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TRANSCRIPT OF PROCEEDINGS

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MR B. WALKER SC, Royal Commissioner

IN THE MATTER OF THE MURRAY-DARLING BASIN ROYAL COMMISSION

ADELAIDE

10.01 AM, MONDAY, 30 JULY 2018

Continued from 26.7.18

DAY 15

**MR R. BEASLEY SC, Senior Counsel Assisting, appears with MR S. O'FLAHERTY,
Junior Counsel Assisting**

MR BEASLEY: Good morning, Commissioner. Mr O'Flaherty is back, having survived the ravages of the State tax conference after party, I'm told – where he was the life of the party.

5 THE COMMISSIONER: That's right.

MR BEASLEY: Before we begin, can I acknowledge the land we meet on today as the traditional land of the Kaurna people and we respect their spiritual relationship with their country. We also acknowledge the Kaurna people of the custodians of the
10 Adelaide region and their cultural and heritage beliefs are still as important to the living Kaurna people today. I also pay our respects to the cultural authority of Aboriginal people visiting from other areas of Australia present here.

Commissioner, we have Dr Adam Loch and Dr David Adamson to give evidence
15 today about matters concerning buyback and water efficiency schemes.

THE COMMISSIONER: Thank you.

MR BEASLEY: And they're here, I think. If you can just come forward and have
20 your seats. There are some documents to be tendered from last week, but we're going to do that another time.

THE COMMISSIONER: Gentlemen, please sit down.

25

<ADAM JAMES LOCH, AFFIRMED [10.02 am]

30

<DAVID CHARLES ADAMSON, AFFIRMED

MR BEASLEY: Dr Loch – sorry – Dr Loch, you are a Senior Lecturer at the University of Adelaide Centre for Global Food and Resources.

35 DR LOCH: That is correct, yes.

MR BEASLEY: And how long have you been in that centre?

40 DR LOCH: Shortly – longer than three years now.

MR BEASLEY: All right. And you have a Bachelor of Commerce from Bond University?

45 DR LOCH: That's correct.

MR BEASLEY: A Master of Marketing from Griffith University?

DR LOCH: Mmm.

MR BEASLEY: Master of Business from Central Queensland University?

5 DR LOCH: Yes.

MR BEASLEY: And a PhD of the University of South Australia.

10 DR LOCH: That's correct.

MR BEASLEY: What was the subject of your PhD?

DR LOCH: Economics – water economics.

15 MR BEASLEY: And you've written a number of journal articles on aspects of the Basin Plan.

DR LOCH: That's correct.

20 MR BEASLEY: Particularly the buyback scheme and the efficiency measures scheme?

DR LOCH: In more recent years, yes.

25 MR BEASLEY: All right. And Dr Adamson.

DR ADAMSON: Yes.

30 MR BEASLEY: You are, if I can – can you give us your background. You are at the School of Economics at the University of Queensland from '04 to '17.

DR ADAMSON: That is correct. I moved to Adelaide last year in April.

35 MR BEASLEY: And you have a Bachelor of Agriculture Economics from the University of New England.

DR ADAMSON: Correct.

40 MR BEASLEY: A Master in Natural Resource Economics from the University of Queensland?

DR ADAMSON: Correct.

45 MR BEASLEY: I think you've also got a PhD from the University of Queensland and I think you told me it was actually in relation to the Basin Plan.

DR ADAMSON: That is correct. It was pulling apart the implementation of the Basin Plan.

MR BEASLEY: All right.

5

THE COMMISSIONER: It was what, pulling it apart?

DR ADAMSON: Yes.

10 MR BEASLEY: Can you explain exactly what that means, “pulling it apart”?

DR ADAMSON: I was - - -

15 MR BEASLEY: Other people have been accused of that, so it would be interesting to hear.

DR ADAMSON: I was part of the economic technical modelling group of the Murray-Darling Basin Authority set up in 2007. I gave some recommendations for that and during the implementation, while I was writing up my thesis, I changed my thesis to reviewing how the Basin Plan was being implemented and I evaluated both buybacks and the water use efficiency programs.

20

THE COMMISSIONER: I suppose “pulling apart” is just an English way of saying “analysis”.

25

DR ADAMSON: Yes, but – yes, I think so - - -

MR BEASLEY: And you’re also currently at the Centre for Global Food and Resources.

30

DR ADAMSON: That’s correct.

MR BEASLEY: Since 2017, or before?

35 DR ADAMSON: Yes. Moved there in April last year.

MR BEASLEY: All right. Thank you. You’ve both written articles together and separately on the Basin Plan. Do you have a folder of documents, Dr Loch and Dr Adamson, “Brief”?

40

DR LOCH: We do.

MR BEASLEY: Good.

45 DR ADAMSON: We do.

MR BEASLEY: I wanted to take you firstly to the article behind tab 2 which, if yours is the same as mine, is an article written for Agriculture and Resource Economics Journal: 'Achieving Environmental Flows Where Buyback is Constrained'.

5

DR ADAMSON: Yes.

MR BEASLEY: Do you have that?

10 DR LOCH: Yes.

MR BEASLEY: Was this a joint effort or did one of you take a principal role in drafting the article?

15 DR ADAMSON: Look, we worked together for so long it's a bit hard to say who initiates what part and who does what. It's - - -

MR BEASLEY: It's relatively recent, so I wouldn't have thought it would have escaped your memory yet. It's 2017.

20

DR ADAMSON: It went through a number of revisions.

THE COMMISSIONER: Yes. The transcript won't record but I will remember that the witnesses looked at each other in such a way that there is no simple answer to that.

25

DR LOCH: Do you honestly expect – no. No, I think it's fair to say this would have been a joint effort. Technically, this one is David's idea, in a sense, but it synthesises a lot of our suggestions and thinking over a number of years, this particular one. But this article also was very difficult to get published. It was a long time coming out.

30

MR BEASLEY: Why was that?

35 THE COMMISSIONER: Why was it difficult?

DR ADAMSON: We needed to improve some things. We didn't have some of the discussion quite as well thought through as we should have.

40 THE COMMISSIONER: So there was a good and useful peer review process?

DR ADAMSON: It was and, like some of them, sometimes some people don't like the idea to start off with and you've got to move the paper around.

45 THE COMMISSIONER: Yes.

MR BEASLEY: The idea being that efficiency measures or efficiency scheme is less economically efficient than a buyback. Is that what wasn't liked or was it the way it was presented?

5 DR ADAMSON: The initial idea was following work... who says once a policy has been enacted you evaluate that policy and see, to the best of your abilities, what you could do with that policy. So we had already written in the past on – both on
10 buyback separately and also on water use efficiency. We had raised a couple of questions. As the implementation phase went towards capping the buyback we were concerned, because of our past work and we decided, “Well, how far could you push the water use efficiency in the simple model before the system started breaking?”

MR BEASLEY: You say “capping the buyback”, that's a reference to the 1,500
15 gegalitre cap on the buyback brought in in 2015, I think?

DR ADAMSON: Yes. Correct. Yes.

DR LOCH: Correct.

20 MR BEASLEY: And that was one of the subjects that prompted this article – one of the matters that prompted this article, was it, that a concern that buyback has now been excluded as a tool for recovering water under the Basin Plan?

DR ADAMSON: That is a fair comment.

25 MR BEASLEY: All right.

THE COMMISSIONER: Could I invite you both just to tell me, as discursively as
30 you would like, what, from your study, you understand to be – have been the rationale? Not the history, but the rationale for imposing the cap on buyback? If there was one.

DR LOCH: Political would be my view.

35 DR ADAMSON: Yes.

THE COMMISSIONER: Well, politics can supply rationales from time to time.

DR ADAMSON: I think - - -

40 THE COMMISSIONER: Doing the best you can - - -

DR ADAMSON: I think - - -

45 THE COMMISSIONER: - - - what is your understanding of those who justified the cap advancing it in terms of what I call policy or principle to advance the purposes of the Water Act?

DR ADAMSON: If I may, I think the buyback scared a lot of people. Buybacks
- - -

THE COMMISSIONER: Whom did it scare?

5

DR LOCH: Those who - - -

DR ADAMSON: Rural communities.

10 DR LOCH: - - - didn't really want it to be successful, shall we say, or as successful
as it was.

THE COMMISSIONER: So how many people are we talking about?

15 DR LOCH: Well, we're talking about the National Irrigators' Council, probably.

THE COMMISSIONER: So how many people are we talking about?

DR ADAMSON: Couldn't put a number on it, sorry.

20

DR LOCH: Couldn't put a number, no.

THE COMMISSIONER: It's not millions, is it?

25 DR LOCH: No. Good God, no.

THE COMMISSIONER: It's hundreds of thousands, is it?

DR LOCH: We're talking a couple of dozen, probably.

30

MR BEASLEY: I just want to check that the court reporter is able to – is it going
okay in terms of identifying who is talking? That's all right. Keep going, then.
Don't worry. I've got it covered. I just wanted to make sure.

35 DR ADAMSON: I think - - -

THE COMMISSIONER: Sir, you understand the point of my question that - - -

DR ADAMSON: I do.

40

THE COMMISSIONER: That I wouldn't regard that as a rationale that - - -

DR LOCH: No.

45 THE COMMISSIONER: - - - a relatively small number of people opposed to policy
because I've lived long enough to be able to say I can't recall when there was ever a
national policy in any subject area, that you wouldn't be able to rustle up a few tens

of thousands of people who regarded it as a disaster. But I – neither have I ever witnessed that being a spur to political action. It may be that being a parliamentary democracy has produced that.

5 DR LOCH: Well, I think that that's, in part, one of the - - -

MR BEASLEY: It wasn't what turned out – when you did some analysis of this, it didn't turn out to be as unpopular – buyback – that it is – when you actually spoke to rural communities, was it?

10

DR LOCH: Yes. And that's - - -

MR BEASLEY: There's – one of your papers suggested almost a fifty-fifty split.

15 DR LOCH: Tab 6 was the one I was just looking for. Thank you, Richard. Yes. So - - -

THE COMMISSIONER: Well, that's - - -

20 MR BEASLEY: That's an article called Irrigator Preferences - - -

THE COMMISSIONER: Preferences. Yes.

MR BEASLEY: - - - for Water Recovery Budget.

25

DR LOCH: And that, again – sorry, Commissioner, my apologies.

THE COMMISSIONER: Not at all. No, no. I - - -

30 MR BEASLEY: I think it's what I'm looking - - -

THE COMMISSIONER: Can we just get - - -

MR BEASLEY: I think top of page 403 might be - - -

35

THE COMMISSIONER: Yes.

MR BEASLEY: Yes.

40 THE COMMISSIONER: Can we just go back. I want to make sure that I've obtained from you two what you want me to consider in relation to why a cap on buyback.

DR ADAMSON: May I?

45

THE COMMISSIONER: Please.

DR ADAMSON: You are familiar with the MOU the New South Wales signed with the Federal Government - - -

DR LOCH: 2009.

5

DR ADAMSON: - - - to limit the buybacks from New South Wales.

THE COMMISSIONER: Yes, yes, yes.

10 MR BEASLEY: That was a very important document on how much water could be sourced at a given time. I think, by 2010 – by February – New South Wales had sold back all its water it could for that calendar year. The MOU was very limiting on how fast the reform process could occur in that situation. That gave people some time to allow - - -

15

MR BEASLEY: What was the impetus for that MOU?

DR LOCH: New South Wales government – for want of a better term – being extremely worried about the water that was leaving its productive areas, if you like, whether that be accurate or not.

20

MR BEASLEY: Because the people were volunteering to sell entitlements?

DR LOCH: Yes.

25

DR ADAMSON: Yes.

DR LOCH: Yes. No one was holding a gun to anyone's head, as we hear repeatedly.

30

THE COMMISSIONER: I just want to try to get this in a framework. The Water Act, the intergovernmental agreement or agreements preceding it and, of course, later the Basin Plan promulgated under it, all speak with one voice slightly different words – the same message. “We’ve” – that is the Australian population – “been taking too much water for consumptive and particular agricultural irrigation use from this Basin and we need to” – choose your words, doesn’t matter which. “Cut back”.

35

DR LOCH: Rebalance, whatever.

40 THE COMMISSIONER: Reduce – that is - - -

DR LOCH: Recover.

45 THE COMMISSIONER: - - - lower the amount of water. And, as you correctly say, it has led to other figures of speech such as recovering water and then a latter day personification of Mother Earth by talking about recovering it for the environment. Now leave aside my pedantic concern that we are part of the

environment but, nonetheless, it's a useful political shorthand for the non-consumptive deployment of water. All language tends to break down and reveal biases about whether you see nature as a mere instrumental tool or whether it is something that has long preceded us and will survive long after us. But leave all of
5 that philosophy or pseudo-philosophy to one side. It does seem to have been very clear, doesn't it, that there had to be reductions?

DR ADAMSON: Yes.

10 THE COMMISSIONER: Now, the - - -

DR LOCH: Well before the water plan - - -

DR ADAMSON:

15

DR LOCH: - - - was put into a point – put into place. Well before the environmental agreements.

THE COMMISSIONER: Decades. Decades.

20

DR ADAMSON: Yes.

DR LOCH: We are talking the original cap of '94 and '95, which – and even before that, in the eighties, recognised - - -

25

THE COMMISSIONER: I've got to say, it's older than that, as I recall.

DR LOCH: It's a common notion.

30 THE COMMISSIONER: Now - - -

DR LOCH: And I think this is the point – is that millions of Australians over that period had been brought, whether kicking or screaming or willingly, to the recognition that that was required and that these changes were also required and,
35 therefore, we were going down this path. I agree with you, I think, if I understand you. It's a couple of dozen, shall we say, individuals who see the strategic benefit in pulling that apart.

DR ADAMSON: Or making... as possible.

40

DR LOCH: Yes.

THE COMMISSIONER: Well, now, I'm proceeding in this Royal Commission on the basis that, as we sit here today, it's the clear will of four – query – five
45 Parliaments that there be this national program for the reduction of consumptive take. Have I got it correctly – is it your understanding that the separate but related question of both the jurisdictions and then the valleys that configure towards a recovery target

is, of course, a matter reasonably open to argument? There's no magical uniquely correct answer.

DR LOCH: No.

5

DR ADAMSON: No.

DR LOCH: There is no silver bullet.

10 THE COMMISSIONER: There could be, I take it, what's sometimes called a hydrological contribution model. You can work out which valleys should bear the burden of cutting back by working out - - -

DR LOCH: Yes. They did.

15

THE COMMISSIONER: - - - in some, alas, idealised version of our climate, how much water they contribute to what's meant to exit to the ocean. Another would, of course, be to recognise a national interest in, as it were, favouring the continuation of high-value irrigated agriculture over lower-value irrigated agriculture. What is your understanding of how that to and fro – proceeded and how it concluded?

20

DR ADAMSON: Well the Basin Plan is about the national good. What is in the national good? If you look at the Murray-Darling Basin... you can quickly see it looks like a kidney. It has the same function. Takes water and salt from our land.

25

THE COMMISSIONER: I just don't want to think about what it excretes, but anyway.

DR ADAMSON: Exactly. It's right near Adelaide. Anyway – and so as we use more water, it gets salty and creates pollution. This becomes a... which the whole society pays for and farmers of our society.

30

DR LOCH: Yes.

35 THE COMMISSIONER: So - - -

DR ADAMSON: The Basin Plan itself – the theoretical foundations are very good. You design common property that benefits everyone, improves the water quality, more water is flowing there that provides benefits to irrigators, society and the environment. How we implement the Basin Plan is – being a choice. We can do it cheaply or we could do it expensively.

40

THE COMMISSIONER: But we seem to have made that choice for the latter.

45 DR ADAMSON: We have.

DR LOCH: We have gone for the expensive choice.

