood coming out of these plantations to be able to service a pulp and paper mill in Western Australia, the green triangle and Tasmania? The fact is that our figures say there is.

Senator MURPHY—Certainly there would be in Tasmania with regard to both plantation and native wood supply. With regard to the issue of establishing one or three pulp and/or paper mills in this country, what is the time frame for commissioning a world-scale pulp and paper mill?

Mr Townsend—The time frame is basically five years from the time somebody says, 'We're interested in undertaking a feasibility study,' to actually getting the mill built.

Senator MURPHY—What is your knowledge of the pulp and paper mill development going on in the world at the moment?

Mr Townsend—It is an interesting expansion. I think you missed this earlier when we were talking about the world pulp and paper industry looking to put in 10 world-scale pulp and paper mills in the Asia-Pacific region some time in this decade.

Senator MURPHY—I am sorry, maybe I did not phrase the question properly. Are you aware of any developments currently occurring in the Asia-Pacific region or planned to occur there in the short-term future—that is, within the next three years?

Mr Townsend—A number of feasibility studies have been completed in various countries, but none has been taken forward to the step of: 'Yes, let's commission a pulp mill.'

Senator MURPHY—Not even in China?

Mr Townsend—I would have to have a look. I think there is a report of one very recently getting the go-ahead, but I do not know if it is a softwood or hardwood mill.

Senator MURPHY—I suggest you also look at recycled paper.

Ms Carnell—One of the things that makes Australia a really strong contender is that we do have the resource here. As we know, in China they do not. We see the dilemma in Indonesia now where they have paper and pulp mills that simply cannot get resource. So our capacity to go ahead with a pulp and paper mill knowing that we do have the resource in this country gives us a huge competitive advantage.

Senator MURPHY—I accept your view that we have some resource. I am not sure that it is ever going to be processed in Australia.

Ms Carnell—I think that would be very sad, and I am sure you would agree.

Senator MURPHY—Absolutely; I fundamentally agree. That leads me to my next question, which is in relation to the great bulk of the plantation companies—that is, the managed investment plantation companies. Have you discussed with any of them their plans for looking at becoming involved in and/or helping to secure investors in pulp and paper manufacturing in this country?

Mr Townsend—Given the time scale we just discussed—five years, from feasibility study to full commissioning, to get a pulp and paper mill up—the managed investment companies at the moment are quite open to opportunities if a pulp mill is to develop in Australia. But, given the time to commissioning, they are working towards woodchip contracts as there are no real opportunities on the table. We do know that Gunns are quite interested in supporting a pulp and paper mill if one can be built in Tasmania—to be part of that process.

Senator MURPHY—I guess I was asking the question from a national perspective.

Mr Townsend—There are companies that are talking about being involved. We are just not sure about where this will lead in the future, given the scale of investment that will need to be brought in for one of those pulp mills.

Senator MURPHY—What type of contract would those companies be likely to sign up to for supply to a foreign pulp or paper manufacturer of either roundwood or woodchips? What do you think would be the likely term of a contract if you were a company seeking to sign up a wood supply agreement?

Mr Townsend—Generally a minimum of five years.

Senator MURPHY—More likely 10 or 15.

Mr Townsend—It can be. That is the truth.

Senator MURPHY—Yes, it can be, but I think you know that it is more likely to be 15 years. It would hardly be likely that a major company investing in a pulp or paper mill anywhere in the world would seek to sign up a five-year wood supply agreement when it could run out. They would seek a longer term agreement, and that would be the case here in Australia. That is a fact.

Mr Townsend—Would it be the case here in Australia? If we had a pulp mill in Australia they would want extremely long-term contracts to service that mill, but for the export market at the moment we are aware that they are talking about five-year contract terms and upwards.

Senator MURPHY—You say in your submission:

Australia has the potential to develop an export-oriented industry, which also supplies veneers, laminated products, wood-fibre composites, engineered products, biofuels, charcoal and preservation-treated materials.

What is that statement based on? What are the facts that would underpin that happening?

Ms Carnell—The projected usage of those products in the Asia-Pacific region, particularly in China and India, is quite significant. As their standards of living are increasing quite quickly, the use of wood products is also increasing quite significantly. Australia is a competitive producer and, due to our position in the world, our transport costs into that market are lower than those of our competitors in South America and South Africa. The world usage of those products in our region is increasing and we believe that our capacity to service that increase is very good.

Senator MURPHY—Service it in what way—with manufactured goods?

Ms Carnell—Obviously that is what we would like to see.

Senator MURPHY—Yes, but my question is: what are the facts that would underpin the statement? What it is saying is that we would be able to put manufactured goods into, for instance, China. I would like to know the basis on which that statement is made.

Ms Carnell—Fairly obviously, in a global economy, if we are competitive our products will be able to be brought into that market. There is no doubt that there will be raw materials exported into China as well because their labour costs are lower.

Senator MURPHY—What research has NAFI done, or is aware of, that would suggest we are competitive in the Chinese market in manufactured timber products?

Mr Townsend—If you look at the Jaakko Poyry report, it has our competitiveness benchmarked against a whole series of countries in terms of timber growing and processed products. That will give you a good indication that we are at the top end of the international competitiveness scale. As we point out in our submission, we have the potential to play a part here. What we are looking at doing within the industry at the moment is developing a strategic framework to take the industry forward, just as the Wine and Brandy Corporation and the motor vehicle manufacturers have done for their industries. You will hear tomorrow from people who will talk about simple economics: this much wood in Australia, this much wood required—we do not need to plant any more trees. But that is so wrong. We know in Australia that we need to build our international competitiveness and then the scale of our industry. The only way we can be part of that is by tapping into the export arenas.

Senator MURPHY—I do not necessarily disagree with anything you just said. But the anecdotal evidence I have, from all the sawmills and processing mills I have talked to in this country, suggests to me that we are not competitive at the moment in terms of providing enough manufactured product to underpin a significant manufacturing industry in this country.

Mr Townsend—I would like to point to a lecture that was delivered at the end of last year at the NAFI conference by Mike Taylor, a consultant to the North American forest industries. He was talking about why the North Americans are looking at Australia. We are internationally competitive but they see that there are good margins on our milling side. We need more resource and we need to expand the capacity of our milling side, but they see that there are huge investment opportunities here in Australia. That is why they are targeting Australia for investment.

Ms Carnell—Senator, I think you would agree that in Australia at the moment most of our sawmillers and others are selling all the product that they can manufacture, and they are selling it predominantly into the Australian market. What we are talking about in terms of *2020* and, hopefully, an expansion into environmental plantings is significantly increasing our wood resource availability and therefore being able to service larger plants that are significantly more world competitive. At the moment there is a resource issue, as you would be aware, and people can sell what they have got. We are looking at a real jump in that market and lots more jobs in rural and regional Australia.

Senator MURPHY—I would have to disagree with that statement entirely. In terms of the native forest industry in this country, we are probably chipping and/or burning huge volumes of resource that could actually be manufactured. We cannot manufacture it because we are not competitive. I talk to people like John Gay, from Gunns, and any number of other sawmillers. You can go anywhere in Australia and ask them about this. For instance, the largest timber market currently in terms of growth is China and we cannot put manufactured product into there competitively—we can put some, but not much.

Mr Townsend—What we are trying to allude to is that we are working with the players in the industry to work out how we take that next strategic step, how we build the industry to take advantage of the additional plantation resources people think should be established in Australia and how we utilise those materials. We are aware we have to build that next major step into the export arena in order to remain internationally competitive. A lot of people are trying to push resource and supply issues onto the industry. Somehow we have got to work out how to deal with all of the resources that are available and use them to our advantage.

Senator MURPHY—Yes.

Mr Townsend—It is not an easy task. It just requires thinking across the whole of the industry.

Senator MURPHY—And a good dose of reality.

CHAIR—As there are no further questions, I thank Ms Carnell and Mr Townsend for appearing today. Thank you for your assistance to the committee. I understand you have given some undertakings to provide additional information requested by Senator O'Brien. I was wondering if you would also provide a copy for the committee of the paper presented at the Albany conference last year on alternative investment structures.

Mr Townsend—Yes.

CHAIR—Thank you.

[10.10 a.m.]

JAMES, Dr Ryde Naismith (Private capacity)

CHAIR—Thank you, Dr James, for appearing here this morning. Do you have any comments to make on the capacity in which you appear? Then you can make opening remarks before I invite members of the committee to submit questions.

Dr James—I am a senior lecturer in the School of Resources, Environment and Society at the Australian National University. I appear as an individual because the Australian National University has no position on this issue. I have worked in forestry for over 40 years in both Australia and New Zealand. My principal qualification is a doctoral degree from the University of Oxford, and my specialty is plantation forestry.

In my written submission, I noted that the *2020 vision* document envisaged that plantation forestry would increase in area by additional planting on land which is currently farmed and by the farm owners, either by themselves or in partnership with state forest agencies, and they would contribute to this. I believe I have identified an impediment to this happening, in that there is no standard recognised quality description for logs, which are the ultimate forest product for the grower before processing begins in a sawmill or other mill. Let me explain that. Where logs are used as logs—that is, as telegraph poles or power poles—they are the final product and there is an Australian standard governing their quality. Logs or any other wood from a forest is not a final product—it is to be sawn or chipped or reprocessed—and there is no national definition of the quality.

That does not mean to say that people do not know what they are doing and that there are not quality standards, but the fact that there is no accepted and on-the-table national definition leads to mutual suspicion between the small grower and the miller, which may or may not be founded but which prevents a proper evaluation of future profitability. Because people do not know how to describe the product they grow, they have difficulty then looking up a price schedule to find out what it might be worth. They then have difficulty coming to terms with being advocated to grow it.

Large growers and processors are not affected by this, as both use grade descriptions that are well understood by both parties to any sale contract and which are varied by agreement from sale to sale. So I am not saying that people do not have quality standards. Millions of dollars are exchanged in the sale of forest products, and the people who deal with that are usually large growers and large processors and they know exactly what they are doing. The principles by which logs are described are given in the booklet that I have given to you. They are not secret in the sense that people are holding them confidential; it is just that they are not that well known because only a few people have hitherto participated in these transactions. So there is no incentive for the large growers to develop standard grades, because both they and their customers are well suited to the current arrangements.

There is no real attempt to keep these grades secret either. At least one producer has indicated a willingness to contribute to a standard log description and to make prices more generally available. Others may well be willing; I have not asked many of them. As I gathered the data for

that publication I have handed to you, I began to perceive what the next step might be and to ask some of them. There was a general openness; it is just that there is no impetus for them to take that next step because they are well suited by the current arrangements. I would like to contrast this with the situation in New Zealand where so-called indicative prices are published each quarter by the New Zealand Ministry of Agriculture and Forestry. I have handed out to you one page from the *New Zealand Journal of Forestry*, which publishes by grades a log price summary every quarter. It does not matter what these grades are, but I can say that the principles that govern the definition of quality grades are the same in Australia and New Zealand.

The most prominently traded species in both countries is radiata pine, and they both work on the same principles: the size of the log; whether it is pruned or not; if it is not pruned, the size of the branches; and whether it is bent—that is, whether it is straight or not. Those principles pertain in every state of Australia and in New Zealand. The grades in the *New Zealand Journal of Forestry* may not suit Australia exactly, but they follow those principles. You see the letter P, which indicates pruning; and S and L, which mean pruned small branch or large branch. What is considered small or large may vary between Australia and New Zealand, but it is argued that logs which are large, straight and have small branches are preferable to logs which are small, have large branches and are crooked. That is quite clear and no-one argues about that.

The grades in New Zealand do not have the status of a national standard—and I explain why they probably should not, because they are not a final product—but they do have a kind of national reference, and they are published by those grades every quarter. Sales are made in New Zealand not necessarily adhering to those grades. Often the grades are amalgamated, but people understand them and they talk and bargain in terms of a reference set of grades maintained by their Ministry of Agriculture and Forestry, and originally devised by their Forest Research institute. So there is some scientific basis behind this and there is also a practical component. They are well used and have been in existence for some years, since about 1987. I suggest that this is a desirable situation.

Small growers, who sometimes ring me up for advice as a more or less neutral party, have identified a lack of standard descriptions of logs as an impediment to plantation expansion. My submission to you is simply to ask you to ensure the concept. If you lent your prestige to this, some research by me or by somebody else might be done in this direction. It would, in my view, be desirable to have an authority like AFFA publish this kind of data at regular intervals. That is my submission: that you consider the endorsement of the proposal to develop national log grade descriptions for at least the most prominently traded species in plantations—radiata pine.

CHAIR—Thank you, Dr James. Senator Buckland, would you start the questions.

Senator BUCKLAND—Dr James, in your submission you talk about log grading—and you have again this morning—which is something I have not considered before, not being in the industry. The 2020 vision strategy tends to talk about providing the current potential tree growers with indications of log requirements and prices. How do you actually put that together? You are coming from a different perspective from them, from what I can see.

Dr James—I do not think so. Wood can be sold in many different ways, and the details are given in the report that I gave you. It can be sold as a block of standing trees. It is common these days, however, to assess that block of standing trees and to work out what it could provide in terms of a range of qualities. There is a gradation of the quality of logs. By and large, they go

from logs suitable for veneer, which would be the highest grade—straighter, rounder, probably pruned, certainly with small knots and fewer than are tolerable for a sawlog, and other quality requirements—down to sawlogs. There would be a range of grades in sawlogs—straighter, bigger and with smaller branches is better—then the residue, which is pulp log grades.

Lower requirements can use logs of higher quality but not the other way around, so you can pulp a log which could be used as a veneer log if you had to but you cannot take a pulp log and peel it for veneer. If you sold the wood as a standing forest, someone would usually have made an assessment of the quality that might come out of that standing forest and would pay on that basis. Sometimes that is the way in which trees are sold: by an assessment agreed by buyer and seller. It is often a preferred method of assessment. But it can go right down, at the other extreme, to a sale on a log-by-log basis, where the trees are harvested, put into what is called 'sorts' of logs and people buy a package that suits their requirements. So a sawmiller would buy sawlogs, a pulp miller would buy pulp logs, and the logs would be going to different destinations. Everything, including ranges in between that, are used for the sale of forest products.

Small owners are a little bit outside that circle. What I was talking about was a well-organised system by large growers and processors that is well understood by them. The small growers complain to me that they are outside that system and tend to be price takers and tend to not understand the system. The millers tell me they are a nuisance to deal with because they do not understand the system and that 'you have to actually educate your customer'—that would be the most polite way I can describe what they think of the small growers. But it tends to mean that the small growers are out on the edge. If the 2020 vision is to bring them into the game, then that is what I have identified as one of the impediments. I think that was one of your terms of reference: are there any impediments to progress? I suggest that is one of them.