THE COMMISSIONER: Yes.

DR LOCH: And I think that's one of the things – sorry.

5 DR ADAMSON: No.

THE COMMISSIONER: No, no.

10 DR LOCH: Coming back to your earlier question that if we – we did it, I think, in this paper, tab 6, I think, from memory. If you take the roughly \$3.1 billion that was on the table at the time Howard announced the national plan for water security and then Rudd took it up under water for the future – that was targeted or tagged by buyback. And you basically apportioned that across the entire number of then-irrigated farmers in the southern connected Basin where we have most of these
15 issues. You could have bought the entire required recovery target back in one fell. Done, dusted, sorted.

THE COMMISSIONER: I gather you don't think it would have been a "fell" swoop; you think it would have been a good idea.

20

DR LOCH: Yes. Absolutely. If we had another two years of drought, we probably would have got there, but we didn't. It broke and people were able to take the foot off the accelerator and they were, quite, as we say, happy to do so. They were worried about what this rapid transformation may mean for different communities, etcetera, etcetera. And so we then put, eventually, a cap – with a Senate inquiry in
25 2011, effectively, kyboshed any real reapplication of the buyback from that point on and eventually we moved to this cap at 1500, which we still have not reached.

30 But we shift gears and buyback, the recovery, the Basin Plan for want of a better term, you know, that becomes code for just these two things, when it's so much more than that, we know. But the recovery efforts effectively switch gears to efficiency and suddenly we end up spending a lot more money and a lot more time and a lot more effort trying to get to where we want to go and making ourselves exceedingly vulnerable in the future as a result.

35

THE COMMISSIONER: Now, I'm going to need you to elaborate for me the vulnerability. I've read in particular what I'm summarising in my mind as the reduced or hampered resilience in the face of further droughts.

40 MR BEASLEY: Your – I assume - - -

THE COMMISSIONER: But I'm not sure whether I have grasped it all.

45 MR BEASLEY: I assume – and please feel free to correct me and expand on this – but my understanding of reading your work in terms of vulnerability is the analysis of efficiency measures that can cause a change in irrigator or farmer behaviour in the sense of changing to a different crop, including a perennial crop, which has a higher

risk. Obviously it needs water every year, unlike an annual where you can grow it one year and not the next and do something else like sell water. And that, because you've moved – if an irrigator or farmer moves in perennial cropping for example it greatly increases their risk if either there's a dry year or to ongoing climate change risks. Is that generally the - - -

5 DR ADAMSON: That's correct.

10 THE COMMISSIONER: Have we seen – have we seen that shift yet?

DR ADAMSON: Yes.

15 DR LOCH: Yes. You can – you can see it today in the river land where there are hundreds of acres of almonds being planted as we speak.

THE COMMISSIONER: Quite a few hectares, too.

DR ADAMSON: Yes

20 DR LOCH: I believe that's right, yes.

DR ADAMSON: Almond farms.

25 THE COMMISSIONER: So almonds is the – you think the paradigm example of - - -

DR LOCH: Currently.

30 THE COMMISSIONER: Currently of a shift in behaviour.

DR ADAMSON: Yes.

35 THE COMMISSIONER: Can I ask you about a question that has occurred to us as we visited some vicinities. At the moment, what do you understand to be the legal constraints on someone making a market influenced decision to invest in a permanent planting like almonds?

DR ADAMSON: Zero.

40 DR LOCH: Well, there may be some land use permit requirements.

THE COMMISSIONER: Have you managed to study them? Have they been included as a variable in any of your studies?

45 DR ADAMSON: No, not - - -

DR LOCH: Not the legal constraints in terms of approvals. No is the simple answer.

5 THE COMMISSIONER: But whoever is setting up an almond plantation successfully, you may assume, has obtained whatever approvals is necessary because it would be probably socially and scholarly inappropriate to assume that they're acting illegally.

10 DR LOCH: It would be remiss of me perhaps, but anecdotally I would suggest that I have heard suggestions that there are people commissioning these works that don't perhaps necessarily have all of their ducks in a row, shall we say. They may be working to put those in place over time. So they're taking a risk, perhaps, in terms of the regulatory permits that are required, etcetera, etcetera, but is it – as you say – better to ask forgiveness in the long run. Who knows?

15 THE COMMISSIONER: And does it cause you two, as it were, professional conniptions to contemplate the introduction of controls? That is ceilings on permanent plantings which will enhance the risk.

20 DR ADAMSON: Yes.

DR LOCH: Very much so.

25 DR ADAMSON: We have done too much bad market regulation in this country. The wool floor price scheme being one of the critical examples where the net outcome of that was wool was more expensive than sheep. And if you actually were involved in that process it's not a laughing matter because - - -

30 THE COMMISSIONER: No, quite. So that, at its grimmest then, you think the mechanism of failure – observed failure is an essential one in terms of dealing with the problem of arguably excessive permanent or perennial plantings?

DR ADAMSON: I think we will experience it.

35 THE COMMISSIONER: You think that's salutary to occur?

40 DR ADAMSON: Look, we have been through this time and time again. You go five, 10 years ago we had the grape pull. You go before that around Shepparton, we removed varieties left, right and centre because they changed – consumer taste had changed.

THE COMMISSIONER: Now, what I'm wondering is what's the – if we're talking about expenditure, those tree pullers and the like have usually been subsidised by taxpayers.

45 DR ADAMSON: That is correct.

DR LOCH: Correct.

THE COMMISSIONER: Please don't get me wrong, I'm not saying that shouldn't
5 have happened, but I am wondering in the presence of your expertise why that's a
good idea.

DR ADAMSON: It's not.

DR LOCH: No. As a former – I'm going to put my former irrigator hat on here
10 now.

MR BEASLEY: Sorry. I should have asked you: part of your background you
worked on your own family farm for 10 years.

DR LOCH: Yes, sorry, I – yes, I had a – we had a family farm in Nerriga – well,
15 originally a sheep, then cattle, then finally irrigated cropping concern in central
Queensland for about 100 years. I worked on it for about the last 10 years. We sold
that farm in 2008 and I left there about 2005, so I spent about 10 years developing
20 that property, growing cotton and other annual irrigated crops in that period while we
worked out what to do with it as a family. And I do take offence – and I think most,
let's say professional farmers, take offence at those who don't make the right choices
during the good times to give themselves increased resilience during the bad and then
expect someone to intervene on their behalf and bail them out.

25 I don't have that security with my job now – I'm sure you don't have that security,
Commissioner – not many of us do, and I personally take umbrage with anyone who
expects that the government will act as the insurer of last resort in the face of their
poor decisions.

30 THE COMMISSIONER: Now, why I'm asking you about controls on the amount
of planting that can be done is a number of concerns. The first is there is a reference
to wise use. I don't think it is a term of art, but it's in danger of becoming one, in the
Water Act as being a required approach including to the devising of the Basin Plan.
35 The whole of the Act and the Plan and indeed the intergovernmental agreements, is
permeated with the peculiar significance of water and particularly in this continent.
The mechanism that the Act and the Plan and the complementary State legislation
currently principally applies to the balance or allocation between permanent and
annual plantings is to contemplate that in times of stringency the permanent
40 plantings, until some critical point is reached, will outspend the annual planters.

DR ADAMSON: Correct.

THE COMMISSIONER: In the temporary market – query the permanent market –
45 the critical point obviously will be the stage at which the input water simply, like
input stock feed during the drought we're suffering at the moment, with livestock
reaches a point where it's simply not worth doing, and instead of shooting the
livestock you pull the trees. Now, I'm just wondering whether that is a mechanism

which the Basin States should be content with as a policy when you are talking about water, the consumptive use of which has simultaneous environmental implications.

5 DR ADAMSON: Correct. We did a little paper a while ago on drought prices and how the differences - - -

DR LOCH: Tab 3.

10 DR ADAMSON: Tab 3.

DR LOCH: Page 390.

THE COMMISSIONER: Thank you.

15 DR LOCH: Little diagram there of figure 1.

DR ADAMSON: Pretty much what that says there, it's supply – is it one – is, "Everything is happy. We know how much water we are going to get. We carefully allocate it." The problem is when you move towards the left and there's next to no water, the price rapidly approaches the choke price which is where you no longer make any money. Now, for a perennial person you're willing to pay well above that in the short-term because you've got a cap on investment and your root stock.

25 THE COMMISSIONER: There's an analogy with livestock at the moment.

DR ADAMSON: Exactly.

DR LOCH: Yes, exactly.

30 DR ADAMSON: You keep them alive.

THE COMMISSIONER: It's worth keeping your breeders for a while.

35 DR ADAMSON: Yes.

DR LOCH: Dairy, in a sense, can be equated with a perennial.

40 DR ADAMSON: Exactly. And so you're willing to do that in the short run. In the long run you have to pull it, because it becomes too expensive to do so. You are correct that industry failure does occur and it will continue to occur.

THE COMMISSIONER: It's part of the system, isn't it?

45 DR LOCH: It is.

DR ADAMSON: It is.

THE COMMISSIONER: Well it should be. People are meant to see failures and
- - -

DR ADAMSON: And respond.

5

THE COMMISSIONER: - - - become reflective; is that the idea?

DR LOCH: Precisely. In an ideal world, yes.

10 THE COMMISSIONER: Sorry, in a real world. In an ideal there won't have been
all these mistakes, I hope.

DR ADAMSON: True.

15 THE COMMISSIONER: In the real world, you're meant to learn from yours and
others' mistakes.

DR ADAMSON: There's always going to be people on the margin that never quite
get it right.

20

THE COMMISSIONER: Yes. Or unlucky.

DR ADAMSON: Yes.

25 DR LOCH: But, I mean, I mean this – I mean it in a very serious sense. In an ideal
world, we should be getting this stuff right, and that should be part of the process.
That people should be allowed to fail or succeed in equal measure.

30 THE COMMISSIONER: Notwithstanding that they do so by using water that will
have had environmental implications.

DR LOCH: It – well, it depends.

35 DR ADAMSON: In that case, in the situation we have now where the environment
has protected rights, only if... the environment's water.

40 THE COMMISSIONER: Yes, precisely. So that makes the environmentally
sustainable level of take, which informs the sustainable diversion limit, a core
concept for what you're telling me about how the system should operate: make sure
the environment has enough and then let the market allocate for the consumptive
body of water; is that correct?

DR LOCH: Well, no – no.

45 DR ADAMSON: Well, you can do something.

DR LOCH: Well, you can do that.

THE COMMISSIONER: I want to hear the disagreement.

DR LOCH: Well, you can do that.

5 DR ADAMSON: It's why we work together.

DR LOCH: That's right.

DR ADAMSON: No, you...

10

THE COMMISSIONER: But you must finish your sentences or I won't understand.

DR LOCH: I must. No, I – I'm happy – no, happy to do so. I – no, I think – and
15 this is something that David has recognised and then we have been discussing in
more recent years, for example, that the environment can be treated just like any
other consumptive user. It is trying to produce, like any other irrigator, particular
outcomes from the application of water. If it chooses in any particular season to
20 reduce those objectives or if the Murray-Darling Basin Authority, using their proper
name, is going to put changed priorities around how they apply that water in any
given year – which they do – it could be that the environment actually makes do with
less and is able then to put that water back to other users in the system for their
productive gain.

25 So I wouldn't say that you can then come up with this hard and fast again figure that,
as long as the environment has got that under the changed recovery arrangements,
they will be fine, because that varies. Having said that, I would draw your attention,
though, to base flows, that minimum system requirement, where I would agree with
you. That is probably necessary to be set, fixed and held and protected.

30 DR ADAMSON: And it's currently not, but it's that concept there of the fixed
amount of water you acquire in a given year for your productive assets, whether they
be the environment or agriculture determines the maximum expansion you can have.
You go beyond that, failure will occur, because unless you – as you correctly said –
35 provide water, it dies. The question then becomes is how much of fixed planting is
the market willing to take, and take a risk on, and how do we define our
environmental assets and how we provide water for those assets?

THE COMMISSIONER: Well, now the last two elements are, I think, addressed in
40 the Act and the Plan by requiring an identification of what I will summarise as
environmental outcomes and key environmental outcomes and, consequentially,
environmental watering requirements, which are – I think, on any view of it – subtle
and complex constructs which are inherently arguable, and which presumably will be
susceptible to continuing re-evaluation.

45 DR LOCH: Debate.

THE COMMISSIONER: So that those are values or procedures which – processes which could produce, from time to time a greater or lesser volumetric requirement for the environment.

5 DR ADAMSON: Correct. If I may, the Murray-Darling Authority sets the targets.

DR LOCH: The objectives.

10 DR ADAMSON: The objectives. And over five states of nature: very dry, dry, moderate, wet and very wet. So your targets actually respond to that amount of water you actually have, so in the drought times the idea is to keep the key assets alive. We are then providing enough water to provide greater resilience for the bad times. The CEWH itself is targeted with meeting the objectives, so you have the separation between the targets and achieving those goals, and it will still depend on –
15 how well they can achieve it will depend on not only the amount of water they have, but their ability to trade, carry over water - - -

DR LOCH: Interact with key partners.

20 DR ADAMSON: - - - and interact with other partners.

THE COMMISSIONER: Do you see there as being a deficiency in the current regime with respect to the CEWH's capacity to trade?

25 DR LOCH: No.

THE COMMISSIONER: Or are you content - - -

30 DR ADAMSON: So far we have only seen the trade go in one direction.

THE COMMISSIONER: How do you mean?

35 DR ADAMSON: It has been offered back to farmers to temporary markets. I haven't yet seen a situation where they've bought water for the environment.

DR LOCH: Not for a – well, small bits I think here and there in recent years.

40 THE COMMISSIONER: Well, there would be the small question as to whether they're entitled to do so, or bound to do so.

DR ADAMSON: Yes.

DR LOCH: I can't see why not.

45 DR ADAMSON: Yes. I can't see why not.

DR LOCH: Why not?

DR ADAMSON: I think they - - -

THE COMMISSIONER: I'm a lawyer, so I would look for an appropriation Act, I suppose.

5

DR LOCH: Well, they have a - - -

THE COMMISSIONER: A law authorising the program.

10 DR LOCH: No, they have a – they have a good range of regulatory constraints and parameters under which they operate, and of course they also Chinese wall – their trade situation now sits with DAWR, so the Department of Agriculture and Water Resources, whereas their environmental watering office, which sits with the Department of Environment and Energy. So they used to be in the same building
15 and sit in separate areas, again Chinese walled – I think appropriately – so that one couldn't, in a sense, influence the other. Now, the trade division sits in an entirely different building, so they're even further separated. They do that deliberately to avoid conflict of interest. They do it to - - -

20 THE COMMISSIONER: When you say conflict of interest, do you mean there being knowledge of an ambition - - -

MR BEASLEY: Sorry, so...

25 THE COMMISSIONER: An ambition to buy informing - - -

DR LOCH: Yes. Or sell.

30 MR BEASLEY: CEWH has power to buy water under the Water Act, but then there's a series of protocols that have been established that we will eventually – we will get to.

THE COMMISSIONER: Safeguards - - -

35 DR LOCH: Yes. Absolutely.

MR BEASLEY: But we're not there yet.

THE COMMISSIONER: Safeguards against what? Price gouging by sellers?

40

DR LOCH: Yes, potentially sending poor signals to the market. I mean, take - - -

MR BEASLEY: I think whether it's appropriate to purchase the water, a whole range of things, to establish this is a proper thing to do.

45

DR ADAMSON: Yes. I mean you can transform your portfolio and - - -

DR LOCH: One of the simplest ones that they cannot – the CEWH cannot sell an existing entitlement unless it is able to prove that in doing so it will – it will grow or, if you like, increase the benefit of the overall portfolio. So, in other words, if it's bought an entitlement and it then decides that there's a better entitlement it should hold, this one is – this original entitlement needs to go to procure this new entitlement, they can prove that the outcomes from doing so will be better off as a whole, then they can act in that regard.

10 THE COMMISSIONER: Are you principally talking about locations there?

DR ADAMSON: Yes.

DR LOCH: It could be location, it could be the reliability of the title. It could be the – yes, it could have been whatever it may mean.

15 DR ADAMSON: So you've got three basic entitlement types: high security, general and supplementary. So you've got the capacity there to – and the whole Basin is built on the premise, optimise the Basin Plan for economic, gain, environmental gain. And so if you have the capacity to reallocate your resources in response to climate variability or climate change they have that ability to move around and repurchase their portfolio correctly or with better information as it comes to light.

25 MR BEASLEY: I just want to go back to the paper we were discussing behind tab 2 to make sure that I have a proper understanding of some of the matters you've raised. And I'm on the last paragraph of page 84. So here you're talking about what buyback can do and one of the matters you raise is provide secure well-with defined property rights with certain spatial and temporal characteristics. I want to make sure I understand. Spatial, I take it, is a reference to where the water is being bought from?

30 DR LOCH: Correct.

MR BEASLEY: And temporal is a reference to?

35 DR ADAMSON: The reliability of the asset. And so I modelled by those climate states I mentioned before, very dry all the way through to wet.

MR BEASLEY: High security or – from – bought from an area where usually allocation is close to entitlement.

DR ADAMSON: Yes. Or how can you move them around or conveyance losses you know. So each of those rights have different reliabilities by different climate states.

45 MR BEASLEY: Right. Identify the water resources true price, I think I understand. Maximise welfare for different users; what's that a reference to?

DR ADAMSON: Welfare in this case is social, economic and environmental. So if, depending what the objectives of the government's plans are at a given point of time, how can we get better use of those. Prompt rights give you clear access to resource at a given point in time and a given reliability, so if you know that you can buy them
5 in the correct place to get the outcomes you need.

DR LOCH: They're known, defined, tangible, with a history in most cases that you can then draw upon for your planning, thinking and decision-making.

10 MR BEASLEY: There's a strong element of certainty, isn't there, that you've bought this - - -

DR LOCH: There's - - -

15 MR BEASLEY: - - - leaving aside a drying climate?

DR LOCH: Yes. Well, this is – that, indeed, is the – you know, the elephant in the room but yes, technically speaking, all things being fair and average – equal, sorry, you should have a reasonable expectation on the balance of averages of getting X in
20 regard to that entitlement.

MR BEASLEY: Right.

DR ADAMSON: And the right gives it the ability to be protected in a court of law.
25

DR LOCH: Yes.

MR BEASLEY: And enable – they enable – buybacks enable risk management benefits during adverse climatic events. What's that a reference to?
30

DR LOCH: Well, effectively it means if you have a property right, you can trade, in a sense.

DR ADAMSON: Yes.
35

DR LOCH: So without a property right, what are you actually transferring in reality?

MR BEASLEY: So, in other words a – in terms of a buyback, you mean that it can
40 then be further traded by the water holder if it's

DR ADAMSON: Yes.

DR LOCH: Yes. Precisely.
45

DR ADAMSON: Yes. It can be moved up and down the Basin. It can be reallocated if there's better rights, as we have already discussed, available somewhere else.

5 DR LOCH: It can be moved between particular farms that one entity may hold in different areas. It has flexibility within the system.

MR BEASLEY: There has also been, in terms of the way that we discussed very early on, that buyback has been, whether it's due to some form of PR exercise or
10 genuinely is the community concern that buybacks come from the devil, there are additional positive benefits from buybacks, aren't there, in the sense that I think the research shows – perhaps in your work or perhaps in work that you've – peer reviewed work that you've read, that generally buybacks weren't achieved by buying an entire entitlement. They were often where a farmer sold a partial entitlement.

15 DR ADAMSON: Or part of their portfolio.

MR BEASLEY: Or part of their portfolio and remained in the game, so to speak, and hence received some money that, in some instances, was spent locally with
20 positive benefits for the local economy, correct?

DR ADAMSON: And it went well beyond that. What it also did is it really helped inform the water market of the true price of water and, as the market price appreciated, those farmers who didn't sell their rights actually had increased their
25 equity. You've got a portfolio of rights. That price has increased; you've actually got an asset there that is now worth far more. So it created all sorts of wonderful benefits for those directly involved and not involved in the process.

MR BEASLEY: Just moving on, on pages 85 and 86 you have a discussion about
30 the peer-reviewed research and articles concerning the SRWUIP and there are six concerns identified there. Some of which I think we've – you've already discussed with the Commissioner things like the risk of encouraging farmers to transition away from annuals into perennials, etcetera. Can I just suggest to you also that the other thing that is absolutely clear and I think we have discussed this is efficiency
35 measures are far more expensive than a buyback.

DR ADAMSON: Yes.

DR LOCH: They can be and, indeed, the experience in this country to date has been
40 that that's the case, yes.

MR BEASLEY: And there's a form of inequity in them, in this sense, isn't there, in that they've been a measure that has been able to be taken up by farmers or irrigators who are using water in an inefficient manner and it has excluded people that had
45 already upgraded, at their own cost, to efficient water use.

DR ADAMSON: It goes further than that.

MR BEASLEY: Right.

DR ADAMSON: It actually locks water back into known regions preventing new farmers coming in with their own capital and upgrading or building brand new systems. In some ways, it's a trade-restrictive practice, which is unfortunate because you are preventing those who could actually come in and do a lot more with those resources and you're coming in with your own capital. Instead of subsidised capital you've got a far better understanding of the exposure you have to risk.

MR BEASLEY: And I'm right, aren't I, if I suggested that another concern that you have, both of you, and many other economists – similarly qualified people, is a lack of transparency in the efficiency-measure schemes in the sense that there doesn't seem to be good information as to why money went to some people, what it was for – nor does there seem to be a fully transparent, if at all, water accounting in the sense that do we know what water we have truly recovered for these measures?

DR LOCH: I would agree with that, if I may very quickly. The initial evidence – the initial reporting on a lot of these programs in the early days, and I'm saying towards the end of the Living Murray, 2008, 2009. So buyback and efficiency were also part of the Living Murray process. So we – this isn't new. We have been doing it in different stages.

MR BEASLEY: I think you referred us to a report by the Victorian Auditor-General

DR LOCH: Yes.

MR BEASLEY: --- in relation to an efficiency-measure scheme.

DR LOCH: Yes. Absolutely. Yes, so there have been good audits; there have been good assessments over time. My feeling is when you then pursue them through the years that degree of rigour around what was the water targeted at; what did we pay per megalitre, etcetera, drops off dramatically. So in that paper I think, at tab 6 – which is old now, I think 2014 – I used what evidence was out there to compile that rather large comparative table towards the back. The data drops away and it becomes now very non-transparent, if you like, when you are trying to get to these issues. The water accounting, on the other hand, however, has never been done. To my opinion, it has never been done properly.

MR BEASLEY: The Victorian Auditor-General, in the assessment of the Victorian water efficiency scheme, which I think involved a spend of about \$2 billion in irrigation efficiency and related projects during the period '04 to '07, basically concluded that there was no clarity as to exactly what the water saving was. Is that the concern in relation to the efficiency schemes that have been brought in under the Basin Plan as well?

DR ADAMSON: I think that's a reasonable statement. I think you could clearly say that. I think what has always worried us is the buyback. Adam's work showed it and my work showed it separately that you could get back water you wanted. The question is we still have this money left over. What then to do with it? The
5 government has decided to put it to water use efficiencies.

As other people clearly suggested like John Quiggin that this money could have been spent in the regions far better with far greater benefits for the nation rather than simply subsidising capital; instead of letting farmers discover the true price and the
10 true risk associated with those investments and giving them greater flexibility to exit if they wanted.

DR LOCH: But let's not lose sight, ultimately, of what we were seeking to achieve in this process and that was the rebalancing, the recovery of water for the national
15 welfare under environmental gains – to take water that had been over allocated to consumptive uses and to put it back towards sustaining our natural environment. Now, if we are suggesting – and this is what the Federal Government is suggesting – that the target, if we go back to page 85 of that same paper, you can see the bar chart, if you like, that we've constructed there.

20

DR ADAMSON: Yes.

DR LOCH: No matter this moveable feast of where we want to end up, at the end of the day, the government is saying to all of us, "We have recovered X".
25

DR LOCH: Yes.

DR ADAMSON: X.

30 DR LOCH: And, "Under buyback I can be very confident that we have recovered X because an entitlement with a property right and underlying legal structure, etcetera, etcetera have been recovered." If I have no concept of what was being lost from a farm before a transformation of that productive system has taken place under a water use efficiency investment, I am then saying, "I've saved X". How can I actually
35 account for that in these recovery – I can't. You simply cannot, with any confidence, account for those figures as a true understanding of what we have done to recover water.

40 THE COMMISSIONER: This is the – one of the considerations that underlies what leads some people to use the expression "real water" and its opposite.

DR LOCH: And paper water, if you like.

45 MR BEASLEY: It has an ongoing relevance, of course, too – not just relevance of finding out whether we have spent money and gotten value for it, but also towards the future with the 450 gigalitres that's to be achieved through efficiency measures to

the certainty of that, the propriety of it and whether it's good sense or not to achieve that figure of water from either efficiency measures or a buyback.

5 DR LOCH: Well, we're claiming at this point, I think, from the last time I looked at these figures – which I must admit, was a while ago – that we're at about 2,000, possibly now 2,100 gigalitres of recovered water.

DR ADAMSON: Yes.

10 DR LOCH: So anyway, looking at our table there - - -

MR BEASLEY: Which I think is divided about 1,300 in buybacks and about 800 now claimed for efficiency measures.

15 DR ADAMSON: Yes

DR LOCH: Would be about right.

MR BEASLEY: Yes.

20

DR LOCH: So that has grown by, say, a 200 gigalitre efficiency gain last time I looked at them, let's say. Now, I'm sorry, I just don't believe it.

MR BEASLEY: All right. I wanted to - - -

25

THE COMMISSIONER: Now, could I just ask you about figure 1 in - - -

DR LOCH: Tab 2?

30 THE COMMISSIONER: What's this – this is Adamson and Loch 2018, is that right?

DR ADAMSON: Yes.

35 DR LOCH: Yes, that should be right.

THE COMMISSIONER: The top slice.

MR BEASLEY: Sorry, what page are we on, Commissioner?

40

DR LOCH: 85. 85.

DR ADAMSON: 85.

45 THE COMMISSIONER: Page 85. The top slice usefully badges the circled 450 gigalitres in further - - -

DR ADAMSON: Correct.

THE COMMISSIONER: - - - reduction of the SDL as requiring no social or economic impact – meaning adverse impact. The one below the circled supply
5 measure SDL reductions – the – it’s conventionally there called 650 giga litres – that could have usefully be tagged, wouldn’t it, with equivalent environmental outcomes?

DR ADAMSON: Yes.

10 THE COMMISSIONER: That is, in each case that’s a criterion of eligibility for measures proposed to contribute to that reduction in environmental recovery.

DR ADAMSON: Correct.

15 DR LOCH: Yes. My understanding is that unless you can make a solid case that the supply measure intervention will result in as good - - -

THE COMMISSIONER: Environmental outcomes.

20 DR LOCH: - - - if not better environmental outcomes than the counterfactual, then you – then that supply measure would not get approval, is my understanding.

DR ADAMSON: That is the underlying basis of both the review of the northern SDL and the southern SDL.

25 THE COMMISSIONER: Yes, the northern one informally but the southern one under the statute or under the Plan.

DR LOCH: More formally, yes.

30 THE COMMISSIONER: Well, now, is it convenient if I ask a couple of questions about this article?

MR BEASLEY: Of course. Yes.

35 THE COMMISSIONER: May I?

MR BEASLEY: I’m hesitating to give permission, because I’m not sure it’s required, but you keep promoting me to this level where I have to grant you permission, so permission granted.

40

DR LOCH: It’s all very polite.

THE COMMISSIONER: Either that or I’m teasing you. Foot of page 84.

45

DR LOCH: 84, yes.

THE COMMISSIONER: The reference to the Australian Parliament 2011 is to the House of Reps Standing Committee report.

DR ADAMSON: That is correct, I believe.

5

THE COMMISSIONER: I just wanted to check – and I don't mean this disrespectfully at all – that's not intended to be a reference to peer-reviewed assessments, is it? That one.

10 DR LOCH: No.

DR ADAMSON: No.

DR LOCH: The - - -

15

THE COMMISSIONER: No, I just wanted to check because I haven't read it and it may have had something peer-reviewed embedded in it.

DR ADAMSON: No.

20

DR LOCH: Well, it could do, I must admit it's a lengthy document but it's what we would refer to as "grey literature". So it's reports or other submissions – indeed like these submissions to Royal Commissions, for example, that may not have been peer reviewed but they have, you know, jolly good statements in them.

25

THE COMMISSIONER: Now:

The commonly perceived negative consequences like stranded asset impacts from ad hoc irrigation infrastructure removal.

30

Does that come pretty close to what is colloquially called the "Swiss cheese effect"?

DR ADAMSON: Yes.

35 DR LOCH: If you want to be simplistic about things, yes.

THE COMMISSIONER: As I do, yes. Sorry, simple, not simplistic.

40 DR LOCH: No, that's a much better – much nicer way of putting it than as was put there, yes.

THE COMMISSIONER: I just wanted to check. About page – the foot of page 85 you refer, in the fourth of the six issues from recent economic critiques of SWRUIP, to the demand increase from the risked capital position of those who plant perennial crops. Do I gather that the fact that, as you two identified in 2015 that exposes perennial capital investments to substantial risk. I shouldn't care less about that. That's just capitalism at work, isn't it?

45

DR LOCH: Well, you should because – and already we’re seeing evidence of this in popular media, as we transition in this country, as you said - - -

DR ADAMSON: ... drought.

5

DR LOCH: - - - the livestock drought. So drought, as my learned colleague here is fond of saying - - -

DR ADAMSON: Drought is coming.

10

THE COMMISSIONER: I think it’s here.

DR LOCH: Yes, I think it’s here as well. And so effectively – I’ve lost my train of thought now.

15

DR ADAMSON: What it is, is - - -

THE COMMISSIONER: I just want to – why – this is not to expose a view I have, I don’t have a view, I’m trying to find out about these things, how should we, in considering the operation of the Basin Plan, the success of the Water Act in achieving its purposes, how should we see the fact that, to put it crudely, the system seems to involve some investors becoming displayed casualties in order to sharpen the risk assessment of future investors?

20

DR LOCH: No. I would say they become displayed casualties to make the Australian taxpayer - - -

25

DR ADAMSON: Fork over more money.

DR LOCH: - - - sympathetic to putting money on the table to bail them out once - - -

30

DR ADAMSON: Again.

DR LOCH: - - - again in the face of their poor decision-making.

35

THE COMMISSIONER: I don’t know. I will try to suppress my comment about that.

DR LOCH: I probably should have done the same.

40

THE COMMISSIONER: No, no. It’s a very important thing you say because it shows the national culture concerning subsidy, particularly after the event, which is a significant - - -

45

DR ADAMSON: Reinforcement of bad behaviour.

THE COMMISSIONER: Yes.

DR LOCH: You – and - - -

5 THE COMMISSIONER: And is a significant qualification to any excessively glib characterisation of this as being market driven.

DR LOCH: Absolutely.

10 THE COMMISSIONER: It's a heavily supported, including retrospectively supported, market. Now, the fifth one interests me. I just wanted to ask about that.