Senator BUCKLAND—Do you see other impediments for the small growers?

Dr James—If I look behind me I see some people representing small growers so I do not want to poach on their territory.

Senator BUCKLAND—Feel free.

Dr James—Small forest growers would tell us—and this is anecdotal, because I am not a small forest grower—that sometimes regulations can be irksome and things that are permitted in farming are not permitted in forestry. Whether that is vested interest talking or not, I cannot comment. I will give you an example: it is common to rip ground—that is, to pass a tine through stony ground to loosen it before planting—and I have heard that some local shires call this an act of public works and require a permit, whereas a farmer planting a crop would not have that impediment. That is an example that has been told to me, but I stress I cannot verify it.

Senator BUCKLAND—I am interested in the small plantations on farm lots because I see many benefits arising from that, but I see that the producers could be disadvantaged by the millers. One of the problems I see is the time. I asked another witness this morning a question about time.

Dr James—Waiting time for returns?

Senator BUCKLAND—Where you are looking at 20 to 80 years, dad would plant it and hopefully the son would log it. That is an impediment in my view. You have not got the continuity of process or of people involved. But would the cost of maintaining a small plantation vary? In the larger plantations I have seen pruning and the clearing of undergrowth. All that cost has to be borne by someone. Is there any assistance from the manufacturers or the end users?

Dr James—No, there does not tend to be any assistance from the manufacturers or end users at all. I can make two comments relevant to your questions. As a greenfields enterprise, planting, waiting that time and then harvesting and selling are things that, in my experience in Australia and New Zealand, only governments do. If you can think of an exception, it is because there has been a tax write-off or a government incentive, by which I mean that again the government is doing it but in a different way—only partly doing it.

How would the small forest grower get on with that? Joint ventures seem to be the way that many of them are tackling it, and what people have told me is that there is a preference for the small grower to accept an annuity. A joint venture can vary all the way from the small grower carrying out the work themselves and allowing a larger agency to market the timber and accepting an entrepreneurial yield, right down to handing over virtual control of the land and the pruning and thinning, the high-cost component, in return for an annuity on that land. I gather that it is the annuity—which of course may be lower in the end but which takes the risk out and is immediate—that farmers are finding favourable, at least in the first round. They may do some more themselves later when they see a guaranteed cash income, usually from a state agency, so they have the faith that it will be paid. That is one way in which farmers are doing that. The other way is the prospectus companies, I suppose. But I would say that, as questions to the previous witnesses indicate, there is some government component, such as tax amelioration, in that.

Senator BUCKLAND—Can you point us to any material that relates to research and development activities—the CSIRO is one good starting point—for small plantation growers? Has someone carried out an assessment of the advantages of a small plantation?

Dr James—I cannot think of anything offhand. I can think of overall assessments that show that forestry is profitable if you go through that whole complete cycle. That is generally how it is evaluated. Now that you have asked the question, I can think of a New Zealand study that pointed out that cash flow was one of the impediments to farmers. It was a study of a farm that showed how long there was before a return and, if farmers were doing it themselves, in the first rotation, what they could afford to lose in the way of lost farm income. Ultimately, even though there may be some early grazing amongst the trees, the trees will smother out the grass and eventually you have a loss of farm income.

Now that I think of that question—and this was not really in my submission—I can think of another class of people who do this, carrying the expenses themselves. They are people whose farm has been in the family for some generations and who thus have low mortgage outlay—in other words, they can afford it—or people who have another job or another income stream. In the study I was referring to, the person had a career outside the farm as well and could then live on that off-farm income, in part anyway, and could afford to carry out some of the work themselves. The time factor is an impediment to private investment, yes, as is the reduction in farm income that occurs.

Senator BUCKLAND—Can you give an indication of a sustainable size holding for a farm plantation?

Dr James—There is a quite firm agreement around Australia, but it is based on a back of an envelope calculation. Everyone says 20 hectares is the minimum. I asked what the basis was behind that, and people said, 'It provides enough for a viable thinning.' It is a back-of-envelope calculation that says that if, in the thinning, you can harvest 50 cubic metres per hectare and you have 20 hectares, you will have 1,000 tonnes. One thousand tonnes is about the minimum for it to be worth while setting up machinery and travelling to an isolated block to obtain.

Senator HEFFERNAN—You would still nearly be held to ransom by the operator.

Dr James—I am not saying that that is a vast profit. I am just saying that there seems to be firm agreement that 20 hectares is the minimum size, and it is a very simple—maybe even simplistic—calculation that I have just outlined. It is real back-of-envelope stuff, but it seems to have common currency. I have heard it in South Australia, Western Australia and New South Wales. When you ask what the minimum is, everyone says, 'Twenty hectares.' When you ask why, they say, 'It's just that simple.'

Senator HEFFERNAN—I think the average farmer would think he was better off with 20 hectares of lucerne than trees.

Senator O'BRIEN—Your submission calls for this national log rating standard to be developed in Australia along the lines of that which exists in New Zealand. Could you give us your view of what, if any, the role of government would be in the establishment and maintenance of such a grading system, or is this simply a matter for industry?

Dr James—I think a government gives it credibility and authority. While the Ministry of Agriculture and Forestry in New Zealand did not actually devise those rules—they were devised in part by research and in part by industry acceptance—by publishing data with those grades inherently embedded in it, that gives it quasi authority. So it is not a New Zealand standard. And, because it is an intermediate product, I do not think it should be elevated to the extent of a standard maintained by Standards Australia, but I think some authority like that sets it up and allows a point of reference. The New Zealand case is much simpler—there is only one state, as it were, and so on. There are good reasons why it has not happened in Australia, but there is also an inertia. I find no opposition but no reason to do it amongst the people who currently grow and process timber.

Senator O'BRIEN—So you are suggesting that it be part of the ministerial meeting process, that it be pursued through the ministerial meeting processes of federal and state governments to drive an agenda to achieve this?

Dr James—Yes, that could be a way.

Senator O'BRIEN—In terms of the cost to government, you suggest the cost would in the development of the standard and the collection and publication of data?

Dr James—Yes, I think that would be a fair comment.

Senator HEFFERNAN—With regard to plantations on farms—and I am a worn-out farmer—in my experience in my district I do not think it has any acceptance at all because of the economic side of it rather than the environmental side. In our area, the salinity argument is much more powerful with the planting of lucerne. Do you have a explanation for the committee on the carbon credit side of this? I went to a carbon credit meeting in Junee and at the end of the night we all discovered that you get a credit when you plant the trees and then you get some sort of a debit when you cut a tree down. If you do not have a rotating plantation, it is all a waste of time.

Dr James—I think you have hit the nail on the head. There are pluses and minuses, yes, and it might balance out in the end. Mature natural forests are generally regarded as carbon neutral and it is generally regarded that you do not do much for carbon sequestration unless you constantly expand the plantation area. So there would be a net gain for a country that followed the 2020 vision up to the point where we got the supposed limit of three million hectares of plantations. After that it would tend to be neutral: working on a rotation, sequestering carbon and then using it. There would be some gains if the carbon were preserved, that is, built into buildings or preserved in fence posts—in other words, locked up—but it is generally thought that a good approximation would be a cycle. It then buys time—I think that is the point—to reduce carbon emissions. That is a personal opinion. I see that as the gain in the long term, that it is going to be carbon neutral.

Senator HEFFERNAN—You have got the risk of fire of course as well.

Dr James—Yes.

Senator HEFFERNAN—For a farmer in a 20-inch rainfall area. I accept there may be saline areas in Western Australia et cetera where it will be a major benefit. But for the slopes in New South Wales where there is a major saline run-off I think the average farmer does not think trees are the solution.

Dr James—That is why cash in the hand is popular. If someone says, 'I think there is a future in it, because I have had experience in this industry, and I will offer you a rental for your land,' that is why people take it up. I worked at New Zealand Forest Research at a time when the section I was leading did a survey of farmers there, and I think the attitude there would be the same as that of farmers here, in that they found that farmers knew a lot about their own business. One of the questions asked was: do you know, or could you find out within a few minutes, the current price of wool at the wool auction? Almost everyone knew that. It was the same for meat. In this particular survey no-one farmed deer, but almost every farmer—about 60 per cent—knew the price of deer meat because they were looking for opportunities. The conclusion was that they knew a lot about their own business. When asked what was the price of wood, they had no idea: when asked to guess, they guessed low; when asked to guess about the costs of forestry, they guessed high. So you are asking people to make a jump from an industry which they know a lot about to one which they do not know much about, and naturally they are cautious. And a proclamation that says, 'You should all plant trees,' actually does not do too much for people at the coalface—they are not really induced by that.

I was in a group that carried out research for some years advocating agroforestry. Not much of it, to tell you the truth, was taken up. Some did, and with some success when it was taken up. But largely they were people who could afford to do it anyway, because they had farms that had

been in the family for many years and had no mortgage repayments and things like that, or because they had weed infested land they wanted to retire and so on. When we looked into it further we found it was the loss of farm income that was the chief impediment, not knowledge—they were willing to buy in expertise but they realised they would actually have to forgo income and wait for some time.

Senator HEFFERNAN—For a farmer it measures up to how much you can afford to pay for a warm feeling, in a way. Three or four crops of lambs, which can happen twice a year on lucerne, powers over the top of the economic return from timber.

Dr James—That is right. You also have to live on your own income, whereas a government agency which has largely been involved in afforestation has the ability to wait until it is profitable.

Senator HEFFERNAN—It seems to me, also, there are a few carpetbaggers in the carbon credit business.

Senator MURPHY—It is also the case that it could have an advantageous effect if you were to enter farm forestry on the basis of mixing it with your cropping and/or other farm management programs.

Dr James—I agree with that. Many farmers are alert to those opportunities. But trees and pasture are antagonistic—trees shade pasture. Eventually, if you want a forest crop, you will have to take some loss of income either by retiring land from farming or accepting reduced livestock carrying capacity, because at maturity the trees will shade out the pasture. So this is a powerful disincentive to farmers.

Senator MURPHY—There has been some research, particularly in some areas that are more susceptible to salinity though heavy cropping—for instance, in some wheatbelt areas—where road planting of trees, rather than wholesale or broad acre planting, is proving to be quite successful in lowering the salinity and watertable problem, allowing that land to be broadscale cropped within six to 10 years.

Dr James—Yes, you are right. I am aware of that; I have read reports in Western Australia where this has been proven. I understand that that would be a powerful incentive to plant trees. As a forester I am certainly not against it. I am just saying there are a few impediments in the road. When people stand back in amazement and say, 'Why aren't they all doing that?' there are some pretty real reasons why they are not.

Senator MURPHY—There is an impediment—or maybe it is not—that I would like to ask you about. It relates to the way the 2020 vision strategy has been run in terms of the participants who have entered the game—namely, the managed investment companies. Do you think the approach being taken by prospectus based managed investment companies and the yields they are projecting in the prospectuses for investors could ultimately have a negative impact on the long-term investment by both retail and institutional investors?

Dr James—You are referring, I guess, to a variation from what was proposed either because plantings have failed and there are some unstocked areas or plantings have partly failed and there has been some lowering therefore of wood production in some areas. We went through a

phase of rapid expansion where the practices of site selection and establishment were not well understood by some, at least, of the new entrants. Some of the older established agencies stood back from that, as you are probably well aware. I was told by one state agency that, after some decades of research, they were still unable to accurately pinpoint good and bad sites for globulus. They had surprises in both directions and tended to stick with what they knew. So it was a speculative enterprise which had, like most speculative enterprises, good and bad parts to it. I think it will settle down the second time. These rotations are quite short and the knowledge will be gained quite quickly. I expect the way to be up from here, frankly. You would know better than me, but I think the ownership is consolidating—some people are selling their estates to larger companies which are probably more technically aware and probably some people are returning land to farming, with more experience as to where it is unsuitable.

Senator MURPHY—The way this thing has been run has certainly been a worry for me. If, at some point in time, investors lose on a significant scale, would that impact on the longer term investment which will be critical for the plantation industry in this country?

Dr James—I think that is true and it is also true of small growers growing on their own land. Farmers are very aware of what their neighbour does successfully because they talk to each other. If someone grows trees and does not get a decent return, it tends to put the whole neighbourhood off. They feel sorry for that person and they do not want to do it again. A poor example will certainly detract from the enterprise, yes.

Senator MURPHY—I have a couple of questions with regard to defining the product of log grades in Australia. As we know, there is a mixed bag around the country. It seems that where they have national log grades that actually assists the marketing of wood. It certainly seems to be the case for New Zealand and other countries that have, if you like, not a national standard but a national log grading process in place. Is that what you have found when looking at other countries?

Dr James—Yes, I agree with that; that is my assessment, particularly with the New Zealand case being very close to Australia in terms of culture and having the same sort of farming background and so forth. I think there is more farming participation in forestry in New Zealand—for many reasons. One of them is that they are able to see prices up there on a blackboard, as it were. There have been, as you probably know, some efforts by the forestry program at the Australian National University in which, for five years, quarterly prices have been published by us and given publicity by Australian Forest Growers through their publications. They are, as Senator Heffernan suggested, quite low prices. Farmers seem to lose out through scale, difficulty, a lack of knowledge or, perhaps, if you listen to the sawmillers, an inflated idea of the worth of their own production. They tend to plant and then offer their timber for sale with little treatment, and that provides little incentive to purchasers who have perhaps a well-grown state source alongside them dealing with people they know how to deal with.

Senator MURPHY—The log grades used in New Zealand would have some market focus, wouldn't they? They would be designed around what might be the demand for certain types of timber in the global marketplace?

Dr James—Yes, that is certainly so. If a log is pruned, it would either be used as a veneer log, where knot free timber like the timber on the table in front us is the aim, or sawn for appearance boards. People buying a pruned log will buy it with that in mind. Logs in the S

category, for small branches, would be sawn for scantling sizes and logs in the large branch category would be sawn as large beams or lower grades for temporary uses such as boxing and construction and things like that. So they all have an idea of what their best use would be.

Senator MURPHY—What I am getting at is that if the global market said that in eucalypt hardwood, for instance, sawlogs could be cut down to a length of 1.5 metres—I know that is not a size; I am just using that for argument's sake—would the log grade directory reflect that because there would be a market for logs in length down to that size?

Dr James—Yes; it is very length specific. As I indicated before, forests can be sold in a number of ways: from en bloc to harvested and distributed by logs. But the length specification is quite critical and it is different for different markets. It is more or less the same throughout Australia, but overseas markets have different building traditions and buy and sell in different lengths to those in Australia. But, yes, it goes right down to a preferred and acceptable log. It is based on the old eight-foot stud length, which is 2.4 metres, plus a cutting allowance for mismanufacture or damage at the ends. So the minimum log is about 2.5 and goes up in 0.3 intervals, but there are favoured or preferred lengths by sawmillers and processors, largely in multiples. One favoured length, for example, is a 4.9 metre log, which is two stud lengths plus a manufacturing allowance at the end. So it is quite simple.

Senator MURPHY—Would you envisage, if we were to have a log grade directory, that we should also have information within it about international markets—for instance, for China, or Europe; for different countries around the world—and what logs they may be interested in purchasing?

Dr James—Yes. It is quite well known by the exporters. None of this is a mystery and, as I just indicated to you, it is all simple arithmetic. There is no real impediment or expensive research needed. There is a need for some research, yes, but only to put things on a common basis and to find a rational expression of quality. It is not the length, actually; it is what is a large size knot and what is a small size knot—and there are different perceptions of what the actual figure is. But no-one would disagree that logs could be usefully discriminated into small branch and large branch logs. What is a small branch and what is a large branch might be debated.

Senator MURPHY—Would it be the case from your research—

CHAIR—Senator Murphy, I am mindful of the time constraints. The next witnesses are due to appear in less than 10 minutes and there is a tea break scheduled, so I will need to conclude questions at this juncture. I know this discussion could go on for a lot longer; there is an opportunity for it to continue over our short tea break. Dr James, thank you for your assistance and thank you for appearing before the committee.

Proceedings suspended from 10.49 a.m. to 11.05 a.m.

LOTT, Dr Rosemary Helen, Research Manager, Joint Venture Agroforestry Program, Rural Industries Research and Development Corporation

PRINSLEY, Dr Roslyn Tamara, General Manager, Research, Joint Venture Agroforestry Program, Rural Industries Research and Development Corporation

CHAIR—I welcome Dr Lott and Dr Prinsley. I understand you are going to give a presentation, so I will hand over to you.

A PowerPoint presentation was then given—

Dr Prinsley—I am going to focus on low rainfall farm forestry. The Joint Venture Agroforestry Program which we manage has done a lot of work in the higher rainfall areas but, because paragraph (c) of the terms of reference specifically looks at integrating plantations into achieving salinity and water quality objectives and targets and optimising environmental benefits, that immediately takes us over to the lower rainfall areas where those objectives can be achieved. I am going to focus on that part of our portfolio. We are happy to take questions on notice on some of the other parts of the portfolio as well, though. I would like to make it clear that we manage the research and development; we do not actually do the research. We are not like CSIRO. We pay CSIRO to do specific pieces of work for us.

I am going to provide a brief introduction as to why we do what we do and why we are here. I am going to tell you what the Joint Venture Agroforestry Program does. I am going to talk to you about why design is very important in achieving environmental impacts with trees. I am going to talk about some of the emerging products and industries that we might be looking at for these lower rainfall areas, emerging environmental services and then whether it can really work and what it might take to work.

I do not suppose I need to tell you—but I will—that the fact that vegetation has been largely cleared from our southern agricultural areas has resulted in significant environmental drivers to farm forestry in those agricultural areas. There is massive expansion of salinity, rapid loss of biodiversity, increased carbon dioxide in the atmosphere and wind and water erosion. Putting the trees back can help. Those trees, if they are to be put back, need to be very carefully and strategically located and it is going to cost a lot of money to put them back. We have cleared them all away and now we have to put them back. It is going to cost us a lot. There are estimates, depending on whom you believe and where you are in the landscape, that something like 20 per cent to 80 per cent of the southern wheatbelt needs revegetation to combat salinity. If you look at the average establishment cost of $1,000 per hectare over something like 100 million hectares, we are looking at tens of billions of dollars.

Who is going to pay for that? As you have predicted in your term of reference (c)(iii), hopefully some of these public good services can be provided at the cost of private plantation growers, but in these lower rainfall areas we have to overcome a few hurdles first. We do need new commercial tree crops and industries in these areas before we can expect (iii) to happen. We need a revolution in land use for our agricultural areas. It has become extremely clear to any scientist you will ask in this area that Australian annual agriculture as it is currently practised is not sustainable and that we need deep-rooted perennials in our system. In fact, the recent

CSIRO report urges radical changes in land use to address land degradation. The same CSIRO report says the development of low rainfall tree products is:

... potentially the most relevant, effective and robust land use option for managing salinity.

So the farmer has a dilemma. Farmers out there now are facing Murray-Darling Basin Commission salinity targets and implementation of a national action program on salinity catchment plans, but there are minimal commercially viable solutions in these low rainfall areas, where most of these farmers are, to actually implement what they are being asked to do. They are being asked to do something that is impossible. That is because we ask them to do these things without putting in the levels of investment necessary to find the solutions for these farmers before we make them completely change the way they do things.

The role of the Joint Venture Agroforestry Program that we manage is to develop these new sustainable tree based farming systems and industries and to develop these for multiple benefits—for commercial benefits and also for biodiversity, salinity prevention and other environmental benefits. In that way, for the Rural Industries R&D Corporation, this is a unique program because there are not too many new industries you can start up in Australia to achieve environmental benefits as well as commercial benefits.

The Joint Venture Agroforestry Program coordinates, manages and communicates research and development. It was established in 1993—this is a bit of background. While it is managed by the Rural Industries R&D Corporation—and Rosemary and I are both staff of RIRDC—it is a collaborative undertaking between Land and Water Australia, us, the Forest and Wood Products R&D Corporation and the Murray-Darling Basin Commission. Significant additional funding has been provided by AFFA and the NHT in the past, as well as the Grains R&D Corporation and the Greenhouse Office. So you can see that farm forestry is a multipurpose land use and, as such, we have attracted multipurpose contributors. Our goal is to develop integrated agroforestry systems which meet multiple goals.

As I stated up front, if we want to use farm forestry to address environmental problems, design is crucial. The trees need to be put in the right place, to maximise benefits and to minimise costs. This is not a simple, straightforward task. Lots of money could be wasted by putting all these trees in the wrong places, and actually achieving worse environmental impacts rather than better ones. If you are a land-holder and you want to put trees in on your farm, you might want to put them in for a variety of purposes. It might be to produce timber or other products and also achieve some biodiversity benefits and soil erosion benefits. How do you optimise the design of the trees on your farm for all those benefits? It is really a balancing act. Even if we are only looking at hydrology, we want to introduce woody perennials into our agricultural systems to use more water—we want less leakage—but we do want to ensure adequate fresh river flows and we do not want to displace too much agricultural where the agriculture is worth more than the trees.

How do we do that? We have done some recent work which is available in this book, a summary of which will be handed out to you at the end of this session, called *Trees, water and salt: An Australian guide for using trees to achieve healthy catchments and productive farms*, and we have come up with five design principles, which are included in this book. I will not go into those design principles now—they are up on the screen—but I will say that this work is based on our scientists' current best knowledge of hydrology and how you can use trees to

manage the salinity issue and hydrology. I have to say that that knowledge is far from complete. We need to do an incredible amount more work to really know how to manage that salinity problem, but, given that there are people out there trying to manage it today, we have put huge amounts of effort in this book into getting the best information we can from our scientists.

We are also currently finalising a similar book looking at how you might use farm forestry to achieve biodiversity benefits. If you have a situation where you have native bush, you obviously have a very high biodiversity value. Alternatively, we know agriculture has very low biodiversity value. Farm forestry is somewhere in between. With the way we design our farm forestry, we can actually have it with nearly as high a biodiversity value as native bush. Or it could be down there, nearly as low as agriculture. Using those design principles to get it right is something we are currently working on in a book. Again, we are basing it on a minimal amount of research that we have managed to achieve over the last few years. Again, there is a huge amount that we do not know—and I am not trying to sell research; I am telling you the truth.

The cost of meeting biodiversity targets is a very significant factor. Again, as we were talking about before, if we are looking as a nation to conserve biodiversity as a single goal, we are looking at very high public cost and very low coverage. There is only so much you can do—probably in national parks and perhaps a little bit on private land—with the amount of money there is to spread around. However, if we could have biodiversity carefully designed into new land use systems in agricultural areas to suit land-holder requirements, we could look at putting only a little bit of public money in to achieve coverage of a much greater area. Again, we are talking about getting that balance right and optimising our design.

The design guideline series was based on this book, which we put out back in 1997, where we got together the best scientists we could in all areas of putting trees into agricultural systems for various purposes, to look at how you might optimise designs for various purposes and multiple purposes. It was followed up, after this identified many research gaps. We did further research and that is where *Trees, water and salt*, *Integrating farm forestry and biodiversity* and another one called *Trees for shelter*, which you will get some information on in the packages, came from.

Ultimately, we believe the landscape should be a spatial mosaic where vegetation is carefully matched to soil, landscape position and climate, and where we integrate commercial and environmental benefits and utilise that spatial variation in the landscape in soil, topography, production and economic return. None of this is going to happen in these low to medium rainfall areas unless these trees are worth something to the land-holder. So we have been putting a lot of work into identifying emerging products from trees in these lower rainfall areas. Again I will remind you that we are focusing on the low to medium rainfall areas because that is where the environmental drivers are, that is where most of the vegetation has been cleared, that is where farmers do have a need for diversification from the staple commodities and that is where there is a major impediment in that there are minimal existing tree product based industries.

Just to make it very clear to those of you who are perhaps used to thinking about planting trees in salty water: our program is focused only a very little on that area. We are much more interested in growing trees in recharge areas where the water is fresh but where, if we do not use up that water, it will make everything more salty. So we are not talking about growing trees in discharge areas but in recharge areas. That gives us a lot more scope for having productive trees

as well as for preventing salinity, rather than just trying to fix it at the other end as a bandaid solution.

What are the options for those recharge areas in low to medium rainfall areas? The first thing we could do is extend our existing plantation industries—our existing sawlog rotations and pulpwood rotations—bearing in mind that, in those lower rainfall areas they are obviously going to be much longer rotations than they would be in the high rainfall areas to achieve the same sort of productivity. We do not think this is the solution for these areas. We think we have to think differently. I know that John Bartle spoke to you in Western Australia. He has done some work for us. With John Bartle and others we are looking at creating entirely new industries where we have new, large-scale growing, harvesting and processing systems where we minimise the cost of the raw materials. We are looking at targeting commodity sized markets and we are looking at systems which are based much more on short rotation crops to make them look much more like agriculture than long-rotation forestry. We are hoping that would mean that they would be much more likely to be adopted in low rainfall areas because they would be much more economically viable.

These sorts of new ideas require new systems and they need to be integrated with agriculture. The two basic ways of integrating these with agriculture are short rotation coppice crops where we have short, two- to five-year harvest cycle crops that regenerate from the stump after harvest and that are grown in belts mixed with agriculture to disperse water-harvesting capability and where there is a long-term carbon store below the ground. The other option is a short rotation phase crop—some of you will be familiar with lucerne phase cropping—where we grow the trees as a very short phase as part of a crop rotation to empty the water from the profile. We plant them by seed so the establishment costs are cheap; then, after five years—or whatever it is—we chop them down and put agriculture back in. These are very new ideas and we are only starting to experiment with them now.

What are some of the opportunities for Australia in terms of these new industries for these lower rainfall areas? We have done considerable scoping in this area and there are some exciting opportunities. They are grouped in four groups. The first is alternative wood products, the second is food, the third is bioenergy and finally there are biobased industrial products. I will quickly go through those four categories.

Alternative wood products are things that we should be looking at very carefully as short-term solutions for some of these areas. Things such as oriented strand board, medium density fibreboard, cement bonded particle board and even laminated three-ply flooring are things that we know we could virtually do now or very soon, provided there was money for the infrastructure and plant. We are about to look at parquetry and wood plastics as well.

There are things such as food—that is perhaps a bit of a longer term solution. How many of you are aware of things in margarine called sterols? They are supposed to lower your cholesterol, so those of you with higher cholesterol might know about them. If you buy margarine with sterols, it lowers your cholesterol. The sterols in margarine are actually made from wood waste from Finland. So wood waste can be used for a variety of things that you would not even think about, and that is what we need to be looking for.

Similarly, in Japan they are using eucalyptus oil to make anti-oxidants to put into food. What do food companies want? They want new ingredients that they can use as anti-oxidants. Who

would have thought of eucalyptus oil? We are also looking at broadscale wattle seed production. If we could replace some of our grain currently produced from annual crops with the wattle seeds of trees from perennial crops, wouldn't that be a wonderful thing in terms of our environment? We are looking at that very carefully.

A major opportunity is in bioenergy for electricity or bioenergy for fuel. I know that some of these have been quite topical recently. I do not know how many of you know that a bioenergy system produces virtually zero net greenhouse gases, compared to an average coal system which produces approximately 1,000 grams of CO_2 equivalent per kilowatt hour. That is for one system, but it is very much at that sort of level. We have the mandated renewable energy target which, given a little bit of fiddling with the regulations, could really drive plantations for bioenergy production.

Regarding wood for fuels, I do not know how many of you are aware of low sulphur diesel. If you look at its relative greenhouse gas emissions in just units of a hundred and then look at fuel ethanol from sugar, depending on how you do it, it is somewhere between 50 and 80 relative greenhouse gas emissions. For wheat, we are looking at somewhere between 40 and 70. Wood waste is right down at under 10 units of relative greenhouse gas emissions. So if we do want to produce bioethanol in Australia and we want to do it in an environmentally sustainable way, we should not be growing more sugar plantations; we should be growing more wood plantations.

I will briefly tell you about some of the work we are doing in bioenergy. We are currently finalising a report, which could be used by regions or investors looking at assessing the different biotechnologies from around the world and which you might use in your region or industry, about turning wood into electricity or biofuel. We have recently completed a report, which you will find in your pack, looking at wood for alcohol fuels and to what extent you might need to subsidise that through payment for environmental services from that wood.

We have produced a bioenergy atlas of resources which allows regions and industries to plan for their bioenergy production. We are doing some work on characterising wood for biomass fuels in a bioenergy system. We are also producing a sustainability framework for bioenergy, because there would be nothing worse than starting up a new industry which is not sustainable in this country. This is a picture of what you can do with the bioenergy atlas in terms of matching up plantation potential areas with oil refineries and power generation sites. We also manage an organisation called Bioenergy Australia. That is an alliance that fosters and facilitates the development of bioenergy and related industries. It comprises 50 paying members from energy companies, tree growers, technology providers, and government and research agencies.