DR ADAMSON: Yes.

15 THE COMMISSIONER: I have a suspicion, but not a confident one, that I understand what you mean by "rebound effects". Could someone explain that for me?

DR ADAMSON: And this is the return flows back into the system. In other words,
20 we used to have older systems, less efficient, and that water returned back into the river. As we increase efficiencies that water stops flowing back into the river, and so actually there's less water going along the river. It's not as though the farmers didn't own that water in the first case.

25 THE COMMISSIONER: But they weren't using it.

DR ADAMSON: We just weren't using it as efficiently as we could have. So it actually incentivised the efficiency, which decreases return flows, so that means
30 there may be less water in the river, and if the numbers are substantial that means the amount you bought back to the environment may be less than what was naturally being lost out of irrigation.

THE COMMISSIONER: I gather from the way you have expressed that, though,
35 that we don't have anywhere near sufficient empirical data to do anything other than point out these conceptual flaws.

DR ADAMSON: We – and this was the part of our first collaborative paper in 2014 to point this out, that this was a potential issue. We raised that and people are now
40 starting to debate that issue quite well around about, now.

DR LOCH: Tab 4.

MR BEASLEY: Yes. I'm coming to that one. Yes.

45 THE COMMISSIONER: The gold plating article.

DR LOCH: Yes – yes – yes.

THE COMMISSIONER: Page 97, in those first two paragraphs under the heading 'Inflexible Future Production Systems', the inflexibility arises from the characteristic of perennial or permanent plantings that you need to keep them alive even when you don't hope for much production.

5

DR ADAMSON: Correct.

DR LOCH: When you may not have as much water. So yes, your production, your productivity in those assets may decrease.

10

DR ADAMSON: Yes.

DR LOCH: But you will need to keep them alive.

15

THE COMMISSIONER: You have to keep them alive.

DR LOCH: For future production, yes.

20

THE COMMISSIONER: Towards the end of that first paragraph, you say - - -

DR LOCH: Structural.

THE COMMISSIONER: - - - that:

25

The significant adoption of the perennial production is the one most likely to generate higher –

and then you say, parenthetically –

30

(perceived) returns.

That's a general way of doubting the genuineness of the higher returns; is that right?

35

DR ADAMSON: Correct.

DR LOCH: Yes.

THE COMMISSIONER: So if you look at a longer term analysis - - -

40

DR ADAMSON: Well in this situation – I mean, if a single individual upgraded, yes, they will do quite well. But we're talking about sectoral transformation here, where there's a large number of hectares taken away from annual cropping - - -

45

THE COMMISSIONER: Or dry land farming.

DR ADAMSON: - - - which could have provided water back to the irrigators and perennial crops, when required.

DR LOCH:

DR ADAMSON: In this case by removing people out of annual irrigated crops into
5 perennials, you take away the flexibility of trading water between one group and the
other. And that's what really kept most of the Basin alive in the last Millennium
Drought.

THE COMMISSIONER: Is it – have I correctly understood that the attractiveness
10 of this risky permanent planting is the considerably larger upside in international
markets for the commodity?

DR LOCH: Which is another reason for the parenthetical “perceived”. So almonds
are the perfect example. They represent, at the moment, a perfect storm. The
15 commodity price is 500 plus a tonne for almonds which is very good money. The
demand – the forecast demand in the future is quite high.

DR ADAMSON: Unlimited.

DR LOCH: So a lot of commercial - - -
20

THE COMMISSIONER: Until they're forbidden to use the word “milk”.

DR ADAMSON: Yes, absolutely. That's right. So there's all sorts of things in a
25 changing environment that come into play down the track. One is, of course, is that
once all these wonderful almond trees come into full production we will have more
almonds than we can poke an almond at. And generally speaking when we see that,
we tend to see prices collapse.

DR ADAMSON: And demand – well, 80 to 90 per cent of Australia's value of
30 agriculture comes from exports. So we must export. But other countries also see a
high international price. So they enter the market as well. California at the moment
is still replanting in the drought.

DR LOCH: We went to Portugal a couple of months ago; they're going mad with
35 almonds.

DR ADAMSON: The world responds to a price and when the oversupply occurs,
the price will crash. That price is just our current perception of what we hope will
40 remain there.

THE COMMISSIONER: Thank you. The next sentence:

45 *Any overinvestment in perennials also negates traditional risk responses to
water scarcity by limiting Murray-Darling Basin water user capacity to trade
between annual and perennial systems.*

So that's a sentence which, with respect in precise and compressed form, says what you've been explaining to me in the last five minutes or so.

DR ADAMSON: Yes.

5

DR LOCH: In some respects. It's a trade-specific commentary. If you look at the old National Water Commission trade reports for the many years that they were doing those, the 2011 one is a beautiful example where you can very clearly identify the shift of water away from annual production systems during drought to perennial systems. So you just see almost a like for like shift from here to there and our market is predicated wholly on the distinction between those two production systems.

10

THE COMMISSIONER: Has there been any study of the effect of that transfer on the continuation in business on the land of the annual farmers who are outpriced, outbid, by the permanent planters?

15

DR ADAMSON: Yes.

DR LOCH: Yes. Outbid, no, no, they are the ones who are receiving the top bids.

20

THE COMMISSIONER: Sorry, but for those who want it for consumption, that's not a phenomenon that matters?

DR LOCH: It can be, but I mean any sensible - - -

25

THE COMMISSIONER: Not all annual farmers confine themselves to their permanent waters rights do they?

DR LOCH: No - no - no - no - no - no - no, farmers adapt.

30

DR ADAMSON:

DR LOCH: Farmers use whatever they can to get through. But most - I mean, in the face of 200, \$300-plus per megalitre prices, as we are seeing currently in the seasonal temporary or allocation market, I can tell you right now as a former annual irrigation - I wouldn't be growing a crop. There's no way. That is simply too good to pass up in terms of money for nothing. So I will happily sell that.

35

THE COMMISSIONER: You can stay clean and air-conditioned.

40

DR ADAMSON: Or - - -

THE COMMISSIONER: Counting your money for the money water price rather than going to the trouble of planting a crop.

45

DR ADAMSON: Or - - -

DR LOCH: Well, I will do something.

DR ADAMSON: Yes, I mean - - -

5 DR LOCH: I can dry land crop. That's the beauty of the annual system.

DR ADAMSON: Or, you know, in the dairy producers, you use that money to buy fodder better way of staying afloat that way.

10 DR LOCH: Or – or get rid of your cattle, so to get rid of those - - -

DR ADAMSON: Or grow pasture.

15 DR LOCH: And buy water to grow – to grow fodder, and then sell that. The dairy farmers, I've always viewed them – along with Victorians – as being beautifully positioned and wonderful players in all of this context. They actually have enormous flexibility. Dairy, in particular, has great flexibility in some respects to chop and change and to take advantage of the different

20 DR ADAMSON: Now, there were a few - - -

MR BEASLEY: Depending on the tipping point for the price of water as to what decision you make?

25 DR LOCH: Yes – yes – yes – yes – yes, exactly and whether they get in early enough.

30 DR ADAMSON: There were – there were a few farmers I know that shared their water in some areas to grow a crop together, because they didn't have enough water individually. They did that because they wanted to keep busy. Now, not everyone responds to market signals and they get other satisfaction from working but overall, if the price is that high, and we go back to 2007 or \$1600 a megalitre, I know what I'm doing.

35 THE COMMISSIONER: I need to bear in mind two quite separate and probably opposite phenomena. The one is the annual cropper has vendor and the other is the would-be annual cropper as competing buyer.

40 DR LOCH: Yes. And they – certainly they would be out there.

DR ADAMSON:

DR LOCH: The occasional one. Yes, sure.

45 THE COMMISSIONER: And are there any studies that show that there is a significant community detriment by the would-be annual crop buyer – of temporary water, I assume – being outbid by permanent planting buyers?

DR ADAMSON:

DR LOCH: There may be. I'm not familiar with any peer reviewed.

5 THE COMMISSIONER: That's more theoretical than real, is it?

DR ADAMSON: ... I would say it's true.

10 DR LOCH: No, I've read reports where that has been suggested. Have I seen peer reviewed work? No. But I'm not as across perhaps that literature, let's say the community impacts, as I used to be. But I'm not familiar with any peer reviewed work that has examined, say, the community impacts of trade or water movements, etcetera, that have ever been able to substantiate significant negative findings.

15 THE COMMISSIONER: I think I need to take as a given, in everything I'm considering, that we are committed to what I will call the commodification of irrigation water.

DR ADAMSON: Yes, already there.

20

THE COMMISSIONER: And the trade is now seen as a - - -

DR ADAMSON: Sort of valuable option.

25 THE COMMISSIONER: As a national choice that has been made - - -

DR LOCH: It is.

30 THE COMMISSIONER: - - - and perceived wisdom is for the better.

DR LOCH: It is a national asset. Pure and simply. If you examine - - -

35 THE COMMISSIONER: But the trade in it is a choice we have made which, I gather the perceived wisdom in your profession and related professions, is that it's for the better that we made that choice.

DR ADAMSON: Definitely.

40 DR LOCH: If you – so, for example, I had this argument with a Minister for something in Spain recently – I apologise to the gentleman – but, essentially, just say he was the Minister for drought. A very – a wonderful man. Now he said to me, “You can't bring the environment into the market.” And I said, “Well, we have. Australia has done it. It's there. The environment trades in the market and the market was used to provide the environment with water.” End of story. So nothing
45 is excluded – the market for providing us with this national welfare. In fact, it has. We had - - -

DR ADAMSON: It has increased welfare.

DR LOCH: It's the single only mechanism in this country that achieved it. I have another colleague who - - -

5

THE COMMISSIONER: When you say the market is a mechanism, your Spanish interlocutor was surely right in this respect that you have to artificially create a personification in the market as a market participant in order to enlist market mechanisms to achieve that end.

10

DR LOCH: You make, as the government – yes, the government decided here to act as an entity in the market.

DR ADAMSON: So theory of common property.

15

DR LOCH: But it's a simple – it's a simple analogy, and I use it more and more: we can all of us take a pen and we can write "water" on a piece of paper and we can hold it up and we can see how much water falls out of that for our benefit. That's akin to National Water Plans on the behalf of the environment. That's what we did for decades in this country in the beginning reform period. We wrote the environment into our Water Plans and we somehow believed when we had over-allocated all of the water resources, particular here in the southern Murray-Darling Basin, to consumptive purposes, that that would generate the environmental requirements that we needed.

25

It did not. It simply could not, and never would. Until the Federal Government in the face of one of the worst droughts we've seen in white history, shall we say, occurred and the impetus was made to put money on the table and in the market to buy water back from consumptive users, did we ever generate meaningful water for the environment and the TLM, The Living Murray, in doing the same sort of thing, was an initial precursor to that as well.

30

THE COMMISSIONER: Top of page 98, the first full sentence. I don't mean this rudely, could you translate that for someone who's not a professional economist.

35

DR LOCH: So the 'As Discussed'?

THE COMMISSIONER: Yes.

40

DR LOCH: The output prices in the model are fixed within the partial equilibrium approach. Consequently, any adjustment price from picking – I see you wrote - - -

45

DR ADAMSON: Yes. I'm lazy. Okay. What we have done in the simple modelling there is we kept prices fixed. We didn't worry about international price movement of prices because what we were looking at here is see what the fundamental transformation within society may be. And yes – I mean people argue this that we were being too nice or too harsh or whatever.

THE COMMISSIONER: So this is pointing out what is entailed in the - - -

DR ADAMSON: Modelling.

5 THE COMMISSIONER: The design of your model. Thank you. What about the last sentence of that paragraph?

DR LOCH: “This could lead to - - -”

10 THE COMMISSIONER: Particularly:

Potentially reducing future buyback water recovery under what appears to be a misunderstanding of irrigation return flow impacts.

15 Is that the same failing to account for possible return flows point?

DR ADAMSON: Yes.

DR LOCH: In a sense, yes.

20

THE COMMISSIONER: Thank you, Mr Beasley.

MR BEASLEY: I just wanted to ask at the bottom of page 99, top of page 100.

25 *We find that an increased focus on SRWUIP water recovery is less economically efficient relative to water buyback, and that the opportunities for lower social cost investment will diminish over time as existing efficient water users are transformed. As many efficient water users are located in the southern MDB, this requirement also skews the distribution of subsidy*
30 *outcomes, resulting in regional winners and losers.*

What do you mean by “regional winners and losers”?

35 DR ADAMSON: The model in its simplest form looked and said, “Who are the most inefficient water users at the moment?” It allocated the money there, to get the greatest volume of water per dollar spent. And so effectively cherry picks up and down the system to find the - - -

40 MR BEASLEY: This is the inequality point that I was making before.

DR ADAMSON: Exactly. And therefore it penalises those farmers who are already well efficient and understood the risks and had already invested in their own high efficient systems.

45 THE COMMISSIONER: How do we – how should we – in thinking about everyone’s financial contribution to implementing the Water Act and the Basin Plan, how should we deal with what appears to be intuitively a rather unfair way of saying

to the more backward members of the relevant community you will be rewarded for being the more backward?

DR ADAMSON: It's unfortunate.

5

THE COMMISSIONER: Well, it is. It is. I'm just wondering, I mean - - -

DR LOCH: As long as you vote for me, I will give you whatever you want.

10 THE COMMISSIONER: That doesn't sound very economic.

DR ADAMSON:

15 DR LOCH: No, no, it's political. Remember, you – we're coming back to our – where we very first began this conversation, which is what's going on is a political issue. It's not an economic one. If it were economics that were driving the decisions, the investments in water use efficiency would not be taking place.

DR ADAMSON: Not be...

20

THE COMMISSIONER: Because, among other things, it is subsidising those who have not been spurred by motivations that we would wish to reward into making their own funding of efficiency

25 DR LOCH: And those who have are worse off.

DR ADAMSON: Are being penalised.

THE COMMISSIONER: Or relatively worse off.

30

DR LOCH: Yes.

35 THE COMMISSIONER: There's always the parable of the vineyard, I suppose. You are not meant to envy those who are treated more favourably after you've been paid.

DR LOCH: But we do.

THE COMMISSIONER: Everyone has got their tax benefits.

40

DR LOCH: Yes. Well, true, I suppose.

DR ADAMSON: Yes.

45 THE COMMISSIONER: Thank you.

MR BEASLEY: Tab 4, 'Positive/Negative Feedbacks from Gold Plating Irrigation Infrastructure', Adamson and Loch. I just had a few questions about this article commencing over at page 141 under the heading 'Five Implications for Water Managers'. Halfway down that first paragraph:

5

The use of capital works as a policy instrument and appears to: (i) expose agricultural water users to increased economic risk under production transformations.

10 Now, I take it that's a reference to things we have discussed like changing from an annual to a perennial.

DR LOCH: Or investing in greater perennial areas, yes.

15 MR BEASLEY: Yes.

(ii) Decrease social wealth via large public to private transfers to achieve capital investment.

20

What does that mean?

DR ADAMSON: We're willing to subsidise farmers a lot.

25 DR LOCH: So we are paying five times the value of water over what we could have done in a buyback scenario to achieve supposed water efficiency gains and structural transformation benefits in regional communities.

30 MR BEASLEY: (iii) raises – Roman (iii) raises the issue of return flow. Return flow is a matter of controversy, I think, between scientists, water economists, and the Basin Authority in the sense there has been a concern by not him alone but people like Professor Williams, Professor Grafton, whose work you are no doubt familiar with, and the Basin Authority and the Basin Authority ignoring the risk of return flow in their assessment of what water is being recovered from efficiency measures.
35 You are familiar with that concern?

DR ADAMSON: Yes.