Lastly, I turn to industrial biobased products. I am aware that there has been an inquiry into bioprospecting. There is some relationship of that to this. I am talking about converting and processing tree material to replace petrochemical feedstocks and/or to produce new components in industrial and consumer products. I am talking about possibly using unique Australian micro-organisms to convert Australian woody species to chemical products, with applications in the food, pharmaceutical and chemical industries.

I do not know how many of you are aware that DuPont, the big multinational, has as its goal—and every employee of DuPont knows this—that, by the year 2010, 25 per cent of its feed stocks for making its products need to come from renewable sources. By the year 2010, 20

per cent of its energy needs to be from renewable sources. The recent McKinsey report stated that by 2020 50 per cent of all polymers and 50 per cent of the chemical market will be taken up by biotech derived products and that the USA has passed legislation to triple the use of bioenergy and bio based products by the year 2010.

We are looking at a range of bioproducts in the JVAP, including using Australian micro-organisms to biotransform eucalyptus oil to much more valuable products with a much broader application. Similarly, lignin is a byproduct of the ethanol process. Can we turn that into something valuable, using our native Australian micro-organisms? We are also doing some work on breeding new species for these medium to low rainfall areas. Species that we have now, that we have put all of our research into, are much more suited to high rainfall areas. We need similar alternatives in the low rainfall areas.

We also have some exciting new work which we are calling FloraSearch—scoping for the future. Here we have a national project where we are systematically searching for native woody perennials that have the potential to underpin new large-scale sustainable industries in the sheep-wheat belt. Some of the first outputs of that are available in this little booklet which is unpublished as yet. It is an extract from something that we are publishing called *AcaciaSearch*. It shows you a couple of the acacia species that we have evaluated for their suitability as new crops for our sheep-wheat belt zone.

Doing a lot of work on farm-scale economics, we have done a lot of work in the high rainfall areas. It is much harder in the low rainfall areas because there is not really much data around, but we are trying to compare the relative profitability of these new agroforestry systems with conventional crop and pasture production in medium to low rainfall areas. Here are some of the figures we are coming up with. You can see that, while the net present value on a dollar per hectare basis of some of these new industries can be calculated to be quite similar to that of a normal wheat-lupin rotation, which is what we are comparing it to in this case, there are problems. The problems are that, even if you have very short rotation tree crops, there still is a time period when they are not producing. Some of these, like the oil mallee alley farming, are not plantations as such but are more alleys, so they are more this style of cropping system—we are still growing the crop in between the trees so we are still making some money in those first few years but we are losing some as well because the trees are taking up some of that space and we have had those development costs.

So can it really work? I am sure John Bartle would have told you about the integrated mallee processing system where you take a whole tree feed and you get out electricity, activated carbon and eucalyptus oil. I am sure John would have told you that on the basis of this system we now have over 1,000 farmers growing mallees, with over 20 million trees planted, and a full demonstration plant signed off for Narrogin.

Based on predictions we have done in a feasibility study, we have looked at what sort of returns a farmer might expect from an oil mallee system integrated with cropping versus a straight annual crop rotation. You can pretty well see that, similar to the story I told previously, over a long period it will actually overtake your annual cropping rotation. But some money has to go in to help these farmers get these things started. And where is that money going to come from? You can see there that there are three years to a positive net present value, and even longer before you get up to the same net present value as you do with annual farming.

That is where we come to look at commercialising environmental services. Why do we want the farmers to do these things? We want the farmers to do these things because our rivers are going salty, because we are losing biodiversity. This is a community thing that we need to happen. So we really need those trees to supply those environmental services and we should be paying part of that cost. If we had to pay that whole cost, we would be up for a lot of money, but if we only have to pay that little gap at the beginning, we are not up for that much. We are doing a lot of work on looking at commercialising environmental services. We have three pilot catchments that we are looking at at the moment. We are working quite closely with the NAP in this area.

If we are going to have new industries, we have to make sure they meet environmental needs. The government could do a lot to stimulate new industry development in bioenergy and other areas. It could stimulate it solely on the basis of commercial returns to growers. How can we ensure that these new industries are put in the right parts of the landscape to achieve environmental outcomes? We are doing some work looking at options for that. We have our agriculture but it is not good enough. We need natural resource management. We have all sorts of new things happening with biotechnology, renewable energy and farm forestry. We have low rainfall farm forestry which should capture all these benefits and help us look at a new way of doing agriculture and natural resource management in our country.

I point out to you that resources are limited. That little green square down the bottom of the chart is our annual budget; it is minimal compared to the annual budget for a traditional commodity such as grains. That point on the chart is the Grains Research and Development Corporation's average annual budget, compared to the money that is going into trying to implement change on the ground, such as Bushcare and Landcare. I am not really here to ask you for more money—I am just trying to point out that you cannot expect miracles with the amount of money that is going into the solutions that we are trying to produce in Australia. If that money does go in, hopefully, the farm of the future will be closer rather than further away and, rather than having farms that are focusing on the top two commodities there on the chart, our farms will be producing bioenergy, wood, a whole range of new chemicals, carbon credits, salinity credits and biodiversity credits for a whole range of new buyers.

In summary: trees are required on a very large scale in low rainfall areas; there are very few commercial options available. Investigations in industry development are at very early stages. The oil mallee project does demonstrate some potential. Multiple products from trees work best, so just producing bioenergy probably will not be viable in many areas; you need other products as well. We need to find new markets, products, systems, species and policies to make this happen. Science can help.

CHAIR—Thank you for that. I shall ask colleagues to ask some questions as a follow-on from that.

Senator O'BRIEN—Not having seen the presentation before today, I was going to ask about the original submission. On page 10 it says:

> While accepting that plantation growers will often be providing public good services, the location of plantations could also lead to negative environmental impacts. Such externalities are rarely, if ever, costed to growers.

Besides water usage, what other negative externalities does that refer to?

Dr Prinsley—If, for instance, you put in your windbreaks incorrectly, it can result in greater crop damage or wind erosion rather than less in some parts of your paddock. So the erosion side is an externality.

Senator O'BRIEN—But that would be a cost to the farmer, presumably.

Dr Prinsley—Yes and no, depending on how you view our country's natural heritage in soil that is blowing all around the countryside. But yes, it would be largely a cost to the farmer. That would be the main one I can think of. Some people would say that if you put in large-scale pine plantations without designing them properly you are going to reduce biodiversity compared to not putting them in at all.

Senator O'BRIEN—I picked up from one of the latter charts in your submission that the maintenance of biodiversity funding could be done through some philanthropic trust. Is there any such trust which is likely to provide that sort of resource, or is that work to be done?

Dr Prinsley—There are trusts—I cannot think of the names of them off the top of my head, but we could find out quite easily if you need to know them—that already provide funding for that sort of thing. But the scale is not large. We are engaging those sorts of trusts in our process so that they can start to see different ways that they might achieve biodiversity goals other than by merely locking up areas of land.

Senator O'BRIEN—Do you know if the mainstream environment organisations are committed to embracing the idea of funding projects to maintain biodiversity, such as the ones that you have outlined, in the context of their fundraising with regard to 'save the whale' or 'save the native forests' or whatever?

Dr Prinsley—We have been communicating quite closely with the Australian Conservation Foundation. In particular, their salinity strategy very much is pushing this exact line. Their work on leveraging private investment has very much coincided with our work and has used the same sort of people. They are very keen on those ideas. They see that in order to achieve revegetation of low rainfall areas there really will be no option other than those sorts of ideas. We very much have them onside, so they are very supportive and they will say that at conferences.

Senator O'BRIEN—Is anyone doing work on the sort of binding commitment that those philanthropic organisations would require of farmers to participate in the sorts of programs that you envisage would assist in preserving biodiversity and achieving all of the other objectives?

Dr Prinsley—I am sorry, I did not quite catch what they would be working on specifically.

Senator O'BRIEN—What type of binding commitment would be required of the farming community to enter into these projects? Presumably someone will have to covenant, contract or in some way bind a farming enterprise to not just install the systems but maintain them for a period of time. I was wondering if any work had been done on just what sort of instruments would be required and how they might be received—or is that work yet to be done?

Dr Prinsley—We have a proposal in front of us, that we are considering, to do that sort of work on the legal instruments that would be required. I know that the Victorian government have done some work on auctioning, which you have probably heard about, for nature

conservation benefits on farms. They are starting to fiddle with some of the types of instruments that they might need, and they are finding that they need to do more work in that area. That is the work I know about. I guess the philanthropic organisations that you can contribute to specifically for the purposes of nature conservation would have those sorts of instruments available to them. I have not personally investigated what they look like, but the project that we are looking at would do that.

Senator O'BRIEN—In terms of the species to be developed to maximise the potential use of the salinity mitigation programs that you are seeing, where is that research being done?

Dr Prinsley—Where is the research being done on the salinity side?

Senator O'BRIEN—Yes.

Dr Prinsley—That we have been sponsoring?

Senator O'BRIEN—Either that you have been sponsoring or that you are aware of.

Dr Prinsley—There are a few places, depending on which aspect you are looking at. The CSIRO is doing a lot of work in that area. We are looking at doing some work with the CRC for Landscape Environments and Mineral Exploration, LEME. They have been doing some work on looking at the regolith. You have probably heard of the aerial electromagnetic work that is going on.

Senator O'BRIEN—No, I have not.

Dr Prinsley—The Murray-Darling Basin Commission is sponsoring some work and doing some of its own in-house work. The Bureau of Resource Sciences is doing a bit. All the state departments are doing a lot at the moment, particularly because of the national action plan. That is happening in the New South Wales, Victorian and Western Australian governments in particular, but even Queensland is now starting to do some work in this area.

Senator O'BRIEN—Is Creswick in Victoria one of the institutions that you would be relying on for that sort of work?

Dr Prinsley—They have done a bit of work for us in the past, but they would not be a major player in this area.

Senator O'BRIEN—Thank you for that.

Senator MURPHY—On page 7 of your original submission you talk about environmental and commercial outcomes through agroforestry. The fourth dot point says that allowing tax concessions for investors in agroforestry ventures which have environmental benefits could be beneficial. Have you had any discussions with the tax office—

Dr Prinsley—Yes.

Senator MURPHY—about how that might work? Can you tell me what their response was?

Dr Prinsley—We tried very hard to involve the tax office in these investigations and this research. While they were very keen at the beginning, when it came to the end they were quite uncomfortable with putting their name to anything or agreeing to anything. So I do not have anything particularly constructive out of them to date.

Senator MURPHY—I will get a copy of the report you have put together, but does it deal with tax matters at all?

Dr Prinsley—Yes.

Senator MURPHY—Obviously it will, yes. Does it make any recommendations other than what you have alluded to in this dot point?

Dr Prinsley—It does. It is a big fat report, so you would have to read it for the detail, but—I am just reading what I have written here—in general this pretty well covers it.

Senator MURPHY—Does it—on PDF? I would have thought the tax office might have been a bit nervous about PDFs.

Dr Prinsley—Yes—as I said.

Senator MURPHY—The tax aspect of this interests me, given the current tax applications that are used for managed investment plantation development. If you have any further thoughts on the tax angles, in addition to what is in your report—which I know was prepared only last year—I would appreciate it if you could provide those to the committee. I understand the tax office is going to appear before the committee at some stage, is it not?

Secretary—We are trying.

Senator MURPHY—We should force them to appear, if we can.

Dr Prinsley—Have you had time to look at the report?

Senator MURPHY—No.

Dr Prinsley—There is some information in there. One of the simplistic ideas I had when we commissioned that work was that we would try to add up the amount of public money that might have gone into subsidising blue gum plantations in one way or another—

Senator MURPHY—It is a lot more than your budget.

Dr Prinsley—Yes, that is right. We thought that if there had somehow been an environmental benefit tied to that, so that the trees could have been put in places where there would be environmental benefits, at least we would have got some more community benefit from that. We tried to put that as an example of how we might tie some of these things, but of course that is not going to be very popular with a lot of people.

Senator MURPHY—Okay. Thank you.

Senator BUCKLAND—I am looking at plantations on farms. A Mr Rowan Reid, who spoke at an open day at Mount Barker, suggested to farmers looking at going into plantations that the money they might have been led to believe would be there is not going to be there because of factors such as the long periods needed for the crop, the species, the transport costs at the end of the day to get it to the mill and things like that. What do you say to that? Do you agree, partially agree or disagree with that?

Dr Prinsley—It is hard to generalise. Individual farmers have to look at their own situation and at the potential markets they have in their area. They have to look at the kind of soil and climate they have. We have just finished a book, which we are about produce, which is a site selection manual. If you put your trees in the right place and they grow at the right rates and if you have a market out there and you are close enough to that market you can do really well. If you can go into partnership with someone they can help pay for some of the up-front costs if you do not have the resources available. So it is really hard to generalise. Certainly in a lot of areas it is profitable. We have done some work on that subject for the higher rainfall areas which we could make available, if you like.

Senator BUCKLAND—I have to say that your presentation was exceedingly impressive; it is an area that very much interests me, particularly with the oil mallee project, which I will take the time to inform myself more about. In saying that, it is a bit utopian, because I see that any land-holder that makes a decision to go into this type of forestry could be faced with great risk. I certainly see that there would be immense costs involved. Having regard to your presentation, the cost of strip farming or alley farming is great. I have often thought to myself that it would not be a bad idea, and I am not a farmer.

Taking into account that you are looking at low rainfall areas, you have to look at the area; you have to look at the species; and you have to look at the land. You did take into account selecting the right sites on that land for plantations, but I just see that this will be a very expensive way to go into it, given that those species may not be compatible with existing milling processes. What are your views on that?

Dr Prinsley—I can see why you are saying ‘utopian’.

Senator BUCKLAND—Let me say that I have no problem with your aim to achieve that. I do not want you to misinterpret that, but it does seem a bit that way to me.

Dr Prinsley—When you say ‘mills’, I am firmly of the opinion that we are not going to be relying, in these sorts of areas with these kinds of industries, on the kinds of mills we have now. We are going to be looking at completely different plant, such as the current integrated oil mallee pilot plant. That will probably be done without any government support—although obviously there has been support for that project through the Australian Greenhouse Office and there has been private support for that as well. It will probably progress at a much slower rate than it would without support. I think that we can fix the species, we can match the species to the sites, we can get the right species and we can work out what products to make. That is really hard work and a lot of it has not yet been done. But there also needs to be investment at the other end in terms of getting some of these pilot plants up once we have worked out the science. Once proven, we need to be able to attract investment to put them in on a much larger scale in many parts of the country, otherwise none of this will work.