40 DR LOCH: Yes.

MR BEASLEY: Do you have a similar concern in relation to return flow and, if so, what is it?

45 DR LOCH: I will let you start with that one.

DR ADAMSON: Yes, we do. Basically, the water use efficiency program ends up cannibalising the gains of the buyback, it means there's potentially less water in the

river, it means we may have got the SDL wrong then, and that causes some concern. While we may have a set of water rights out there which will be enshrined by law, they may not be truly giving the benefits we want because, unless that base flow is protected, we are not too sure how much water we will actually really have being delivered at key environmental assets when they really need them.

MR BEASLEY: Is there – I think anecdotally we have been told when people like Professor Grafton and others have raised this issue with Basin Authority employees or staff or people in management, in relation to return flows, they've been told – well, it's a really low figure, like one per cent or less, and it's – the water quality is no good anyway because it might be saline, it might be going back and putting saline into the watercourse. The response back from people is (1) – people that have given evidence is, (1) how do you know it's one per cent or less, and (2) flow in a river, whether it has got some salinity or not, is important to the flushing the river and flushing the rest of the salt out.

DR ADAMSON: That is true. I mean, one of the key environmental indicators we know when rivers aren't going well is blue-green algae. It's a combination of nitrogen-phosphorous returning back into the water when it's rather wet and rather still. So for phosphorous and nitrogen to be getting back into the river, there must be some sort of return flow going on. The true - - -

THE COMMISSIONER: Is this – are they a mixture of natural and artificial sources?

DR ADAMSON: It will be a mixture, yes.

DR LOCH: There will be some soil – natural mobilisation from the soil, and then others perhaps as fertiliser - - -

DR ADAMSON: Run-off, so - - -

DR LOCH: - - - added inputs.

DR ADAMSON: So we're – I mean I've worked on irrigation properties, I know there's water at the end of the tail drain. I know that – I'm just very surprised they're finding - - -

THE COMMISSIONER: That's why it's called a tail drain.

DR ADAMSON: Tail drain.

DR LOCH: End of field - - -

THE COMMISSIONER: I said it is why it's – I know what a tail drain is. It's why it is called a tail drain: because there's a return flow.

DR LOCH: Yes. Precisely, yes.

DR ADAMSON: Now, whether or not – if you harvest that water back and use your own system or not that's fine, but I'm very surprised - - -

5

THE COMMISSIONER: Capital works could be – could include trying to have what I will call the recycling, the recirculation of production from your tail drain.

DR LOCH: Exactly.

10

DR ADAMSON: Well, and the whole fundamental basis of the water use efficiency project is saying, "We're not using water efficiently." Whether that's not delivering water efficiently to the field, you – how we apply it or how the crops actually use it, that means at some point there's some water being lost. So the question is: if there's

15 no water potentially returning to the system already, why are we spending money on it?

DR LOCH: Yes.

20

THE COMMISSIONER: Could I ask you about - - -

MR BEASLEY: I just hadn't quite finished that topic. Are you on to a different - - -

25

THE COMMISSIONER: Yes, sure.

MR BEASLEY: What I wanted to ask is: I haven't seen any evidence that the Basin Authority is taking – trying to be careful with my words here. I haven't seen any evidence that the Basin Authority is taking the potential of return flow seriously.

30 Now, that doesn't mean they're not but it means, if they are, they're either keeping it to themselves or I just haven't seen the evidence. But assuming I'm right, there's no published reports or analysis by the Basin Authority in relation to the issue of return flow, would you agree it seems that they're taking a real risk in the reliability of the water that has been recovered for the environment because they may be engaging in

35 an overestimate of what is being recovered?

DR LOCH: Well, they're also taking a risk for anybody downstream who are relying on those rights to provide themselves with a consumptive benefit.

40

DR ADAMSON: There's a couple of things. We had the Parliamentary inquiry into water efficiency on Australian farms, and we raised this substantially with the Ministers involved, and they did consider it as an issue and they – I think then passed those concerns on. Secondly, we also know that the Australian Government has actively lobbied against certain chapters in reports by FAO.

45

MR BEASLEY: Yes.

DR ADAMSON: Where they seem very concerned - - -

MR BEASLEY: This is Dr Perry's work - - -

5 DR LOCH: And Pasquale Steduto.

DR ADAMSON: Yes. Pasquale's.

10 MR BEASLEY: Is it Perry or Parry? Perry and - - -

DR LOCH: Pasquale Steduto.

MR BEASLEY: Steduto. Yes.

15 DR ADAMSON: Yes. And, I mean - - -

DR LOCH: And others – and others.

20 MR BEASLEY: This is a – you're referring to a recent publication by the Food and – what is it? Food and - - -

DR LOCH: Food and Agricultural Organisation of the United Nations. Yes.

25 MR BEASLEY: Where efficiency measures in a whole range of countries were considered and Australia was included in a draft, but taken out subsequently.

DR LOCH: Correct.

30 MR BEASLEY: Yes.

DR ADAMSON: And we have got friends – a friend of ours who we're writing a paper with at the moment on water use efficiency that he started off with 500 studies, was it, got it down to 200-odd.

35 DR LOCH: 250 or so.

DR ADAMSON: And they kept pointing at – one of the things they kept pointing out was actually the flow in the river seems to decrease. Now, this was studies from all over the world.

40 MR BEASLEY: The peer reviewed - - -

THE COMMISSIONER: Is this something in the nature of a meta-analysis or literature review?

45 DR ADAMSON: Yes. Quite so. Very extensive literature review. So - - -

MR BEASLEY: Peer reviewed analysis of efficiency measures amongst countries seems to have a fairly consistent theme. One is return flow is an issue and, two, it seems to result in more water being used rather than less as a behavioural response.

5 DR ADAMSON: Yes.

DR LOCH: That's what finds in his study, which is the one that David is referring, to, that water application is generally reduced, consumption generally goes up, environmental flows are harmed, and there are basic other trade-offs, income
10 versus environmental flows, etcetera, etcetera. As David said, they look at 500 papers, they come up with about 240 in the end study and they simply find that these are the results time and time and time, time again on a global - - -

DR ADAMSON: Scale.
15

DR LOCH: - - - scale.

THE COMMISSIONER: This involves, I suppose, some behavioural - - -

20 DR ADAMSON: Response.

THE COMMISSIONER: - - - study as well. I suppose thinking loud, you might posit, as it were, a self-selected group, or at least a group susceptible to official persuasion who were keen on – you know, up to date farming, and being keen on up
25 to date farming means that you will try and get as much production for your water as possible. So with a more explicit attention to your water use which comes with participation voluntarily in one of these programs, lo and behold you end up using more water, not less. That's the theory, is it, of this behavioural change?

30 DR ADAMSON: And I think this is what we need to be careful of: economics loves efficiency. We love efficiency in our models because it gives us certainty, but the model itself is giving you certainty. It's saying, "I know precisely how much water I need at a given point in time and I will always have this supply." We're a land of droughts and flooding rains. We are a country that has the second most
35 variable water supply in the Murray-Darling Basin. As we keep increasing and getting towards the most efficient use of water, we expose ourselves to the bad times and the good. We take the flexibility out of making a lot of money when there's plenty of water and we also potentially harm ourselves when times aren't good as we hoped they are.

40 I think that's our biggest concern with this water use efficiency. Theoretically it's sensational, but when you start understanding the climatic nature of risk and how supply is not guaranteed in this country, we are potentially overinvesting which may create industry wide failure.

45 DR LOCH: There's a beautiful paper that we have come across recently written by Richard Allen and others, that's going back and synthesising work over 30 years or

so, and Richard and the co-author's main point is that essentially efficiency, which politicians and other people love, sounds good, it's easy to get your head around logic, etcetera, can only truly come from improving the crop use of water on a farm, because that's effectively where your either inefficient or efficient. So that's the
5 evapotranspiration point. Delivering the water to the farm, what may end up at pollutant downstream or return flow, etcetera, they argue that's beyond the concept of what we would typically achieve through an efficiency intervention and therefore you kind of struggle to improve that and yet that is what we are effectively trying to do with these programs. And so efficiency is enormously complicated, and we can't
10 truly say that we've been efficient unless we have the figures in support of that claim, and we simply do not.

DR ADAMSON: And I think this is where the Murray-Darling Basin can say, "Presently, we have a lack of information about what return flows were before we
15 started this program, what they are now." And so - - -

MR BEASLEY: If you don't have that data you don't know what you are doing, do you? I mean - - -

20 DR ADAMSON: And, well, this is the problem. I mean, it's - - -

DR LOCH: Precisely. We know it's bigger than zero.

DR ADAMSON: What is the size, we can't tell you.
25

DR LOCH: For example, when I was farming, we went through – the cotton industry went through a big best industry practice transformation in the 90s. It was a wonderful thing and I thoroughly enjoyed it. We learnt many innovations, and we changed a lot of our practice, but one of them was around water use efficiency and
30 people were saying, "Well, what should we be trying to achieve in terms of a reduction of water use?" We had no idea. We couldn't even, as an industry, come to an agreed figure. We settled roughly at around 25 per cent. We said, "If we can get roughly 25 per cent saving in our water use, we think we're probably doing pretty well, and anything under that." And I think most of us agreed that if at least 25 per
35 cent of the – remember we're furrow irrigators.

MR BEASLEY: Yes.

DR LOCH: If at least 25 per cent of the water that we apply to the top of the field
40 wasn't running off the bottom of the field then really, you know, we weren't even in the hunt.

THE COMMISSIONER: Better explain that last comment. If at least 25 per cent of what you applied in the furrows didn't run off?
45

DR LOCH: So with cotton, in a furrow irrigation situation, you have a supply ditch at the top of the field and you start syphons and it runs over – depending on the run,

perhaps a couple of days, from the top to the bottom to irrigate that crop from top to tail. So your tail drain eventually will have water running out of it, and into it, to ensure then that once it reaches the bottom of the field you might turn your syphons off at the top, but by the time it then runs over – for example, a kilometre run in the case of my farm, as it was, then you will still be getting water running out. But that will then percolate to the very root zone of those last crops at the very bottom.

And, you know, there's a lot of water running off the base of that field after any irrigation application and you would say, well, it's probably about a quarter of what we put on. Don't know, didn't meter it. We would recapture it and use it elsewhere where we could. The farm were – in my case were self-contained and closed. And we would make as good use of those as we could. But you would be saying the industry really had no agreed level of at that time.

DR ADAMSON: I mean, there's some other benefits from occasionally overwatering your crop, too. Driving salt away from the roots. So, you know, if you tighten up the efficiency you don't allow your capacity then to give it the periodic flush. You may be experiencing long-term harm.

THE COMMISSIONER: If you use the flush water, though, you would be using water intended to be more heavily laden with salt.

DR ADAMSON: This is why you have got to have a bit extra to make sure.

DR LOCH: You usually have it running through, say, a centralised holding so it will dilute and mix a little bit depending on the nature of your infrastructure.

MR BEASLEY: I was going to go to another part of this report. Is it a convenient time to have break now?

THE COMMISSIONER: Yes. Yes. When we resume, I want to ask you about 5.3 on page 142.

MR BEASLEY: I want to ask about 5.2. So - - -

THE COMMISSIONER: He has priority, you will - - -

MR BEASLEY: Of course.

THE COMMISSIONER: So 5.2 and then 5.3. Right. We will - - -

MR BEASLEY: Numerical priority. Yes. All right.

THE COMMISSIONER: We will adjourn until a quarter to 12. Thank you.

ADJOURNED

[11.31 am]

5 THE COMMISSIONER: When you're ready.

MR BEASLEY: 5.2 at page 142 of the page we're looking at, 'Wealth Transfer Misallocation', I just wanted to see if you could help me understand that paragraph:

10 *Under the SRWUIP program, a proportion of public expenditure will also be allocated to owners of large scale capital, ie, those that manage diversions before allocating water to farmers. Limited public data on proposed MDB capital works prevents a breakdown in which group, irrigators or irrigation infrastructure operators in the MDB would receive the funding. This prevents a clear understanding of whether rent seeking is occurring and if so whether the wealth transfer is equalised between groups.*

15

Can you just explain what the concern is there, in relation to "rent seeking"?

20 DR ADAMSON: Rent seeking in this situation is each group is trying to make as much money as they can for each other. If you had the capacity as an irrigator to get as much money – upgrade your farm, you will try and do that. In this case if it's an irrigation group and you can get your entire irrigation system upgraded at half price – you know, what are they trying to do? How are they trying to work?

25 MR BEASLEY: Without any flow-on benefit?

DR ADAMSON: Well, I mean - - -

30 MR BEASLEY: Is that the reference to rent seeking or - - -

DR ADAMSON: Well, rent seeking in this case is, "How much can I get for myself over others?"

35 MR BEASLEY: Yes.

DR ADAMSON: And in this case, here the argument might be if I'm jumping up and down about buybacks and saying, "It's all bad, you need to be spending more money on the water-use efficiency program. Is this what is going on?" But the course and the model we have of this situation was unable to pick apart that question.

40 MR BEASLEY: Is it directed – tell me if I'm wrong because I obviously do not want to put words in your mouth – but are you heading towards the area of whether efficiency programs are being lobbied for by certain groups over what might be more in the national interest; that is, a buyback scheme.

45 DR LOCH: Not in that statement.

MR BEASLEY: Right.

DR LOCH: No.

5 MR BEASLEY: What does that mean, “Not in that statement”?

DR LOCH: Which is to say elsewhere we do suggest, that, yes, there is obviously strategic interest for certain groups to lobby decision-makers in the case of senators and Parliamentarians at the Federal level who make the decisions of where the
10 money is spent to allocate the money accordingly for their perceived members’ best interest and that’s where the irrigator preferences paper tries to pull that apart.

If you’re lobbying, on behalf of irrigators, that “buyback is bad”, when in fact 50 per cent or more of irrigators think that buyback is one of the greatest things that ever
15 happened to them then clearly you are misrepresenting them at some level, whether deliberately or not, I wouldn’t but in the case here, no, what we are really getting at, I think, is, as David said, the coarseness of the model which like all models has its limitations in terms of what you can do. So we’re recognising that this activity may be taking place. “Can we draw it out in any meaningful way, interpretable way from
20 the model? No, we can’t.”

MR BEASLEY: All right. Thank you. Now Commissioner you wanted to ask about 5.3.

25 THE COMMISSIONER: 5.3, on the same page of Adamson and Loch 2014, you refer to previous proportional water saving sharing arrangements, fifty-fifty.

DR ADAMSON: Yes.

30 THE COMMISSIONER: Could you just explain that further? What are you referring to there?

DR ADAMSON: The original program was set up in such a way that all water was shared equally between the farmer and the government that was saved and so the
35 farmer - - -

THE COMMISSIONER: So that - - -

DR ADAMSON: - - - would nominate, “If I upgraded this area, I would save, say,
40 10 megalitre of water”. Half the farmer would retain. The environment would then, technically, get the other half.

THE COMMISSIONER: This is part of an incentives package, isn’t it?

45 DR ADAMSON: Yes.

THE COMMISSIONER: So as well as the supposed benefit of upgraded equipment and processes - - -

DR ADAMSON: Correct.

5

THE COMMISSIONER: - - - you will not have to sacrifice the same amount of water as is supposedly saved.

DR LOCH: Well, technically you should be no worse off.

10

DR ADAMSON: Yes.

DR LOCH: So if you had lost 100 per cent of that saved water, you are no worse off. You've saved the water. Your production system remains as it was and the government has, effectively, invested in, you know, capital or other infrastructure for the environment.

15

THE COMMISSIONER: For the environment. Yes.

20

DR ADAMSON: Yes.

DR LOCH: So you're actually better off from a farm asset point of view but from a water point of view, you're no worse off.

25

THE COMMISSIONER: I understand.

DR ADAMSON: Well, actually, no, you're better off.

DR LOCH: You're better off under a fifty-fifty sharing.

30

THE COMMISSIONER: Of course you are. Very markedly so - - -

DR LOCH: Yes. So yes it is an incentive to also engage in a program.

35

DR ADAMSON: To engage in the process.

THE COMMISSIONER: It means you end up, as it were, with more water than you started with.

40

DR ADAMSON: Correct.

DR LOCH: Correct.

DR ADAMSON: And so - - -

45

THE COMMISSIONER: If you measured water by productive potential rather than by litre.

DR LOCH: That's a measure of water efficiency.

THE COMMISSIONER: Fifty-fifty split means that in return for water efficiencies – meaning using less water for the same productive outcome - - -

5

DR ADAMSON: Correct.

THE COMMISSIONER: You – that farmer, gets – get more water than you started with.

10

DR ADAMSON: Yes.

DR LOCH: “Here is a sackful of money and, as a result of that, here is some additional water.”

15

DR ADAMSON: More water.

DR LOCH: “Thank you for coming.”

20 THE COMMISSIONER: Now, the 75/25 which you use as an illustration of a possible change is, as it were, saying: “Look, it may be that, upon review, you would find that you can achieve whatever success you thought you should try to get from this program by offering only half as much - - -”

25 DR ADAMSON: Or zero.

THE COMMISSIONER: “- - - back to the farmer.” Or zero indeed.

DR LOCH: Yes.

30

THE COMMISSIONER: Yes. That's what you are saying in that paragraph.

DR LOCH: Yes.

35 DR ADAMSON: Yes.

DR LOCH: We are simply saying that - - -

40 THE COMMISSIONER: Well, now, can I inquire about this. These programs are every bit as voluntary as buyback, aren't they?

DR ADAMSON: Correct.

DR LOCH: Yes.

45

THE COMMISSIONER: They're a little different in that buyback is at least anecdotally said to be related, in particular, to pressures brought to bear by drought and banks?

5 DR ADAMSON: Or there was an existing underutilised resource. I mean, we're still - - -

THE COMMISSIONER: Anecdotally, one is told, in response to the comment that buyback is voluntary, they're all willing sellers.

10 DR ADAMSON: Yes.

THE COMMISSIONER: If I may put it this way, lips tend to curl and brows furrow when they say yes, but they're not really willing sellers. They're under tremendous
15 pressure from drought or from banks.

DR ADAMSON: But I mean you would have still been under the pressure from the bank to somehow reduce your debt and - - -

20 THE COMMISSIONER: I'm espousing a view. I'm just asking for your comment. Is there a difference with these efficiency programs that there's not the same – that those things would not be present?

DR ADAMSON: I think in the situation of the water efficiency program you
25 actually have to go further into debt to be engaged in the process.

THE COMMISSIONER: Why is that?

DR ADAMSON: Well, you have to reinvest in upgrading infrastructure and so
30 potentially, if you're already in debt.

THE COMMISSIONER: Under at least some aspects of the program, the public will pay.

35 DR ADAMSON: A proportion of the costs, not the full costs.

DR LOCH: So you may have to invest - - -

THE COMMISSIONER: So there's another thing to be - - -
40

DR LOCH: - - - some upfront co-investment but beyond that, when that – that infrastructure will have a shelf-life and beyond that, if you wish to maintain it, you will have to either refurbish if - - -

45 DR ADAMSON: Keep investing.

DR LOCH: - - - or perhaps reinvest again.

THE COMMISSIONER: And it may be more complex than that which preceded it.

DR LOCH: Could be. Could be.

5 THE COMMISSIONER: Yes. I see.

DR LOCH: Could be cheaper because technology prices may have fallen etcetera.

10 DR ADAMSON: Or a total change in infrastructure and input costs. I mean, energy costs has been one of those problems.

DR LOCH: Yes, energy has been a big issue.

15 THE COMMISSIONER: So in that paragraph where you say:

If we persist with the fifty-fifty we will likely reduce environmental flows even further.

20 Could you just elaborate that for me, please?

DR ADAMSON: That's associated with our guess-timates of what return flows were, and so when you do the simple mathematics, you just end up with less water.

25 THE COMMISSIONER: In the first paragraph of your conclusion on page 143, would it be a fair summary that you are more or less politely saying, "There are political choices here, which display the difference between short-term and long-term public interest"?

30 DR ADAMSON: I think that's right.

THE COMMISSIONER: Or perception of electoral advantage.

DR LOCH: Yes.

35 DR ADAMSON: Yes.

THE COMMISSIONER: And if I may say so – the relatively pessimistic proposition in the last sentence of that paragraph:

40 *Climate change occurs too slowly to impinge upon political decision-making.*

45 DR LOCH: Four year cycles don't tend to necessarily out themselves in a climate change regime. But, you know, we can look at the changed focus on buyback as part of that. You shift in a political cycle from drought to flood and the capacity for political decision-makers to change their approach to these reform initiatives becomes obvious. It becomes clear.

THE COMMISSIONER: In what sense is it clear or obvious?

DR LOCH: Well, in two thousand - - -

5 THE COMMISSIONER: Some people would respond to drought in a way that historically we seem to have observed, namely the Millennium Drought seems to have produced a convulsion of longer-term thinking.

10 DR LOCH: Well, with 2010, we moved into a new electoral cycle and the drought broke. So prior to that we were quite happy to engage in buyback and to reap the benefits, in my view, of that program, for the environment and for water recovery to sustainable diversion limits.

THE COMMISSIONER: So longer-term thinking.

15

DR LOCH: Yes, exactly. But the drought broke in 2010. We had a couple of years to run an electoral cycle and so it then we can entertain Senate inquiries into the usefulness of these programs and whether they should then be curtailed and we do so thinking that it's all good again and rosy futures etcetera, etcetera. "Thank God the wolf is no longer at our door. How do we now invest in regional communities?"

20

THE COMMISSIONER: Thanks.

25 MR BEASLEY: Can I ask you about the paper at tab 6, 'Irrigator Preferences for Water Recovery Budget, Expenditure in the Murray-Darling Basin'. Dr Loch, you are mentioned as the first author. Does that mean you took the lead in relation to the survey work here or - - -

30 DR LOCH: Yes, that's, that's correct, Richard, yes.

30

MR BEASLEY: All right. Was the – I mean, this is a survey of irrigator preferences in relation to efficiency pressures versus buyback. What was the spark or reason for engaging with the survey and producing this paper?

35 DR LOCH: Now I have to think back. I think that we had run a survey – this is 2014.

MR BEASLEY: 2013, I think.

40 DR LOCH: We had run a survey as part of my PhD in 2009/2010. We hadn't asked irrigators specifically whether they - - -

MR BEASLEY: Was Professor Wheeler your supervisor?

45 DR LOCH: Yes, she was. Yes, sorry. Yes. And so we went out to examine a range of different issues but as part of that, I had been doing some qualitative surveys

and interviews with irrigators and I was finding that not everybody, obviously, felt that this was a bad thing. So - - -

MR BEASLEY: Not everyone thought buyback was a bad thing.

5

DR LOCH: Buyback was a bad thing. So I found that interesting. I then went to do some work at the time for the National Irrigators' Council – a little bit of consultation, a little bit later on – and I found that their view, almost rabidly, was that irrigators hate buyback and I thought this is at odds with my anecdotal understanding of a small number. So how does that hold in reality? And Sarah Wheeler had a similar idea and so we thought, “Well, we have got the opportunity to explore that, let's do so - - -”

10

MR BEASLEY: So hence at page 398 of this article, survey design and methodology:

15

Given evidence irrigators are actively selling in different water markets – see Wheeler et al, 2013 – and questions regarding the representativeness of the position of irrigation peak bodies we designed a survey.

20

So it's really there, I think, you're flagging when you've just said.

DR LOCH: Yes, pretty much.

MR BEASLEY: Testing whether the view of the peak bodies, which is all one way, efficiency measures not buyback - - -

25

DR LOCH: Pretty much.

MR BEASLEY: - - - is consistent with the people they're representing, the irrigators.

30

DR LOCH: That's putting it, pretty simply. That's how I would express it as well. As I say, as a person who both was one of the people that a peak body represented and previously ran a peak body representative group for irrigators in Queensland, I was intrigued.

35

MR BEASLEY: Yes. And I know it – the results varied state to state but on 403, the survey indicated a 56 to 44 split in infrastructure expenditure over a buyback.

40

DR LOCH: For our sample, yes.

MR BEASLEY: For your sample. Yes. I think what the sample size was quite – it was something like one in five - - -

45

DR LOCH: Roughly, yes.

MR BEASLEY: - - - sellers that you identified.

DR LOCH: Roughly. From memory

5

MR BEASLEY: Which you simply make the point that that's not a ratio that's consistent with, by this stage, almost a 100 per cent efficient measure budget, zero budget for buyback.

10 DR LOCH: Well, my impression of the lobbying that was taking place at the time was irrigators do not want buyback, and that was in the popular press as much as any of the other literature, around the representative bodies and the discussions that I had with them or members of them. And, yes, and essentially what we found - - -

15 MR BEASLEY: And it – the integrity of your work and the importance of it here is really related to the issue, is it not, that the reason – the reasons given for supporting the efficiency measures program over buyback were things like, “You’re destroying our communities, people don’t want it, they’re being forced to sell, this is horrible, Swiss cheese effect,” etcetera, which is not consistent with the survey findings.

20

DR LOCH: Correct.

MR BEASLEY: Yes. I didn’t have any further questions on the other papers in here, including the submissions that have been made to the House of Reps and whatnot, but – and I want to move to something else, so if you do.

25

THE COMMISSIONER: Sure. Still in the same paper, the ‘Irrigator Preferences’ paper on page 397, left-hand column you describe seeking to provide in the paper indirect evidence of whether there is rent seeking in the prevalent views towards water allocation and expenditure.

30

DR LOCH: Sorry, I’ve lost you.

THE COMMISSIONER: It’s about what lawyers would call point 7 on the page.

35

DR LOCH: In the left-hand column?

THE COMMISSIONER: Left-hand column, just after the reference to Prager and Nagel, 2008.

40

DR LOCH: Here, right, okay. Sorry. Thank you, yes.

THE COMMISSIONER: Rent seeking by whom and in what manner?

45 DR LOCH: Well, in this case, rent seeking by those representative organisations on behalf of their membership.

THE COMMISSIONER: And the manner being to move, to what, capital expenditure rather than buyback?

5 DR LOCH: Move to efficiency investments over buyback, yes.

THE COMMISSIONER: And rent seeking because they get, as it were – on one view of the account – more under that program than they would under buyback.

10 DR LOCH: Well yes, as we've already discussed. So in buyback, the irrigator would be giving up their water resources for financial gain and other benefits as they see fit. Obviously, that – so it entails a loss for that gain. With efficiency it's pretty much that way with an additional benefit under the fifty-fifty sharing agreement. So you get the efficiency for a substantial investment on behalf of the public, you get to share in the water saved as a result of that investment, and you get to move on.

15 THE COMMISSIONER: The first page, right-hand column, in paraphrasing the outcome of the Parliamentary inquiries of '11 and '12, you refer to a queue recommendation for strategic buyback rather than market tenders. I thought I had understood what that meant. Does that mean more discretion on the part of the purchaser, the Commonwealth, as to where and how much they would buy or what?

20 DR ADAMSON: Yes, I mean, that's pretty much it. Originally the buyback was opened up. Any - - -

25 THE COMMISSIONER: The Commonwealth just stood in the market and said, "Hit me with your offers."

DR LOCH: Send me your weak, your tired masses.

30 THE COMMISSIONER: So that's how I should – that's what I thought.

35 DR LOCH: And you had – you had irrigators putting forward water at seven, 8 thousand – trying their luck and others putting it forward at, say, two or three hundred dollars a megalitre, depending on the nature of the asset. So obviously all of the low bid irrigators were taken up, and then the government effectively reached towards its tipping point where it said, well, beyond that, "Thank you very much no, we will take all of this underneath." In the original tendered rounds.

40 MR BEASLEY: I think I will just – sorry, ask you one question about the submission you both made with Professor Wheeler and Professor Connor behind tab 13. 'A submission to the Standing Committee on Agriculture and Water Resources: Inquiry into Water Use Efficiency in Australian Agriculture'. It's a 2017 submission. Just on the second page of that submission where you raise your major points, of which there are five bullet points, there's one in bold.

45 *There is a lack of clarity about how water use efficiency gains are converted into water entitlements.*

I assume that's again a reference to all the matters we discussed concerning the lack of transparency, the lack of information, as to how it's claimed a certain amount of gigalitres has been recovered through these programs.

5 DR LOCH: The lack of accounting, yes.

MR BEASLEY: And do I take it that – without becoming Trump-like – the fact it is in bold is an emphasis that this is a very important point.

10 DR LOCH: We would like to think so.

MR BEASLEY: And has anything changed since you made this submission? Has there been more clarity or has the position stayed the same?

15 DR LOCH: It could be that it's even got muddied. I think, in one respect, it may have been muddied, in my view, because of the new – that has been taken in recent months to have now become adversarial over this topic. I don't believe that's necessarily a sound or, shall we say, the best strategy. I'm not saying that these people weren't entitled to do what they wanted to do, and I'm not saying that they
20 have done a disservice. In fact, they've brought it into light. But it's now very much an us and them attitude between researchers in this area and government. That's not going to get us any closer to the truth anytime soon.

25 THE COMMISSIONER: That leads me to this inquiry: are there Australian researchers – I don't mean by nationality, I mean researchers into the Australian position – who have, either in peer reviewed work or in review publications, criticised your work either as to method or conclusions?

30 DR LOCH: That's a good question.

DR ADAMSON: We have had some rigorous debate in some of our peer reviewed processes. We have been asked to really clarify and extend or justify our assumptions or say why, you know, where these numbers came from.

35 THE COMMISSIONER: I was about to say - - -

MR BEASLEY: That's a normal part of the peer review process, though, isn't it?

40 THE COMMISSIONER: I hope I am not being naïve; I would hope that they did that.

DR LOCH: As would we, because that's how the paper improves.

45 DR ADAMSON: Yes. Improves. Have we had anyone say fundamentally wrong? No.

THE COMMISSIONER: I don't really mean fundamentally wrong. I mean if somebody is saying it's fundamentally wrong - - -

DR ADAMSON: Shouldn't be here.

5

THE COMMISSIONER: - - - I would like to know that, but I haven't seen it myself, but I'm asking you and inviting you, very seriously to be as disinterested as you can bring yourself about your own intellectual progeny. Have people in your profession, in your area of expertise have people been, as it were, saying, "No, no, no, this is not the way to go about it and it produces implausible outcomes?"

10

DR LOCH: Not in our peer group, shall we say, and both in Australia and internationally.

15 THE COMMISSIONER: Yes. Well, I was confining myself to your peer group, I'm not talking about - - -

DR LOCH: No, we - - -

20 MR BEASLEY: The benefits of – to the extent that there are benefits, but the benefits or preference by buyback is something that I think you pointed out in your submission, is something that was identified by the Productivity Commission back in 2010.

25 DR LOCH: Market based measures.

DR ADAMSON: I'm trying to think. I mean, it's – I mean, I was invited to speak for the Murray-Darling Basin Authority this year about where future research in this area needs to go. I don't think I got any negative comments on my past – I mean, it's – all it has really done for us is open the doors. I mean, it's normally other people spruiking our work and saying, "This is the best example of this."

30

DR LOCH: And the attitude we take, quite seriously, is to put it out there and see if it passes the laugh test. And - - -

35

THE COMMISSIONER: Well, that's why I'm asking.

DR LOCH: Yes.