Senator BUCKLAND—Does the research and development that you have conducted support the long-term viability of plantations such as this? Have they looked at that?

Dr Prinsley—Long-term viability in the environmental sense?

Senator BUCKLAND—Is it sustainable? Is it practical?

Dr Prinsley—Yes, like I said, it is all very new stuff. We have a project on oil mallees, looking at, for instance, sustainability in terms of soils. For example, would you need to add more nutrients than you do otherwise, or less; what happens over rotation—those sorts of things. Because they are very new systems, however, we cannot promise anything. All we can say is that there were native trees in these systems before we started; we took them all away; now we have big problems. Certainly, putting native species back in these systems, if we are careful about which ones and how we do it, has to be better than what we have now.

Senator HEFFERNAN—Will the farmer go broke in the meantime?

Dr Prinsley—Hopefully not. We would not want to do it until—

Senator HEFFERNAN—You have not looked at that, though?

Dr Prinsley—That was some of the work I was showing earlier. We have looked at the economics of it—you can see the economics of it—and they take into account all the establishment costs.

Senator HEFFERNAN—That graph does not really say much to a farmer, though. It does not paint a picture of one year to the next in terms of—

Senator O'BRIEN—Yes, it does.

Senator HEFFERNAN—Do you think it does? Tell me what it says. Do you think a farmer would understand that?

Senator O'BRIEN—It is showing you that you would be losing money in the 10-year period and they will understand that the bottom line says they are below what they would be earning with lupins.

Senator HEFFERNAN—But, for instance, it does not take into account how good the farmer is with his—not necessarily traditional—farming and whether he is a bloke who has a proper rotation. What I would be interested to know about strip grazing with the oil mallee is: what do they do with the non-mallee strips? What happens in between the strips?

Dr Prinsley—In this case, they are growing wheat/wheat and lupin rotations.

Senator HEFFERNAN—So they don't fence it?

Dr Prinsley—No.

Senator HEFFERNAN—They run no stock at all when they plant the young mallee?

Dr Prinsley—Not in these particular areas.

Senator HEFFERNAN—What rainfall are we talking about?

Dr Prinsley—I cannot tell you off the top of my head. I would guess it is in the vicinity of 400 or 500.

Senator HEFFERNAN—For a farmer, there are all these unanswered questions.

Dr Prinsley—Absolutely. This is just an example. This is one graph out of a very thick document. All that information is in the document. I have not brought it today—it is not yet published—but I would be happy to provide it.

Senator HEFFERNAN—If the farmer goes broke in the meantime, that graph does not explain whether he runs stock, what the rainfall is, if the trees are fenced off or if he is a good farmer or a bad farmer. There are a lot of unanswered questions.

Dr Prinsley—Sure. If you read the whole report you would probably see a lot more detail than I have given you today. I would be happy to provide that report, which does give you a lot of that information, except for whether they are a good farmer or a bad farmer. That is not really up to me to decide.

Dr Lott—This links back to one of the questions that Senator Buckland asked about the farmer at Mount Barker, and the comment that it may not be as financial as they have been led to believe: sometimes the history of planting trees in that area and previous government incentives have coloured the view of farmers because it depends on whether they were successful or not. In the case of Western Australia, there has been very extensive plantation establishment by a range of commercial companies. The common folklore at least is that some of the plantation estimates were overestimates of growth rates, and this has led to a bit of a kickback.

In terms of whether the farmer is good or not, some of the research that we are conducting is concentrating on trying to ensure that farmers are using best practice with their planting techniques, in the same way that someone choosing their prize bull for a dairy, or practising broadacre farming, must of course take on board their skills and their technology in order to make these commercially viable.

Senator HEFFERNAN—The difficulty is that, if the farmer is a rotation cropper and does not have a pasture phase or a renovation phase, he is just mining the land. You are part of the mining operation: you are not putting anything back, unless you apply artificial fertilisers.

Dr Prinsley—It depends on the species that you use. For instance, in the acacia phase farming one of the exciting things is adding nitrogen back to the soil.

Senator MURPHY—Isn't it the case that in a lot of these farming areas the farmer that is going to be losing money at the start is going to be losing money at the end now, anyway, because the land is going to become unfarmable?

Dr Prinsley—That is right.

Senator MURPHY—That is the reality. What we are talking about is management of land that is becoming non-productive. So the farmer goes broke anyway.

Senator HEFFERNAN—Yes, but there does not seem to be a stock phase or a non-farm phase.

Senator MURPHY—No—

Senator HEFFERNAN—I will leave it to you farming experts.

Senator MURPHY—Was it Mr Bartle who appeared before the committee?

Dr Prinsley—Yes.

Senator MURPHY—For the benefit of Senator Heffernan and with regard to the rainfall question he asked, the committee secretariat has probably got some information that we received from Mr Bartle in Western Australia at the hearing in Albany.

Senator BUCKLAND—Those comments I made about Mount Barker were by Mr Rowan Reid from Melbourne University. Senator Murphy picked up on what I was going to say, as a non-farmer: if that graph is right and if we continue to do nothing, the loss could well be at the other end. My bigger concern is with the handling of the timber. I was interested in you saying that it could have a five-year rotation. This would again be adding to the costs of the farmer, because he would have to rip his land to replant. He does not currently have that equipment. It really comes down to the costs and the cost benefits to the farmer and perhaps how he gets subsidised to do that. I am not sure.

Dr Prinsley—Just to clarify this, this is an alley system and with this system once you have got the trees in, they are in and they will stay there for a very long time. The rotation there is by coppicing, so you cut them off and you let them regrow, so they are there all the time. In the other system, which is a phase farming system, yes, you do have to plant them. You can probably plant them by seed, just as you probably would plant any other crop. We are currently doing some work on looking at how you might do that in the most effective and successful way that you can, and we are trying to use machinery as close as you do with cropping at the moment. That is a research area. It has not been done yet; it is starting now. We are looking at another aspect. These things might grow for five years and then the poor farmers have to pull them all out and go back to agriculture. What does that involve? Again, that is a research area. Unfortunately, a lot of these questions are questions that we are also asking in research areas into these new systems, but if we do not ask them we will never change and if we never change we will end up with that graph of wheat and lupins going down.

Senator BUCKLAND—Given that you are looking at the plantations and that at the end of the day, as you have probably agreed with me, there would need to be different milling

techniques, to my mind there would be a lot of costs involved in establishing that and it would be very labour intensive. The plantation forest managers are pretty efficient in how they can strip a tree and use it for veneer or milling or sawing or chipping. It would be very different if you were using these different species, some of the native trees we have in the dry land areas of Australia.

Dr Prinsley—I would like to come back to the point where I talked about extending our traditional plantation industries into these low rainfall areas versus completely different systems. If we want to extend our traditional industries into these low rainfall areas, I am convinced that we can, without too much difficulty, modify our existing kinds of techniques for those. But we see that as a really minor option for these low rainfall areas and we see the development of new industries as much more important. For that development of new industries, you would be doing everything completely differently because you would have such broadscale plantations and the trees would be much smaller: you would not have big trees; you would have little tiny things. You would be looking at completely new harvesting systems. Those harvesting systems are the key for this thing to work. We need to do a lot of research in that area, research which has not been done. We are just starting to look at a little bit of it. We do not have the resources to do it properly. Private industry was about to do some work in that area but unfortunately that big contract has just fallen through, so there is a big gap.

Dr Lott—It is something that the researchers and the people looking at these industries seriously are considering. There has already been some innovation in modifying machinery in Western Australia to be able to harvest coppice so, rather than growing your single straight-stemmed tree, you might grow a multibranched row of trees that you need to harvest, and the machinery obviously needs to be able to handle that in a completely different way. I know of one such machine and I am sure there would be a capacity for more innovation if sufficient areas of resources were available to make it worth while to industry.

Dr Prinsley—Just on another note, one of the other programs I manage at RIRDC is the tea tree oil program. I do not want to talk about tea tree oil, but they have a pretty good harvester for tea tree oil which involves quite a different kind of concept from what you would use for a big plantation of very large trees. So we are looking at something like a sugercane harvester or a tea tree harvester—some completely different type of harvester. I have brought a picture of one but I cannot see where it is.

Senator MURPHY—The tax office did not think much of it.

Dr Prinsley—Yes, let's not talk about tea tree oil. I do not want to bring that up.

CHAIR—I have one final question—and you may have already answered this. I am excited about the ideas that you have put forward; I think they have a lot of potential. One of the things that continues to come up is this question of how you flip the coin to get people to change their behaviour and therefore adopt different ways of doing things out there on the ground. With the economic modelling that you have done so far, have you undertaken collaboration with ABARE or a group like that to look at proper modelling coming forward that matches the existing scheme that is in place as well as the current trends? Presumably, looking at a mallee crop, for example, and at what is happening in plantation forests across the country, mallee as a species is one that people are not really investing in because they are not getting the returns that they want, for a whole range of other reasons as well. My question is about that collaboration,

particularly in terms of looking at the current trends, where there seems to be a focus on the short rotation soft pulpwood projects, and whether that is of any interest in relation to the modelling that you are developing. Over the longer term, because presumably they are trying to achieve some sort of mix that works better for a sustainable industry, how would your economic modelling work there? You may not be able to answer that, but I am highlighting some of the issues that come to mind for me.

Dr Prinsley—We have had quite a few meetings with economists in this area, including ABARE economists, to look at the best way to look, at the farm level, at these issues, given the lack of data. ABARE have contributed to the development of some of these models at the farm level. We also have a project between CSIRO and ABARE, looking at best bets on a regional basis, comparing traditional plantation forestry with these short rotation systems. That project currently is falling into a bit of a hole in the sense that the data available to drive ABARE's models is just not good enough for the models. So it is a rubbish in, rubbish out kind of problem. We are working on that problem at the moment—as to how we are going to address it. Are we going to have to wait until we get better data to feed into ABARE's models? That is my feeling at the moment in terms of our negotiations with them—that that project is going to have to be put on hold until we can get better data to feed into the ABARE models at the regional level.

Senator HEFFERNAN—In your research do you include an animal model as well? These are exclusive of livestock.

Dr Prinsley—Yes, we once had a project on training sheep not to eat trees. We nicknamed it the 'sheep kindergarten project'.

Senator HEFFERNAN—There is only one thing sillier than sheep: the person who looks after them!

Dr Prinsley—We have done some quite highly quantitative work recently on the whole issue of trees and how they can contribute to livestock production through shade, shelter and that sort of thing. We have done some work on repellents to stop livestock eating trees. We have also got quite an exciting project on how you might breed herbivore resistant trees. We have found compounds in leaves called acylphloroglucinols, which turn out to be really active repellents to herbivores, as well as being very valuable compounds for a whole range of applicants, ranging from pharmaceutical through to industrial. So it is quite exciting.

Senator HEFFERNAN—The point I was trying to make was that on that chart it says 'mallee alley farming in Western Australia's low rainfall wheatbelt'. Maybe a lot of that should never have been planted to wheat, but there is a big opportunity because consistent, continuous farming is mining; it is really not farming. If you cannot have a non-farming phase that pays money, you have this mining problem that continues. You are basing it upon the fact that it is a mining operation. That thinking is fundamentally flawed because you do not have a rejuvenation program other than with continuous planting of lupins to put nitrogen back or whatever, but the soil gradually deteriorates.

Dr Prinsley—What we are proposing is to replace some of the rotation crops that are currently used that are annuals and do not have those deep roots with crops that are woody, that are perennial and have deep roots. We are trying to improve that rotation to make the system

more sustainable so that it is much less like mining and much more sustainable. But I agree that, as soon as you cut everything down and do not leave anything on the ground, it is not going to be a closed system; you are taking stuff out.

Senator HEFFERNAN—I will send you a bag of lucerne seed!

CHAIR—Thank you, Dr Prinsley and Dr Lott, for appearing here today and providing assistance to the committee. We may need to call upon you again.

[12.07 p.m.]

DICKSON, Dr Rhondda Gay, Acting First Assistant Secretary, Environment Australia

HOOY, Mr Theo, Acting Assistant Secretary, Water Branch, Marine and Water Division, Environment Australia

RYAN, Mr Paul, Assistant Manager, Greenhouse and Land Management Team, Australian Greenhouse Office

CHAIR—Welcome. I invite you to make some opening remarks.

Dr Dickson—Thank you. We are very happy to have this opportunity to represent the department's interests and to provide an overview of our submission, which you have with you. We believe it is an important inquiry from our perspective. It addresses an industry that has a very significant potential to influence and impact on the government's endeavours in meeting natural resource management policy goals.

We support the multiple benefit outcomes in the development of the plantation industry. We are pleased to see in the revised strategy the intent to incorporate the environmental benefits and costs of the outcomes. We are here today particularly to talk about the environmental outcomes and the prominence which we would like to see in the strategy. The four areas that we have covered in our submission and would like to highlight are: water quality and quantity, salinity abatement, biodiversity conservation and the opportunity to contribute to greenhouse emissions targets and carbon sequestration. I will quickly run through some of the main points in those areas.

On water and water rights, Theo Hooy can answer detailed questions, but what we want to raise in our submission is that consideration be given to the implications for surface and ground water resources in plantation developments. This concerns both the potential for impacts, unless a lot of care is put into the management and placement of plantations, and the opportunity to provide significant benefits. Similarly for salinity abatement: plantations have been well promoted as having the capacity for a significant role in salinity abatement, and that certainly could be an effective strategy. But one of the impediments for the effectiveness of that strategy—and I am sure Roslyn Prinsley would have gone through this in her presentation—is that it is the low rainfall areas where the salinity abatement and some of the water quality issues have the greatest requirement for plantations, and they are the areas where there is least commercial advantage. That is one of the significant issues we want to highlight there.

In relation to biodiversity conservation, we see plantation establishment closely linked to the government's objective of reversing the decline in the quality and extent of native vegetation. I am sure the senators would be aware of the national policy in relation to native vegetation. In that context, we would strongly discourage broadscale vegetation clearance for any purpose. We acknowledge that broadscale clearing of native vegetation for plantation establishment is now discouraged or prohibited by most jurisdictions, although not every jurisdiction, on public and private land. We support the plantation establishment trend on previously cleared land. One of the things we would like to draw out is that the management and design of plantations is

particularly important in relation to remnant patches and very small areas of remnant vegetation, trees, grasslands and paddock trees. We would be very keen to see that the plantation strategy incorporates that requirement explicitly. There are great opportunities to maximise the environmental benefits from well-designed and managed plantations that protect and enhance these remnants.