40 THE COMMISSIONER: Because I would have thought that the – what's the right word – the debate, intellectual criticism that comes as an intended consequence of publication, would tell me something about whether I'm looking at contending schools of thought or whether I'm looking at something in the nature of a consensus or whether I've got two mavericks before me or whatever. Now, at the moment, from my understanding of the area, you are not maverick. There doesn't seem to be a competing school of thought. But then I think everyone should be wary of perceiving a monolithic consensus. That always makes me a bit suspicious.

45

DR ADAMSON: If I may, this actual submission we were asked to speak in front of the committee.

THE COMMISSIONER: This is the House of Reps?

5

DR LOCH: House of Reps Standing Committee.

DR ADAMSON: Down at Parliament House. And afterwards they said thank you. It was actually - - -

10

THE COMMISSIONER: They usually do say thank you.

DR LOCH: No, I think they meant it.

15 DR ADAMSON: But they did actually say - - -

MR BEASLEY: This time they meant it, yes.

20 DR ADAMSON: For – you know, they said it was actually this submission that helped them phrase a lot of their thoughts together and find a lot of clarity on, especially, some issues they weren't too certain about. And so we took that humbly and just assumed that they weren't lying to us, for a change.

25 THE COMMISSIONER: I'm not suggesting they were lying but, yes – thanks.

DR ADAMSON: I mean, I think the harshest criticism I've had is, "Oh, it's not perfect. It's an academic model, so therefore you don't know everything." And we go, "Certainly. It's just a model."

30 DR LOCH: That has always been our position.

DR ADAMSON: And it's a model designed to tell a story, and you laugh test that story.

35 DR LOCH: We're at great pains always in this work to make one thing fundamentally clear: this is modelling.

DR ADAMSON: It's not - - -

40 DR LOCH: So if it's garbage in it's - - -

DR ADAMSON: Garbage out

45 DR LOCH: - - - garbage out. So we do our utmost to ensure - - -

THE COMMISSIONER: It's a way of thinking as opposed to being a pure description.

DR LOCH: Yes.

DR ADAMSON: It's a way of testing ideas.

5 DR LOCH: We are simply throwing it out there. You can use the best available data at the time. Model it in a sense to test, does this hold, do we see these outcomes?

10 THE COMMISSIONER: Well, now, one of the reasons why scholarly publication has, at least desirably, certain minimum requirements for disclosure is that something like model design can be improved by being criticised.

DR ADAMSON: Yes.

15 DR LOCH: Absolutely.

20 THE COMMISSIONER: And I must say, in my limited but long-term exposure to modelling, I've long since abandoned the idea that there would be a perfect model for anything - - -

DR LOCH: No such thing.

25 THE COMMISSIONER: - - - that had any complexity, and in particular had any human behaviour in it.

DR ADAMSON: Yes.

30 THE COMMISSIONER: Have you had any – let's use the euphemism "assistance" from, another euphemism, "friendly colleagues", pointing out shortcomings in your model?

DR ADAMSON: May I? I will give you the background to this model.

35 THE COMMISSIONER: Please.

DR ADAMSON: This model is – comes from John Quiggin. So John Quiggin is an economist, well known in Australia.

40 MR BEASLEY: Queensland University.

DR ADAMSON: Queensland University.

THE COMMISSIONER: His reputation precedes him.

45 DR ADAMSON: I was employed by John in 2004 to build this model. So I've been building this model with arguably one of Australia's best economists until 2017. We've used it, demonstrated it, had it laugh tested. We ran it around

Canberra, Murray-Darling Basin Commission, Murray-Darling Basin Authority. I've been commissioned to work for MDBC, MDBA, ABARES – Australian Bureau of Agricultural and Resource Economics – Victorian Government, South Australian government, the Garnaut Climate Change Review. I was also employed on the
5 Murray-Darling Basin, technical modelling group. I've always been open to criticism and laughter.

We have had stuff wrong and I've clearly documented when and why and sought better data when required. We have had people willingly give their time and effort.
10 Andy Close from Murray-Darling Basin Commission helped us out with some data sets. Are we right? No. Did we tell some very interesting stories? I think so, yes. And it's that storytelling we have been getting out of this model about showing the simple fact that farmers are not passive: they respond to droughts; they respond to floods.

15 MR BEASLEY: They adapt.

DR ADAMSON: They adapt.

20 DR LOCH: Funnily enough, yes.

DR ADAMSON: You know, we were telling stories of when the systems broke in 2007 and why, and over time we fundamentally changed the way water modelling is done in this country. Before it was all – everything was on average. This work
25 points out the simple fact that we don't: we respond. In our northern system we go into hibernation in bad times and we can rapidly expand area up north because we are not constrained by land.

THE COMMISSIONER: The stalagmites appearing in graphs are enough to
30 demonstrate that variability is the story.

DR ADAMSON: Variability.

DR LOCH: Yes.
35

DR ADAMSON: And that's it. And it's always been that the farmers aren't passive. They actually reallocate their inputs to produce what they want to produce. And we have had this subsequently tested by analysis that was done by one of my co-authors, who used to work at ABARES on how farmers adapted during the
40 drought in the dairy industry. I've been incredibly fortunate that I've been allowed to play with this model and keep playing with this model, because I was taught by arguably one of the savants in risk and uncertainty and behavioural economics.

THE COMMISSIONER: Thanks.
45

MR BEASLEY: Before you gave your evidence last week, I asked for a – for you to consider, both of you, some extracts from some reports that had been the subject of

evidence before the Commission. I asked you to look at a report by RMCG called 'Basin Plan Goulburn-Murray Irrigation District Socio-Economic Impact Assessment', October 2016. I drew your attention to chapters 5, 8, pages 30 to 55 and 83 to 85. I also asked you to look at pages 3 to 20 of a report by KPMG of
5 November 16, 'Northern Basin Community Modelling Economic Assessment of Water Recovery Scenarios'. And I also asked you to look at a technical overview of the social and economic analysis prepared by the MDBA December 2016 'Northern Basin Review'. Did you have a chance to look at those materials?

10 DR ADAMSON: Yes.

DR LOCH: It's

15 MR BEASLEY: Very grateful that you – well, I had to read them first. I'm very grateful that you've done that. Of course, this by no means, means that they are correct, but you may be aware that Professor Wheeler and Professor Grafton have already given evidence to the Commission and been asked questions about these reports.

20 DR ADAMSON: Mmm.

MR BEASLEY: And I think it's fair to say, without engaging in any exaggeration at all, that both of those witnesses - - -

25 THE COMMISSIONER: What has come over you?

MR BEASLEY: Sorry?

30 THE COMMISSIONER: What has come over you?

MR BEASLEY: Well, I've got to be careful here. There's times for restraint and times where I can let myself go. This is appropriate for restraint at the moment. I think it's fair to say that both of those witnesses had a fairly robust view that an analysis that looks at an estimation of job losses as a result of water reduction being
35 proportional to a drop in production - - -

THE COMMISSIONER: In the sense of a linear relation - - -

40 MR BEASLEY: - - - is fundamentally flawed. That's the first part of the evidence that was given, and I think fair to say the second part of the evidence that was given is that in terms of assessing the economic impact of water reduction on farmers and irrigators, there are a whole range of other things you have got to look at other than a reduction in water. They're the two themes that I think emerge from the evidence of Professor Wheeler and Professor Grafton. Having read the reports I've drawn your
45 attention to, I think there's a – I think the RMCG report and perhaps the KPMG report have this linear relationship between a water reduction and production reduction, whereas the MDBA's analysis is more reduction of water, less irrigated

area, less jobs. Similar thing, maybe the same thing. In relation to those two matters that I raise, fundamentally flawed approach and (2) you've got to consider a whole range of other issues, do you have similar views?

5 THE COMMISSIONER: What are your views?

MR BEASLEY: Better question. Go with that one.

10 DR ADAMSON: I might take a quote. Applied water economics fails to provide any benefit when it fails to consider non-convexity, uncertainty, and irreversibility. They are the - - -

THE COMMISSIONER: Can you explain the last of those, irreversibility.

15 DR ADAMSON: When we make an unfortunate decision, we lock ourselves into a certain way of thinking or investment patterns. When water supply becomes realised, we don't have enough water, it creates irreversible losses in capital, natural capital, or socially.

20 THE COMMISSIONER: Sorry. So your money is gone.

DR ADAMSON: Your money is gone or your environment is gone or - - -

25 THE COMMISSIONER: You can reverse the water policy.

DR ADAMSON: But you've lost some stuff.

30 DR LOCH: You could, yes, but your – irreversible losses may have occurred in between.

THE COMMISSIONER: Thank you. Right. Thanks. Yes. Now, that sounds like a general preamble. What about Mr Beasley's question about this work and the critiques that we've already heard? What's your – what are your positions on that?

35 DR ADAMSON: Do you want to start?

40 DR LOCH: Okay. I'm happy to do that. I think that the positions that Professor Wheeler and Grafton have taken are fair, in my view. It's challenging, as we've already discussed, to come at issues of this nature. They're complex. They're difficult to comprehend. They're difficult to put in terms of data, and they're difficult to then interpret once we've come to some conclusion. But I think that an economist with the standard training in the field, will generally always seek to include a number of important, in our view, variables and other drivers of decisions and outcomes which, on my reading of these reports, do not exist to a large degree
45 which - - -

THE COMMISSIONER: You mean that the appropriate consideration of those - - -

DR LOCH: Yes, sorry.

THE COMMISSIONER: - - - those matters which you've just summarised is not to be found in the two pieces of work you've now - - -

5

DR LOCH: Have not – have not taken place, yes.

DR ADAMSON: Another thing is - - -

10 MR BEASLEY: Sorry, just to follow that before you go on, Dr Adamson, in terms of the other matters, these are things – other things that need to be considered as to whether they're having an impact on a loss of production - - -

DR LOCH: Yes. So if - - -

15

MR BEASLEY: - - - such as the price you get for your crop.

DR LOCH: Price. I mean, an economist – whenever – and this was drummed into me, whenever you will see a study, generally speaking, depending on what's being
20 looked at, that doesn't include price or income, then, essentially, you need to throw it out and start again. But having said that and not wanting to appear too flippant, an example is cropping itself. So, in my mind, cropping is a complicated matter. If I simply say that I am growing a cotton crop, I apply water or I don't apply water, the crop grows or it doesn't grow. I do that, I run my model in the field, and I find that,
25 lo and behold, I don't apply water, and the crop dies. So I conclude that watering reduces – sorry, increases cotton production. Great. Now, as a cotton grower, I know that that's fine, but it's also ridiculously simplistic. Issues - - -

THE COMMISSIONER: Well, it's incomplete about other inputs and
30 circumstances.

DR LOCH: Absolutely. Absolutely. The fundamental structure of the soil, the fungus and other virus components and that. The health - - -

35 MR BEASLEY: So soil productivity.

DR LOCH: Soil health.

THE COMMISSIONER: Or which fancy chemicals you're using, too, I suppose.

40

DR LOCH: Fertigation or irrigation and fertilisers, whether or not I spray for pests, whether or not I get enough day degrees, whether I have frost incidents at some point.

45 THE COMMISSIONER: What kind of seed you used, yes.

DR LOCH: Well, exactly. Whether I was willing and able to invest in the technology related to Bollgard or Roundup Ready or doing that to enhance my - - -

5 THE COMMISSIONER: Right. I think I understand, then, the fact that you would describe as impossibly inadequate an analysis that makes a claim for causal connection without at least attempting to look at all these other factors; is that correct?

10 DR LOCH: I – it’s possible. I’m not saying that this is necessarily going to turn up an inadequate or an incorrect response.

THE COMMISSIONER: But you won’t know without looking at the material.

15 DR LOCH: I won’t know. Exactly. I could then place far too much reliance on one variable where others may be far more important to consider.

20 THE COMMISSIONER: I mean, you can – both – this happens in health science. You can design a study poorly which happens to choose as the variable of interest the thing which later work shows truly is the causative factor. But it won’t make your study design any better or science any more worthwhile.

DR LOCH: No. No. And you won’t get it published.

25 THE COMMISSIONER: Well, you shouldn’t.

DR LOCH: No.

30 THE COMMISSIONER: But believe me. They have been published by the tens of thousands.

DR LOCH: Yes.

35 THE COMMISSIONER: But it won’t make the science any better, and it’s really like the luck of somebody who blindfolded shoots an arrow and hits the bull’s eye. It doesn’t show any skill of archery.

40 MR BEASLEY: Another factor is, isn’t it also – I think we discussed this before, that it’s not just any impact on a reduction in water on production, but the price of water itself is an important variable, isn’t it? In other words, if the price of water is high, the irrigator or farmer might choose, “I’m not going to produce a crop this year. I’m going to sell my water and make more money for less effort”.

45 DR ADAMSON: No, sir. If I may, economic activity, we normally say it’s allocating land, labour, and capital. In this last decade, or since the Millennium Drought, and it’s during the Millennium Drought, we’ve had fundamental changes in capital investments of how we farm. As Adam said, you know, we had Roundup Ready stuff coming through in 2006/2007. We’ve had great transformations about.

MR BEASLEY: Causing a big drop in the number of casual workers; correct?

DR ADAMSON: Casual workers, how we describe casual workers, are these now
- - -

5

MR BEASLEY: And the flow-on effects of that.

DR ADAMSON: Well, I mean, are these now just simply – not consultants – we
call - - -

10

DR LOCH: Contractors?

DR ADAMSON: Contractors – thank you – coming in. Are they classified as a
farm labour? The other thing, too, is you've got to ask the question, is why are we
15 considering that irrigators must have to be the source of employment for a small
town? Are we saying irrigators must remain trapped in the way they did things in the
past? They can't adapt? They can't move forward?

15

THE COMMISSIONER: I've asked a couple of other witnesses about this because
20 it strikes me as a piece of - - -

20

DR LOCH: Social?

THE COMMISSIONER: - - - social – no, not that – social confusion; namely, that
25 there seems to be a diffuse but strong attitude that work, being the destiny of humans,
that jobs are a positive social good and that up to the point of daily exhaustion, you
should have as many people working as much as possible in jobs or for lucrative
return. That's the first thing. The second thing is that the efficiency and productivity
30 are also social goods and that where labourers of input, you are there, therefore, to be
admired for reducing the number of jobs or work hours necessary to produce your
output. And I guess you could make a speech or perhaps a sermon about how you
reconcile those two, but it's not obvious to me, I've got to say, how you reconcile
those two.

25

30

DR ADAMSON: Well, if I go back to that economics about your land, your
labour, and your capital, and to some degree they are substitutable between each
other. If the price of labour has increased - - -

35

THE COMMISSIONER: Spend more on a fancy tractor and less on

40

DR LOCH: Absolutely.

DR ADAMSON: Exactly. We've also had the centralisation or contraction number
of farms because your next door neighbour is often your greatest threat. He wants
45 your land because you're next door. We've got less farmers than we did 20 years
ago easily.

45

THE COMMISSIONER: But that has been happening for many decades before the Basin Plan.

DR ADAMSON: It has.

5

DR LOCH: Yes, indeed. Mechanisation has been one of the greatest single innovations that this country has repeatedly been at the forefront of because - - -

10 THE COMMISSIONER: As I understand it, we find that praise-worthy, and we devise tax policies to encourage it.

15 DR LOCH: Yes, because, essentially, labour is a difficult thing to get in rural areas. We all know that and especially good labour. So I would happily buy another 85/20 over employing two guys, and I then wouldn't let those same two guys run my eighty – sorry, a John Deere tractor, a very expensive piece of equipment. The damn thing is worth five, six hundred thousand dollars. You want the person sitting on that to know what they're doing, and that can be challenging to find.