Lastly, on greenhouse gas emissions, it is fairly well known that plantations have the potential to be an important component in national efforts to meet greenhouse gas emissions targets. We see the mandatory renewable energy target and the government's new developments there as providing some additional incentives for plantation forestry. That covers the main areas and we would welcome any questions you have on those.

CHAIR—Thank you. Mr Hooy or Mr Ryan, do you wish to make any comments?

Mr Hooy—No.

CHAIR—We will go to questions.

Senator O'BRIEN—Could you tell me what studies Environment Australia has commissioned or is aware of into the greenhouse and biodiversity effects of burning forest or plantation residues for electricity generation?

Mr Ryan—I am not aware of the Australian Greenhouse Office commissioning work on the emissions aspect—that is separate to the biodiversity aspect of your question. I could undertake to find out further information.

Senator O'BRIEN—If you could, that would be good.

Dr Dickson—In relation to biodiversity conservation, there was a report—I do not have the name of it but I can provide the report to the committee—that Environment Australia put together a couple of years ago on the biodiversity conservation implications of fuel reduction burning.

Senator O'BRIEN—Is that on fuel reduction burning?

Dr Dickson—Yes, so it is slightly related.

Senator O'BRIEN—It is more relevant to the bushfire issue, I suppose.

Dr Dickson—Yes, it is a bushfire issue.

Senator O'BRIEN—If you could make that available, that would be very good. That was going to be another one of my questions.

Dr Dickson—Okay.

Senator O'BRIEN—In terms of the biodiversity issue, with plantation or native forest residues to be used for electricity generation, you are not aware of any studies and certainly have not commissioned any into those issues?

Dr Dickson—I am not aware of any that Environment Australia has, but we can talk to the Office of the Renewable Energy Regulator to confirm that.

Senator O'BRIEN—On page 5 of your formal submission you mention the Australian Greenhouse Office's role in developing 'nationally compatible carbon sequestration rights legislation and the supporting framework for trading in sequestered carbon'. What is happening with that project?

Mr Ryan—That involves the Commonwealth working with all the states in a group under the COAG high-level group on greenhouse, specifically on carbon sequestration rights. A number of states have established legislation defining carbon sequestration rights, using slightly different arrangements between some of them. There are some consistencies and some differences. That group is cooperatively working to look at which areas need to be consistent so that there are, where appropriate, consistent arrangements for trading across Australia. Where the project is up to is that earlier last year there was agreement on a work plan for taking that forward. In the meantime, at least in one state, there have been further developments on the legislation.

Senator O'BRIEN—Will it require Commonwealth legislation?

Mr Ryan—No, not that I am aware of. It falls under state responsibilities. In some states it falls under forestry legislation.

Senator O'BRIEN—Thanks for that. On page 10 of your formal submission you state:

While accepting that plantation growers will often be providing public good services, the location of plantations could also lead to negative environmental impacts. Such externalities are rarely, if ever, costed to growers.

Besides water usage, what are the negative externalities that you refer to?

Dr Dickson—This is primarily in relation to water.

Senator O'BRIEN—There is nothing in addition to water. Is that what you are saying?

Dr Dickson—Yes. I guess the other issue we were referring to was that we have highlighted a couple of places in the submission where there are remnant patches of vegetation. They are very small. I am talking about less than half a hectare and sometimes just isolated paddock trees. In a landscape where there is not much remnant vegetation, they provide important biodiversity benefits. Although they are very small, removing them can have a negative impact on the regional biodiversity, whereas if they are retained along streams and so on the plantations can add to the current environmental situation.

Senator O'BRIEN—So rather than location it is the implementation of the plantation strategy and the management of existing remnant vegetation that is the key to the negative externalities that you are talking about?

Dr Dickson—There are the water issues and the biodiversity ones. On salinity, it is not so much that there can be negative impacts but that if the vegetation is located wrongly in a place where there are no recharge needs, for example, it does not contribute to the extent that it could otherwise have done. That is not necessarily a negative, though.

Senator O'BRIEN—They are all the questions I have.

Senator MURPHY—On page 3 of your submission, under the subheading 'Clearing of native vegetation for plantation establishment', you say two things:

Clearing, particularly broad-scale clearing, of native vegetation ... could impede achievement of net environmental gain from the Plantations 2020 Vision, and is inconsistent with Commonwealth and State commitments to reverse the decline in the quality and extent of Australia's native vegetation cover.

You have a reference to footnote 3. You then say:

Environment Australia acknowledges that most, but not all, jurisdictions now discourage or prohibit broad-scale clearance of native vegetation ...

What do you use as a definition of broadscale clearance?

Dr Dickson—I will just speak generally, rather than talk about a specific definition, but a common example would be where you are clearing more than five hectares. It depends on the landscape you are talking about. With the Queensland Brigalow Belt you are talking about quite large areas. It applies to places where there is clearance of an area of native vegetation that might be considered as a remnant area. For example, in Tasmania or the hilly parts of Victoria, there could be clearing for 10- or 20-hectare developments. It is clearing large areas of native vegetation as opposed to the things I was talking about before where you might just be clearing half a hectare or paddock trees, or clearing for fence lines and dams, which are usually exempt from most vegetation clearing legislation—just small clearing.

Senator MURPHY—Let me just follow that a bit. In terms of native forest per se, putting aside identified remnant vegetation, would 50 hectares qualify?

Dr Dickson—I would consider 50 hectares as broadscale clearing, if it were all forest.

Senator MURPHY—What is Environment Australia's knowledge of the current practices employed in New South Wales, Victoria and Tasmania having regard to forestry activities in terms of the scale of coupe harvesting practices?

Dr Dickson—Broadscale clearing is clearing and replacing with another land use.

Senator MURPHY—Yes, I am talking about plantations, in this case. I am referring specifically to broadscale clearing, in your description, for plantation establishment.

Dr Dickson—In New South Wales, broadscale clearing is not permitted, but there are exemptions for small areas so that there is no requirement to be assessed for, I think, less than a hectare. That is one of the issues I was mentioning before: while small they are still important.

Senator MURPHY—I am talking about areas greater than 25 hectares, for instance.

Dr Dickson—In New South Wales, under their plantations legislation, broadscale clearing for plantations is not permitted. In Victoria, generally it is not permitted, but there is still some exemption in certain cases where the native vegetation to be cleared is considered so weedy or degraded that it no longer provides conservation benefits. In Tasmania, clearing has to be approved now under the Forest Practices Act, as you would know, Senator. However, there is not any policy in the same way as in Victoria and New South Wales that prevents broadscale clearing for plantation establishment.

Senator MURPHY—You say that broadscale clearing is contrary to Commonwealth and state commitments, which are reflected in the National Framework for the Management and Monitoring of Australia's Native Vegetation. What has the department of the environment done about there being a lack of policy in Tasmania on this issue?

Dr Dickson—This has been an issue that we have been discussing with Tasmania for a number of years, both through our engagement under the Natural Heritage Trust and also through our engagement in the Private Forest Reserve Program. Are you familiar with that program?

Senator MURPHY—Yes.

Dr Dickson—It is an issue that we have been working on with Tasmania. They are aware of their commitments under that policy and are committed to meeting their objectives.

Senator MURPHY—Broadscale clearing is allowed in Victoria and New South Wales, is it not, for the purposes of regenerating forest with the same native species as existed before clearing?

Dr Dickson—Yes.

Senator MURPHY—Do you ever monitor the extent to which that reafforestation program is carried out?

Dr Dickson—The responsibility for monitoring the commitments under the RFAs—sorry, I am going back a bit—is largely with AFFA but we, jointly with AFFA, are responsible for monitoring commitments under the RFAs, which is somewhat at arm's length from directly monitoring. Under the regional forest agreements, the Commonwealth agreed with the states' policies and processes for sustainable forest management which include the processes of reforestation after harvesting. RFA reviews—and we have just completed at least one part of a review in Tasmania—are an opportunity for the Commonwealth to hear, through these reviews, whether there have been any changes to the commitments made by the states or any failings by the states to honour those commitments. But we do not have any role, nor is it a Commonwealth role, in checking all of the forest operations other than to ensure—and to receive the states' assurances—that the states are meeting their commitments.

Senator MURPHY—How long has it been the case that New South Wales and Victoria, for instance, have ceased broadscale clearing for plantation development?

Dr Dickson—With Victoria I think broadscale clearing for native plantation establishment was towards the end of the eighties. I will have to confirm the actual date of the introduction of their legislation.

Senator MURPHY—Do you think you can provide the dates for both of those?

Dr Dickson—Yes. With New South Wales it was a bit more recent.

Senator MURPHY—Thank you.

Senator BUCKLAND—Have you done any studies that show the impacts of the plantations on levels of water consumption?

Mr Hooy—EA has not directly commissioned any studies but we are aware of a number of studies. In fact, we have quoted from one or two of them in our submission. They recognise that, particularly in instances where plantations replace pasture or are put on cleared land, there is a measurable and significant increase in the amount of water taken up. From memory, in the 650-800 millimetre rainfall belt you are looking at about an additional one megalitre of water per hectare of consumption. That rises significantly in higher rainfall areas. The issue then is: what is the impact of this water that is taken out of the system? The impact is in the context of possible increases in stream salinity in certain instances. There is also the impact on downstream water users, whether they be the environment, irrigators, regional towns or regional communities.

We are now in a situation, particularly in south-eastern Australia, where there is no free water rattling around unused and unneeded, so the consequence of a land use change which could take an immeasurably significant amount of water out of the system needs to be addressed. In our submission we do not propose any particular mechanisms but we do suggest that, from the point of view of equity and of the states in the Murray-Darling Basin maintaining their commitments to the cap on water diversions in the basin and of progressing the COAG water reform framework, there does have to be recognition of the potential impact of increased water uptake.

Senator BUCKLAND—Do I take that to suggest that you would not be supportive of plantations along the rivers?

Mr Hooy—No, we are saying that plantation establishment could have an impact; in many cases it will have an impact. It needs to be taken into account when you are making a decision about whether or not to establish plantations in a particular area. At the end of the day it is up to the government, it is up to the community, to work out what is the balance, what is the best end use of that water. It may well be that the best use of that water is to go to plantations, with all the benefits that plantations bring, but it may also be that that water has a better end use elsewhere. We are not saying what is best. We are saying that someone needs to take those issues into consideration.

Senator BUCKLAND—I think you were here during the previous evidence. Do you have a view on that type of farming or co-farming and forestry?

Mr Hooy—In the context of water use?

Senator BUCKLAND—In the context of water use or being a viable way to try and reduce the salinity and stop the erosion. Do you have a view on that concept?

Mr Hooy—In the context of water use, there is a lot of evidence to indicate that alley farming has beneficial impacts on salinity, particularly dryland salinity. I suppose it is a question of measure. The overall impacts of alley farming on downstream users may not be terribly significant. The benefits may well significantly outweigh any possible third party impacts. It really depends to a large extent on the location of plantations and what the particular hydrological regime is in that location.

Senator BUCKLAND—What projects, if any, have the department undertaken to determine where plantations might be strategically located in order that salinity and water quality targets might be most effectively achieved?

Mr Hooy—Rhondda may have some knowledge. I am not aware of any particular studies that EA has commissioned. My understanding is that CSIRO has commissioned a number of studies in that particular area. I think that RIRDC has also commissioned studies.

Dr Dickson—It is also going to be part of the work that is being done through the regional planning in every state to look at the various interactions in being able to achieve various salinity and water quality targets. That is being done to varying degrees across the country.

Senator BUCKLAND—Has Environment Australia done any studies at all as to the selection of the most suitable species for dryland and low rainfall areas?

Dr Dickson—Through the Natural Heritage Trust there have been quite a number of projects that have looked at that. The most significant one was in Western Australia—the *FloraSearch* project. I am not sure if you are familiar with that one. That has also supported some of the work that Roslyn Prinsley would have outlined to you through the JVAP program. But as far as any directly commissioned work by Environment Australia is concerned, we have not undertaken any.

Senator BUCKLAND—What is Environment Australia's view on the commercial viability of forestry in low rainfall areas?

Dr Dickson—From the studies we have seen, there are some significant impediments. Most of the studies that we have seen have been produced for the government through programs such as JVAP and other RIRDC activities and they show that there is a significant impediment. From that, our view is that there is not a very high prospect but there is certainly plenty of potential to look at more niche products than the standard commercial forestry products where competition in high rainfall areas is high.

Senator BUCKLAND—I am a little unclear on this. Is it the view of Environment Australia that it is better to leave the vast expanses of cropping lands—broadacre lands—that we have now free of trees?

Dr Dickson—No. Some of the solutions to the major salinity problems that we have and other natural resource management problems are going to require a fair bit of revegetation of cleared areas. For that to happen, it has to be through alternative commercial products. The

experience in the Natural Heritage Trust showed clearly that it is expensive to revegetate, even with enormous community support and volunteer effort. To have vegetation on the scale that will be required to address some problems in highly cleared areas will require a commercial solution. Efforts such as those undertaken by JVAP and other programs in the states will be important to get a solution that will be picked up on a reasonable scale.

Senator HEFFERNAN—You talk about the continuous cropping mentality, but there are other solutions to continuous cropping. You mention trees, but if you break up the regime of continuous cropping into other farming regimes, it will alter—

Dr Dickson—There are many solutions. I was answering the specific question about trees. We certainly do not say that it is not a good idea, but you need to get a commercial solution because there is only so far you can go with investing just for public good alone. Yes, there are alternative ways of cropping. The work that the R&D corporations and the CSIRO have been doing on alternative agricultural systems for Australia is vital to changing the way we manage the land.

Mr Hooy—The Murray-Darling Basin salinity management strategy, which the Commonwealth supported, has as one of its platforms the establishment of trees in low rainfall areas. That is seen as one of the keys to addressing the whole issue of dryland salinity in the basin. To add to an earlier response that Rhondda made—going back to my time in the Bushcare program—we funded a number of small projects, which I think were run for us by Hassalls and which looked at the viability of different tree species in low rainfall areas in the context of salinity mitigation and growth rates.

Senator HEFFERNAN—How aware is the plantation industry of the water question? There is a very good footnote on page 6 of your submission which paints the scenario in which 400,000 megalitres—a fair drop of water—could be removed out of the system; a 100-hectare plantation is equivalent to 100 small dams on a farm in a 40-inch rainfall area; and most farmers are restricted to holding back 10 per cent of their run-off. Has that regime ever been given any consideration in the plantation industry?

Mr Hooy—I do not think so. It is an issue that governments are just starting to come to terms with. You are obviously aware that New South Wales and Victoria recently introduced farm dams legislation because of the impact of, among other things, the cap on water extractions in the Murray-Darling Basin. That has been contentious but governments have felt that they have needed to do that. Evidence is now mounting that plantations in high rainfall areas, if sufficiently extensive, probably will have similar impacts. It is therefore incumbent on land use planners to start taking into account the water consumption of plantations.

Senator HEFFERNAN—In your experience, has this been in the minds of the plantation industry or is it something that, by oversight, has been neglected?

Mr Hooy—It is now coming into the mind of the plantation industry. We have a number of researchers working in that area. In the water industry there are already quite a number of vigorous debates going on over harvesting of native forests in water catchments because of the impacts of vigorous regrowth on water uptake. I think it is an issue that is now on the radar of the plantation industry and the water management industry; it just needs to go that step further. My understanding is that in South Africa, for example, with any proposals to establish

plantations they are already taking into account the potential impact on water use, and judgments are being made about the desirability or not of plantation establishment versus the third party externalities that may result.

Senator HEFFERNAN—This committee would find this of great interest because it crosses over into our water inquiry. We have a water inquiry for which we may get some input from your organisation.

Mr Hooy—You will.

Senator HEFFERNAN—It seems to me that we may well be facing a situation, given that 400,000 megalitre figure, where to plant 100 hectares of plantation might require 500 megalitres of water to be taken out of the system.

Mr Hooy—That is right.

Senator HEFFERNAN—We are trying to do 75 per cent of Australia's water work with 6.2 per cent of the run-off. We have already had evidence that perhaps we are going to have a 30 per cent reduction in the higher rainfall areas in run-off in the Murray Darling Basin over the next 70 years. So I guess this will be a very interesting question.

Senator O'BRIEN—In relation to the part of the report you refer to, it seems that this is an extrapolation that Environment Australia have done.

Mr Hooy—Yes.

Senator O'BRIEN—Is this the higher end of the water use scale that you have used to make the extrapolation?

Mr Hooy—Yes, the higher end.

Senator O'BRIEN—Thank you.

CHAIR—I have a couple of questions following on the from questions asked by Senator Murphy and Senator O'Brien, probably more in relation to the research that might be undertaken by Environment Australia. An article that appeared in the *Environmental and Planning Law Journal* by A. J. Brown states:

... no RFA appears to have relieved long term conflict between the relevant conservation and timber interests.

Do you have a particular view about that comment? Do you agree with that, given what you have said in your report, particularly on the question of clearing of native vegetation for plantation establishment?

Dr Dickson—I do not have any particular view on that comment. In relation to clearing for plantation establishment, the one point I would make is that most of the high-profile public conflicts about forests have not been in relation to clearing of native forest for plantations, with the possible exception of in Tasmania, where there has been concern, mostly about a change to the look of the landscape, in some rural areas of Tasmania. Most of the conflicts that might have

been referred to in that statement would be in relation to old-growth logging and harvesting in native forests in general.

CHAIR—Do you think, in the case of the regional forest agreement in Tasmania, that there has been an achievement of an adequate balance between the competing interests?

Dr Dickson—We are currently looking at the report of the five-year review into the RFA. When we have had a good consideration of that and the comments that were made in the progress of the review we would be in a position to answer the question of whether the commitments been honoured in the agreement that was reached five years ago and, if they have not, what needs to be done to make sure they are. So the answer to your question has to refer to the RFA that was signed in 1997. At the time that RFA was signed, it was broadly supported by most people in the community.

CHAIR—Does Environment Australia undertake research or an Australia-wide assessment or produce any state of the nation report in relation to clear-felling of native forests? If so, is that publicly available or do you provide advice to the minister or someone who deals with that particular issue?

Dr Dickson—Are you talking about forestry operations—clear-felling and regeneration—as opposed to the clearing of native vegetation for some other land use?

CHAIR—Both.

Dr Dickson—As far as clear-felling practice is concerned, we do not commission any work into that. Through the regional forest agreements, there were quite a number of studies done on that. Environment Australia was closely involved in those and provided advice to ministers on them. Since the RFAs were signed, it has really been a monitoring role on meeting commitments of RFAs. On the other issue of clearing of native vegetation for other land use, that is a significant policy issue on which we provide advice to ministers and work with the states in a national context as far as improvement of native vegetation management goes.

CHAIR—Does Environment Australia have a role to play in relation to the administration of the Environment Protection and Biodiversity Conservation Act?

Dr Dickson—The department has responsibility for administering that act.

CHAIR—Are you aware of any cases where there have been breaches of the act in relation to the protection of native forests from clear-felling, particularly in relation to the plantation industry?

Dr Dickson—As you know, RFA regions are excluded from referrals under the act while there is an RFA in force. So the question is if there have been any breaches of an RFA, and only then, and if that breach was pursued and an RFA terminated, would the EPBC Act have a referral to it. That is just restricted to forestry activities, of which clear-felling and native forest regeneration would be included. There have not been any referrals of that nature as we have an RFA in place in all those regions.

CHAIR—I am aware of the exemptions. Getting back to the original question about the relevant conservation and timber interests, in terms of finding the right balance in relation to one policy as opposed to another, in your view is the balance that has been struck a fair one? Do they complement each other or does it seem a little lopsided?

Dr Dickson—The regional forest agreements were implemented according to the national forest policy statement and they have been implemented effectively.

Senator HEFFERNAN—I would like to go back to water. I am very familiar with Victorian and New South Wales government legislation restricting farm retention of run-off. What do you think was in their minds that they did not give consideration to the forestry side of it? Was it just that they did not think about it? It seems to me that the average farmer who wants to retain a bit of water to have an orchard or something is restricted by legislation which has absolutely been overlooked in terms of forestry.

Mr Hooy—I do not know what was in their minds. It may well be just an issue of relativity. If you look at the spread of farming land across those states and the number of farm dams, that far exceeds the area of proposed plantation establishment. It may be that in relative terms it was not as significant as the farm dam issue because there are a lot more farm dams and there is a much greater area where farm dams are established than areas where plantations may potentially be established. That is just a supposition on my part.

Senator HEFFERNAN—Would you give consideration to it being a matter of urgency to get the science on the water use of plantations right? There is not any correct science at the moment, I take it.

Mr Hooy—I think there is quite a depth of science going back some time, mostly, as I understand it, in water supply catchment areas. A number of people are now doing research on the issue of plantation establishment and impacts on water. I am not sure that a huge amount of additional research needs to be done—and I stand to be corrected on that. It is really a case of—

Senator HEFFERNAN—Applying the science.

Mr Hooy—institutions and institutional frameworks keeping up with where the science is and what science is telling us.

Senator HEFFERNAN—For instance, if you go this afternoon to the back of Bombala—not in the middle of a drought but at any time—you will see that the streams that used to flow there no longer flow. That obviously has an impact not only for the local farmers who are scattered in amongst the forest but also for the irrigators down below. Do you see a scenario in a river system that is already overallocated of having to withdraw water from the river system for plantation reservations?

Mr Hooy—That is hypothetical but, yes, I can see a situation, for example, in a small to possibly moderately sized catchment where the establishment of a large plantation in that catchment may well have significant impacts not only on the environment, in terms of the instream environment, but also on water extractors. It behoves, I suppose, the water management authority and the land management agencies to address that issue.

Senator HEFFERNAN—I have even made some comment on the long-term viability—a 50-year viability—of flood irrigation of rice and cotton and things like that. To me it seems unfair not to give consideration to this, given that we have some figures here that two megalitres per hectare—which, as you say, is at the high end of the scale, but it is still a lot of water—is going to be taken out of the system.

Mr Hooy—That is right. Our central point is that consideration should be given to the potential impacts. At the end of the day, the benefits of farm forestry may well—

Senator HEFFERNAN—They might win.

Mr Hooy—That is right. What we are saying here is that it is an issue that should not be swept under the carpet; it is an issue that should be confronted head on in an open and transparent process where, I suppose, the winners and the losers, the beneficiaries and the third party downstream impacts are all laid out on the table, recognised and dealt with in a rational manner.

Senator HEFFERNAN—It seems to me that in the Murray River plan, where consideration was given last to the environment and first to the present uses, this is going to be an absolute complication if any of the forestry goes ahead without some sort of planning. There is not enough water for the environment now.

Mr Hooy—There is nothing simple in water management. We are talking about a number of systems which are overallocated, where not only the environment but irrigators are being impacted. It is a situation which, in hindsight, should never have arisen—but it has, and we need to address it. That is what governments are doing at the moment, particularly in the context of the Living Murray project.

Senator O'BRIEN—Can I ask a follow-up question: has any work been done to estimate the water consumption in the regeneration of our national parks that have been burnt in the recent fires?

Mr Hooy—I am dredging my memory banks.

Senator O'BRIEN—I am assuming that the principles apply equally to a young forest.

Mr Hooy—That is right. My recollection is that work has been done in Victorian catchments that had been burnt in past fires. There is a well-known pattern of hydrological responses to that. The initial response is extremely high levels of run-off and then increasing levels of water consumption as that forest starts to mature. This is assuming that it is something like a mountain ash forest which has been completely destroyed rather than it regenerating. Then, over time, as that forest matures, the level of water consumption drops off and returns to a steady state—

Senator O'BRIEN—A balance.

Mr Hooy—given that we are talking about a dynamic system in any event.

CHAIR—I thank Dr Dickson, Mr Hooy and Mr Ryan for their appearance here today and for assisting the committee.

Proceedings suspended from 12.57 p.m. to 2.04 p.m.

NEWMAN, Mr Robert Lewis (Private capacity)

ACTING CHAIR (Senator Heffernan)—Welcome to the table, Mr Newman. Would you like to make an opening statement? Then we will proceed to questions.

Mr Newman—As a fellow of the Commonwealth Forestry Association and with a Bachelor of Science in forestry from Melbourne University, I wish the committee to hear this evidence. I have split the evidence into three groups: investment, competition and general points. As my background notes say, I have been in the industry for 50 years. I have therefore seen the development of the softwood plantation industry followed by the hardwood plantation industry.

The continuation of the up-front deduction for forest establishment is essential to continue the flow of money into the plantation sector and to ensure that private natural forest is maintained as a dynamic forest. The taxation implications are not perhaps as difficult as some people make out—in other words, the loss of cash flow to the Commonwealth—because the majority of the money that is paid up front is expended on wages and equipment, much of which attracts taxes, either group tax or other taxes. I have not gone into the question of dealing with the actual numbers because I hope that, as a result of my and probably other people's evidence, the committee will make a point of arranging to have figures prepared.

It is also important because the private forestry investment industry now is replacing the investment previously made by state governments. It would appear unlikely that the state governments would continue to invest in forestry in the same way as they have historically and to the extent that is necessary in order to meet the national wood fibre requirements.

The growth in short-term rotation hardwood plantations, with investment periods as short as 10 years, has attracted over $1 billion in recent years into that industry, whose primary objective is to produce wood fibre for both the Asia pulp and paper manufacturing industry and, hopefully, an Australian industry. The level of investment in new plantings of radiata pine, the softwood, has dropped very strongly. The availability of softwood sawlog in particular in the future appears not to have been considered by policy makers. There is a need to continue a more than incremental increase in softwood sawlog requirements, which have completely been committed to the existing industry requirements. You only have to go to places like Tumut and Oberon to understand that the sawlog component available from crown sources is virtually totally committed now. When those industry operations increase in size, they generally do so by increasing plant size by 200,000 or 300,000 cubic metres each time, which requires a far larger amount of wood than simply from any new plantings that are currently being made.

Softwood plantations being replanted for a second rotation will have better trees and thus some of this added growth would go towards solving this problem. Also, some areas are being lost to radiata. I refer to the 12,000 hectares here in the ACT, and some areas in Tasmania and Victoria have not grown well in the first rotation. Solving this issue of a 25-to 30-year P. radiata rotation versus a 10- to 15-year eucalyptus pulp rotation in attracting investment requires a tiered approach to taxation.

The proposed approach which I will refer to in a moment would allow for much longer rotation species in plantations or natural forests to be husbanded to provide a stimulus to the

long-term needs and interests of those using what we all know is an economical product which does not require high amounts of energy. If the correct taxation arrangements are structured to allow an investor to sell his trees which he established originally to a second owner at a taxable profit at age 10, and for the buyer to then have a tax deduction as a primary producer on the value for which he purchased the trees, then for a start this would interest people to other than eucalyptus pulpwood.

That is the main reason for my being here today. It would also establish some interest by natural forest owners in maintaining their forests by valuing their forests at the start and end of the period and taking a taxable profit, and even enabling another member of the family to buy the interest as a primary producer. This system could be repeated on the same forest asset several times. You could have a plantation of 50-year-old red cedar with five successive owners. Bear in mind that practically all investment is restricted; people are not interested in an investment over 10 years. For example, we still have bonds; the longest bond period is 10 years. Additionally, it would allow the creation of a secondary market for all investors, whether they have interests in 10-year-old blue gum currently growing, in eucalypt forests or in rainforests that are 100 years old. The method of calculating the profit over the 10-year periods would need to be established and the plantation blocks registered so that the tax system would receive its share each time. That would mean that the Commonwealth would get money over a shorter period than is the case now when people invest in radiata pine for 25 years. Those are the points I wanted to raise with regard to investment. Would you like me to continue with the other two items?

ACTING CHAIR—We would like you to make your full opening statement but, obviously, we want to devote most of our time to questioning you.

Mr Newman—The competition is about the same length.

ACTING CHAIR—Is it a rewrite of what you have already presented to the committee? Have we a written submission on what you have just said?

Mr Newman—No.

ACTING CHAIR—Please continue.

Mr Newman—You will have noted from my introduction that I spent 30 years of my career dealing with the development of the private sector of forestry either in connection with the growers or establishing standards and encouraging the Association of Consulting Foresters to play a role in the private sector. Apart from poor establishment and some difficulties with radiata seed quality in the early days in the private sector, the main problem for encouraging softwood plantation development is what one might describe as unnecessary and even unconscious competition in selling pulpwood and sawlog between the private and public sectors. It is to do with pricing. At the end of the session I would like to talk about that in camera for a few minutes.

Crown plantations, except perhaps in South Australia, have been by far the largest. When it comes to harvesting, the Crown insists on a take-or-pay clause, so any adjacent private plantations are sold only when demand is high. Even when private wood is bought, the attitude of the industry is that they can get it significantly cheaper. As well, the industry do not generally

sign long-term contracts similar to those related to Crown log purchases. The solution to that is to have a regulation which ensures that in age classes, irrespective of Crown or private ownership, harvesting should be at the same price based on quality during that period. After all, the Commonwealth taxation arrangements have helped in the establishment of private holdings and state services probably benefit from Commonwealth money, so there would be a case for Commonwealth involvement in arranging satisfactory practices. You cannot sensibly talk about market pricing, except for overseas sales and minor specialty lines like veneer logs, without taking into account the long period of gestation before any money is made by private investors in softwood plantations. The taxation deduction is the trigger to get investors interested but they need to know there is a level playing field even over the 10 years from the time of establishment to the availability of the product as of thinning or whatever. So the second issue that I want to put before the committee is that the private sector, which is going to be really significant over time, has this problem of being seen as the poor relation.

There are a few general points to make. The timber industry is a viable and relevant activity with employment and such a whole host of other positives about its products that further security is needed. The two policy initiatives for plantations described, if introduced, would go a long way towards ensuring its stability, funding and long-term economic benefits. Concurrent to the developing industry of taking timber from plantations, there are the educational needs of both people entering the industry and the public. Forestry is such a large part of the permanent economy that governments should usefully look at ensuring that the public are well acquainted with the benefits. There is far too much misinformation talked about the 'deleterious effect' of the forest industry on the environment, for instance. At the same time it is desirable that the forest products industry has a formal opportunity to have trained engineers in designing, constructing and managing wood processing plants related to the plantation industry.

The quality of training of foresters is of an international standard, even though it is carried out on a shoestring. This committee could well inquire as to what is needed to change the shoestring to a reasonable shoelace. In the case of establishing education and utilisation as a tertiary career, it does not exist at the moment but arrangements could be made. The committee would be well aware of the effect of not managing fuel levels in natural forests. In terms of how the plantation investment and insurance industry would see such poor management, they would be asking if the investment were wise at this point in time. There is therefore a case for the more efficient use of foresters in national parks. As historically the forest services have experience of fire behaviour and control, it would be worth while canvassing the qualifications required for senior people in national parks, particularly those that might impinge on plantations. That is my evidence.

ACTING CHAIR—Thank you very much, Mr Newman.

Senator O'BRIEN—Mr Newman, have you run your proposal for tax-effective secondary markets past the Treasurer's office or the taxation department? If so, what has been their response?

Mr Newman—I spoke to the minister. I submitted the first idea to the minister, who referred it to the taxation department, who said it would create too much bias in the tax system.

Senator O'BRIEN—Too much bias?

Mr Newman—Yes, the perception was that there would be far more tax deductions under that system than would be the case at the moment, even though the current case does not fulfil what needs to be done. But it should be analysed—it deserves to be analysed—and the minister said that ABARE would be looking at it. I have not had a reply from the minister in that regard.

Senator O'BRIEN—When did the minister tell you this?

Mr Newman—I saw him in about October. No, it was earlier than that: it was in about August last year.

Senator O'BRIEN—Which minister?

Mr Newman—Senator Macdonald. He responded before Christmas. You really asked the question about secondary markets and whether I had dealt with that. No, I had not at the time because I was developing that principle. When I say that I was developing it, I mean that it seemed to me that the first thing to do was to get the first point past first base before the question of having a secondary market would be a possibility, because at the moment it is impossible to have a secondary market. This is partly because people have the tax deduction and, as I understand it, four or five years go by and you can then on-sell it without losing your previous deductions, but there is no purpose to someone else buying it, particularly with radiata, because there is so long to go before there is any income. Therefore it is impractical. It would require brackets of time and an attraction to the buyer to become involved down the track, with a deduction.

Senator O'BRIEN—Are you aware of similar systems to the one that you propose existing in any other country?

Mr Newman—No, I am not. Actually, I have been Chairman of the Commonwealth Forestry Association, which has 50 countries as members, so I have travelled a lot. So far as the English speaking connections are concerned, this proposition would really only apply to fast-growing pines and eucalypts. It has not occurred in New Zealand and it has not occurred in South Africa, partly because the corporates have done all the planting in South Africa. But Australia has a much stronger developed investment interest in plantations than practically anywhere else in the world at the moment.

Senator O'BRIEN—But if it has not applied elsewhere, it seems that, certainly in terms of softwood plantation, the length of the rotation has not been a problem in establishing a viable resource. Would you agree with that?

Mr Newman—No, that is correct, because the trees that are currently being utilised were established under the softwood agreements between 1967 and 1977, in which I was involved in a sense, with David Fairbairn when he was Minister for National Development and Dr Jacobs, who in the head of the Forestry School, in developing the loan system to the states. That scheme lasted for 10 years. If we had not had that scheme, Australia would be in a very difficult position now because what is being harvested was effectively created by Commonwealth funds lent to the states, which, as I understand it, were returned to the Commonwealth.

So the private sector people have not generated sufficient personal development overall in Australia, apart from the industry corporates, to have had any significant effect on planting. But

that would not be the case now. The case now is that the industry does not want to plant radiata. It wants to spend its capital on plant development. The governments do not want to, for reasons of priorities, and the one source of funding that is going to be available to Australia in the future will be driven by the private individual sector, and that sector has got to have some incentive.

ACTING CHAIR—Would it be fair to say, though, that in the private sector thus far there have been some pretty good examples of catastrophe of investment?

Mr Newman—Do you mean failures?

ACTING CHAIR—Yes.

Mr Newman—I was going to ask for an in camera hearing on that issue.

ACTING CHAIR—Okay. I will ask that question later.

Mr Newman—Could we go in camera?

Senator O'BRIEN—We will do what we can in the open. It is not desirable to take evidence in camera unless there is a good reason for it. It limits how we can use the evidence that we receive, apart from anything else.

Mr Newman—I will answer the question then.

Senator O'BRIEN—Good.

Mr Newman—I will have to wind around the names.

Senator O'BRIEN—That is fine.

Mr Newman—People will no doubt tell me that they know who I was talking about.

Senator O'BRIEN—People may assume that they know that.

Mr Newman—More than half the proposed original softwood investment programs failed. The reason they failed was due to the promoters realising that nobody was going to get an income for a long time. Therefore, there was plenty of opportunity to spend the money in excess of the requirements of establishment before the growers might realise it. There are some notable examples around Orange in New South Wales. Another is in Western Australia, where the same thing applied, but against that background there have been a number that have been very successful. The South Australians had one from about 1926 until about 1988. When the rules changed it dampened interest in the industry. I will not recapitulate what the change was but it was successful. Sir Robert Menzies, either as a solicitor or as Attorney-General in Victoria, managed to organise some tax rebate for the income at the end, which made it attractive as well. But there are and have been a number of successful ones in their own right, which are related to matching with nearby industry.

Then there are the ones in the middle where the intentions of the investors were sound, but the industry had this competition problem which meant that they have taken the crown wood on a take or pay basis. The reason there has been no expansion of softwood radiata planting in New South Wales for the last 10 years is that there is an excess of wood—there has been some poor planning. But the fact is that there is a take or pay clause which means that the forest service can sell the wood ahead of any private availability. That really is a critical point: having regard not only to the supply of wood at the right time and the dynamics to the nation of growing the wood properly, but the private growers have often not received the same amount.

ACTING CHAIR—Being screwed at the point of sale, would be another way of putting it.

Mr Newman—Yes. I might expand on that a bit. I will probably get a phone call tomorrow on this.

Senator O'BRIEN—Maybe this afternoon!

Mr Newman—One major manufacturing industry tried to convince a large number of growers that the value of their first thinnings was nothing. They would take them on the basis that therefore the sawlogs would be satisfactory, but they were doing them a good turn. Say you have waited 15 years before you have anything, then that is what you are told and you have to wait longer. The rotation for radiata pine is 30 years, and you can go to 25. With a lot of people it was done for superannuation purposes, and could still be so. But the fact is that people were approached on the basis of pressure. That is an example too of where, if the age classes of the planted private and public sector wood are identified as being the harvest available to the industry within a certain region, and the price has to be similar, then that would be a very useful incentive to get some interest back again. You will not get interest back into radiata planting until the problem at Oberon gets solved. It is an oversupply problem at the moment. Even now, when the state forests have offered 200,000 cubic metres of wood, they simply refer to the fact that there is 15,000 hectares of private property and that they have a number of people that you should contact. They have not gone to the trouble of saying, 'These are the age classes of the private wood,' to the proposed tenderer who is going to buy the wood in the district. The thinking is still not up to the mark.

Senator O'BRIEN—Mr Newman, what would you say to the proposition that an investor who has acquired land, has planted it and has a partially mature tree crop would, in selling the land, receive a return for the partially mature tree crop? In other words, without harvesting the crop, they could earn the return. What impediment do you see in that method of achieving an earlier return for an investment on a long-term crop?

Mr Newman—If I get you right, if the investor wants to sell his interest of, say, a third, there is a difficulty. I have an example right now of that situation. Unless there is an identified market—and you have to say that it is a market, not an option for a market—no buyer will be interested. The only way that the person who wants to get out can do so with any money would be to know somebody within the organisation who does it as a favour, which means it would occur on only a few hectares. You will not get an overall log flow plan to take into account the partial logging of areas for the purposes of trying to generate a secondary market.

Senator O'BRIEN—Would not your proposal operate to the detriment of a family farm that looked at a long-term rotation of radiata, for example? Let us ignore the marketing situation for

the moment. Where the family farm entity planted 50 hectares of radiata, on what you have said to us so far they would not have access to the tax assistance that you are proposing unless they arrived at some contrivance to trade the rights between members of the family. Would that be fair?

Mr Newman—I only put that in as an example of where families do farming for a long period of time and it might be attractive to the farmer for his son. If they excise the area and have it as an entity in its own right, he could say to his son, 'You buy that now, I need some cash,' and the son gets the deduction and the father pays the tax. That is okay in terms of how I see it.

Senator O'BRIEN—It may be that in some circumstances it would not be a contrivance, but in others it would be contrivance to obtain an additional tax benefit, wouldn't it?

Mr Newman—It depends where are coming from.

Senator O'BRIEN—If you are getting the benefit you won't want to call it a contrivance, will you?

Mr Newman—No. The pity of this is that some people have given investment in forestry a bad name. But I can tell you there are a lot of very successful operations—because I run some of them—that have come from investment in softwood. If I bought five individual hectares in a scheme for X dollars, I could sell it to my son in 10 years, but at the moment there is no point in him buying because there is going to be no utilisation and no cash flow for another, say, 15 years after that. But with my idea that would be possible. I do not know why that might be seen as a contrivance if the mechanism revives what is a situation that is just going to deteriorate.

Senator O'BRIEN—I think I understand where you are coming from. Wouldn't it be equally appropriate for us to look at how entities with less regard for short-term profitability, such as superannuation funds, to be involved in the sort of investment areas you are talking about?

Mr Newman—One of the problems with superannuation funds in the marketplace is that every fund manager—and they have got a bad reputation, haven't they—

Senator O'BRIEN—No, investment managers, not fund managers.

Mr Newman—The problem with that is that they are all rated on returns. One of the projects that we manage had a property of about 700 hectares, which in fact was owned by Westpac and they pulled out of it because they could not rate it. I was in Europe and the UK and I talked to people who had similar sorts of schemes to see whether they had been able to attract investments. They had, but only for corporate superannuation schemes where there was a focus lock-in of the property. But in the general marketplace, which means the mums and dads can have some investment, that is the problem of trying to assess whether the investment is worth while. And of course, as the private sector is dominated at the moment by the public sector on pricing, do you get to the second question when you go and put the proposal to a fund manager, on the basis that he is going to say, 'Is it a level playing field?'

ACTING CHAIR—I guess the original attraction was the tax deduction up front. How do you value the forest for the second sale, given the vagaries of forest management—getting

screwed at the point of sale eventually? If you do not have an integrated system, how can you value it and where does that leave you with capital gains tax?

Mr Newman—There is a normal economic model called the net present value. You take the current value of the produce and multiply it by the future volume that is going to come at the end of the rotation.

ACTING CHAIR—Provided it is well managed?

Mr Newman—Yes. You discount that back at the opportunity cost of money, which you can get from the Reserve Bank, plus a risk. That gives you the present-day value of that stand, even if you have not knocked it over. That is how it is done. Then, in 10 years time—closer to the event—your discounting will be shorter and therefore the value will be higher. It is quite likely that the value of the royalty at that time will be higher, too. So your whole value of the plantation—

ACTING CHAIR—So, in your life's experience, what sort of rate of return do you get on all of this?

Mr Newman—Somewhere between five and 10 per cent.

ACTING CHAIR—After or before tax?

Mr Newman—That would be before tax, without the deduction. If you put the deduction in there, it would probably lift your return—I would have to do some calculations. The effect of that would probably lift it to between eight or nine and 15 per cent, before tax.

ACTING CHAIR—On the capital invested?

Mr Newman—Yes.

ACTING CHAIR—You suggested earlier that you might like to go in camera. Do you still want to do that?

Mr Newman—No. I have mentioned the inequity of competition, which, to me, is a very important factor in getting people back into investing in radiata.

Senator O'BRIEN—Did you use the reference to red cedar in your submission just as an example? Are there any specific proposals about red cedar plantations?

Mr Newman—No, but it is such a fine timber that it should be a candidate for investment.

Senator O'BRIEN—It requires companion planting of some sort, doesn't it?

Mr Newman—It gets a disease very easily, but it grows relatively quickly. It often needs some other trees to protect it, if I can put it as simply as that. It does grow reasonably quickly and it ought to be a candidate for us. There are a number of other species, too, that deserve attention.

Senator O'BRIEN—We may be able to modify the species so that we can avoid the disease and it might then be a better candidate.

Mr Newman—That is a job for CSIRO. They are pretty good at it.

ACTING CHAIR—In your experience was there much consideration given to planning for forests having regard to run-off implications for the forest—a reduction in the run-off?

Mr Newman—This might be a bit of a heresy: forests are dynamic and the erosion problem is very small in most situations.

ACTING CHAIR—I was not really referring to erosion; I was referring to taking water out of the system.

Mr Newman—No. Other people could answer that better than me. I do know that there has been some research recently which showed that forests do not have that much effect on the amount of available water, but it is a very tricky subject.

ACTING CHAIR—Thank you very much. That concludes the questions.

Committee adjourned at 2.46 p.m.