20 THE COMMISSIONER: Yes, and, no, please don't get me wrong. I don't regard it as something to be viewed with equanimity, the loss of jobs and the resultant, what is called, destruction of communities in the bush, but on the other hand, I've lived long enough to see this happening all over the bush for as long as I've been alive, and according to my father, for as long as he has been alive – whenever he was alive. So - - -

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DR LOCH: It's nothing new.

30 THE COMMISSIONER: And it just strikes me that we are looking at an area which has strikingly been singled out for – that is the operation of the Basin Plan – singled out for damage to community of a kind which simply seems to me to be another variant of something that we've positively been courting since the late 19th century.

35 DR ADAMSON: I think it became a lightning rod for all social ills. I remember talking to one of the people designing the Basin Plan. They said they were the first government employee out in that area for a long time. And he said – by the time this person has spoken and gone through his list of things that were going on, he said the Basin Plan was right down near the bottom. It's not to say it wasn't having an impact but there are a lot of other things going on in those communities about why they've been changing and how. And I think it's just one of those things that people
40 knew there was big pot of money associated with – “So how do we get hold as much as possible for your community?”

45 THE COMMISSIONER: But an out and out subsidy is one thing. Blaming the Basin Plan for the continuation or exacerbation or some contribution to the decline of rural population is another thing, surely.

DR LOCH: But it comes back then to your original question again, Commissioner. So where do these questions arise? Who drives the desire to have this work done? So I know that it's probably not any irrigator or it might be a – it wouldn't be your average irrigator. It may be a politically motivated or ambitious irrigator in the
5 region who could see some benefit of this. So who raises these concerns? Who raises these problems for us then to be, in a sense, compelled to go and investigate, at large public expense, etcetera, to revisit, to revise, to review all of the work that has gone into this process, at enormous public cost and time, etcetera, etcetera. And we're seeing, I dare say, of an example of it right here today. So who is behind that?

10 MR BEASLEY: The governor of South Australia for us, but - - -

THE COMMISSIONER: Perhaps you can supply the answer.

15 DR LOCH: The former. The former.

THE COMMISSIONER: Supply an answer. What is your answer?

DR LOCH: I honestly don't know. But I suspect, as we began this discussion, it's a
20 small group of people with particular interests at heart that they see they can benefit from this process.

DR ADAMSON: Or - - -

25 DR LOCH: Your average irrigator just, in my view – my humble view, and I could be wrong, just wants certainty in their environment and the ability to get on with doing what they do.

THE COMMISSIONER: That is certainty within a climatically variable setting.

30 DR ADAMSON: Well, how much water you're going to have.

DR LOCH: I mean, that – you know, irrigators are – they don't believe in climate
35 change obviously, because what they get from year to year is exactly the same as any other year and therefore they just simply behave one year - - -

THE COMMISSIONER: That's not strictly correct.

DR LOCH: It's not entirely at all correct – sorry I'm being sarcastic. No. Irrigators
40 are enormously adaptive. Sorry, farmers in general are enormously adaptive. They have to be.

THE COMMISSIONER: By the way, what I haven't seen any figures on how many
45 people who irrigate also have a significant contribution from dry land cropping or grazing.

DR LOCH: Mixed - - -

THE COMMISSIONER: I keep reading accounts of people who deliberately seek to achieve, at their own atomised level, resilience in that fashion. Is that a typical or an atypical pattern so far as the studies show? Farmers who don't have all their eggs in irrigation basket, I suppose, is another way of putting it.

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DR ADAMSON: Yes. There is plenty of good examples out there of people who have got diversified portfolios.

THE COMMISSIONER: A diversified portfolio would mean you would run some cattle, some dry land wheat and - - -

10

DR ADAMSON: Yes. Or multiple properties over different climatic reasons. I've got a cousin who works for a big meat producer. He has got 35 – 40 different properties throughout Australia.

15

THE COMMISSIONER: To move the cattle with seasons.

DR ADAMSON: Move the cattle or just be willing to take a hit, here there and everywhere. You've got places right through the rice belt where, you know, you could do it one-third rice, two-thirds wheat. Sow in a vegetable crop, soak up moisture afterwards. Adapt, change. If you're an annual producer, you respond to the prices out there for what's good at the time.

20

DR LOCH: Yes.

25

DR ADAMSON: So - - -

DR LOCH: I mean that's one of the things, for example, that I find interesting with the KPMG report. We're talking about a time when cotton prices were ridiculously low in some respects and I had left the industry by that time so I was quite happy to be out of it. But these were important factors for whether or not crops were grown and to suggest that they weren't in a model, is frankly just ridiculous.

30

DR ADAMSON: Well, it's like the 2007 December rainfalls up north. We went from zero hectares of sorghum to 600,000 hectares of sorghum that season. Why sorghum? Rain fell in December. To plant cotton you need the rain in October.

35

DR LOCH: In October. You need it in - - -

DR ADAMSON: And so - - -

40

DR LOCH: But you really need it August/September depend where you are, but, yes, you certainly need it before the onset of summer.

DR ADAMSON: So I'm talking to friends that I knew and they've had the biggest - - -

45

MR BEASLEY: So there's an example of climate.

DR LOCH: Now that is - - -

5 DR ADAMSON: Yes. And response and - - -

DR LOCH: And that is in their model, in some respect, which is good. That's – that's appropriate; that's pleasing to see.

10 DR ADAMSON: But in that case there were 600,000 hectares of effectively dry land – sorghum went in overnight.

DR LOCH: Because it can.

15 THE COMMISSIONER: When you say dry land, of course it means rain-watered as opposed to irrigated.

DR LOCH: Yes.

20 DR ADAMSON: Yes.

DR LOCH: Yes. So we're talking broad-acre opportunistic cropping on the back of good prices. I mean why did they choose sorghum over canola? Why did they choose sorghum over a sunflower or - - -

25

DR ADAMSON: Mung bean.

DR LOCH: - - - something mung bean? Because the prices were high. Farmers – anyone who assumes “dumb farmers” is, of themselves, worthy of that moniker.

30

THE COMMISSIONER: If not using the word “farmer”, yes.

DR LOCH: Yes. Thank you, yes.

35 MR BEASLEY: One of the questions we've asked a number of witnesses is this, and I raise it because – in some of the papers in this folder, which we don't need to go to, but the issue of impact of climate change is mentioned. I think, Dr Adamson, you've written some papers on this. The Basin Plan doesn't – hasn't included in its modelling for setting the SDL – Basin-wide SDL – any projections for climate
40 change, I'm just wondering your views on that.

DR ADAMSON: It was discussed a few times. I know the CSIRO, when they were conducting the SDLs, did numerous runs. Modelling the impact of climate change on the Murray-Darling Basin is incredibly difficult. Has a lot to do with rainfall to
45 run-off. We did a significant amount of work for Department of Victoria. We have done work for ABARES, we have done work for the Kaurna climate change review. I've always – when we do this analysis – model the climate shock in three ways.

One is an increasing frequency of drought events; two is we plant; then the climate is revealed – or three you take the assumption that the climate will change and you plant accordingly.

5 These have fundamental aspects on the design of the Basin and the outcomes. It's part of the reason why we are worried about how investment patterns are occurring now because the incentives are significant to get in now while they're being offered. But we also then have anecdotal stories already of people down the Darling already
10 ripping out their perennial crops and going back into annuals.

DR LOCH: Recognising the – if you like, the unreliability of what they previously thought was going to be a - - -

DR ADAMSON: Reliable.

15 DR LOCH: - - - reliable supply.

THE COMMISSIONER: Could I ask you, you would both be aware that in chapter 4, part 2 of the Basin Plan itself, the mandatory identification of risks and strategies to address them - - -
20

DR LOCH: Yes.

DR ADAMSON: Yes.
25

THE COMMISSIONER: - - - is set out and there is an admirable brevity in relation to climate change about which the strategy is to improve knowledge. Otherwise I will try and paraphrase this correctly. Over at least the intended duration of this Basin Plan, the strategy to address climate change is to appreciate and acknowledge
30 that the variability of rainfall means that, as has for a long time been the case, the actual enjoyment of entitlement, the allocations, will, in dry times, be a fraction of the nominal whole. Now, leave aside at the moment so-called carry-over provisions. I think – I hope I've not been unfair or incomplete – I think that is a summary version of the strategy in this Basin Plan to deal with climate change.

35 DR ADAMSON: I think - - -

THE COMMISSIONER: What I would like to ask or get your help on is this: from your professional points of view, is there anything wrong with that as a strategy to
40 address the risk of climate change?

DR ADAMSON: If I've got you correctly, what you're effectively saying is the – in different entitlements - - -

45 THE COMMISSIONER: Yes.

DR ADAMSON: - - - will, in effect, receive a brand new reliability associated with the change in climate.

5 THE COMMISSIONER: At the moment, what they've said is, "Well, look if it's a dry year," whether that – I suppose – I mean, the silent assumption is, "And that dry year may be a manifestation of climate change," the thought about climate change is you don't really look at one day's weather and say, "Well, there's climate change for you."

10 DR ADAMSON: No.

THE COMMISSIONER: But the strategy seems to be to say: "Look, in a dry year, as always, we will – everyone will be cut back in what they can actually enjoy."

15 DR ADAMSON: The reliability, that's what's going to

THE COMMISSIONER: "That's how we deal with climate change."

20 DR LOCH: According to their right: if they're high reliability they will enjoy the same reliability until such time as the drought continues to the point where that, too, is impacted.

25 THE COMMISSIONER: In other words, there's a differential impact depending on hierarchies of reliability of drying years under the current allocation exercise.

DR ADAMSON: That is the current strategy for dealing with it.

30 THE COMMISSIONER: And most of what I might call the environment share is at highest risk under that approach.

DR ADAMSON: That's their breakdown of their assets.

DR LOCH: That I don't know, under the current set of arrangements.

35 THE COMMISSIONER: That is, most of the environmental share does not have any reliability protection.

DR LOCH: No. And why not?

40 DR ADAMSON: No. It has exactly the same reliability as the irrigators' rights.

DR LOCH: Because the rights were simply transferred from one to the other.

45 THE COMMISSIONER: Well, that's when it's entitlement water.

DR LOCH: Yes. And so the reliability structure, the property right nature, the legal definition, none of that has changed. It's just changed ownership.

THE COMMISSIONER: No, I'm really talking about what I want to call the residue after irrigation, consumptive use, has been taken out.

5 DR LOCH: Well, but that again impact on the environment because they are taking what was once irrigation water in a sense and using it through pretty much the same system depending on where you are, in the south in particular, north a little bit differently, obviously. But their portfolio is the same, as we said earlier, as any other consumptive user. Just on a massive scale.

10 THE COMMISSIONER: So my question is: is there anything wrong with that policy of the Authority?

DR ADAMSON: I think in this situation everyone feels the pain equally. Everyone knows what their rights are.

15

THE COMMISSIONER: I'm not talking about reductions.

DR ADAMSON: No.

20 THE COMMISSIONER: I think Australia has been used to that since long before the Basin Plan. In terms of a strategy to address climate change risk what I'm asking is: is there anything wrong with the fact that under the current Basin Plan the response to climate change risk is to note that there will be seasonal reductions of enjoyment depending upon dryness.

25

DR ADAMSON: Well, I think for those which have secured rights, that's fine. Where we don't have secured rights, as Adam said before, on base flows where it's just written on a piece of paper, that's a greater problem.

30 DR LOCH: That's a possible issue, particularly as we get to the drier periods as we've said.

THE COMMISSIONER: What would be a better way of handling that in your opinion?

35

DR ADAMSON: Have those rights secured and first allocated.

DR LOCH: Yes. I think – so – all right. If I'm going to put on my, "I'm a harsh economist hat now and bugger it let's go."

40

THE COMMISSIONER: That's a tautology, isn't it?

DR LOCH: That's right. One of those is redundant. Essentially – as my wife would – well, yes, I can't use the other word that my wife says is also redundant in regard to economists. If we – let's think about what we should have done under the cap. What should we have done under the cap? We should have basically come in and said, "Thank you very much for coming, it has been fun, I know you've enjoyed

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this. However, we need 20 per cent, therefore I'm going to take everybody equitably and uniformly 20 per cent off the top. Here is some money for compensation.

Thank you for coming, thank you for playing. Sorry about this. We are a hell of a lot better off as a nation, see you all next Christmas." That would have been painful.

5 But it would have been - - -

DR ADAMSON:

10 DR LOCH: - - - extremely cost effective, it would have been very time effective, it would have been less painful in the process I put to you we have been going through for the last 30 years and show no signs of abatement on.

THE COMMISSIONER: How does that address climate change in itself?

15 DR LOCH: We could have reached a point where we had some sort of environmental water with no, in some respects, constraints that currently apply to it through the consumptive arrangements. That would have been truly water for – I'm not saying that the current water isn't, but it has its constraints because it hasn't changed the nature of that water from consumptive, it has just changed the ownership
20 of that water from irrigators to the environment. But it remains the same water with the same constraints on its use, etcetera, etcetera, etcetera.

DR ADAMSON: Same unreliability.

25 DR LOCH: Yes, exactly, and so the same issues in regard to climate change. If we had taken the cap and literally put it in place overnight, in a sense – saving in 12 months through the process that I and a lot of others have suggested – that water would have been, in some respects, potentially unfettered because we could have said, "Well, we are rewriting the rule book here." That water all could have been, in
30 a sense, provided as a basis for base flows and then other environmental objectives.

DR ADAMSON: And I mean, also, the other problem is climate change works in both ways. Sometimes it's wetter; sometimes it's drier. Now, with our current share in the current reliability, this allows both the environment and farmers to be
35 opportunistic when times are good. You can irrigate a lot more. If you look at how we are designing some environmental assets, the regulator at - - -

DR LOCH:

40 DR ADAMSON: - - - you've got the ability there to, effectively, irrigate the environment now by opening lochs, shutting lochs, moving water through these things. We've got good times and we have got bad times, but having that flexibility in those entitlements allows us to respond very well. The question is, what is the optimal size or the better size of your fixed water requirements? They will be
45 revealed over time.

DR LOCH: So is it an appropriate strategy? Let's go out on a limb and say given that I would struggle to come up with an alternative personally, yes. I'm not going to necessarily hang them out to dry.

5 MR BEASLEY: Won't the - - -

THE COMMISSIONER: I'm finding it difficult to understand how one now does something about a change that can be accepted as occurring but has not yet happened.

10

DR ADAMSON: The only possible thing you could do is, over time, if the climate reveals itself to be far worse - - -

15 THE COMMISSIONER: Assuming in the southern Basin, at least, it's going to be considerably drier.

DR ADAMSON: Then you could go into the market. You could remove a number of rights and, as a largess, say, "Everyone now has better entitlements we will just dissolve these rights away." But that is still then a wealth transfer – both to the environment and a farmer.

20

DR LOCH: And politically, I mean, we couldn't do it with the cap. I don't suspect that anything has changed in the interim.

25 MR BEASLEY: I'm just wondering – this applies to both of you. Is there anything you feel that we have missed or that it's important that you think is important to say to the Commissioner in addition to what we have discussed today? Please feel free.

DR ADAMSON: Well, I think, for all its faults, the Murray-Darling Basin Plan will end up with a set of entitlements for the environment. The environment will be better off than it was before without protected rights. We've spent a lot of money, but we will end up with something.

30

DR LOCH: Yes. I wholeheartedly agree. As I alluded to earlier, David and I have done a lot of travelling around the world, talking to others about water. Been to the US, been to Europe, where we have some wonderful colleagues who think alike and we disagree with on some other things. Been to – more recently I have been to places like India, Bangladesh, Nepal. We've been to Mexico, in recent years. The Mexicans, of course, were the basis for our own water rights here in Australia, thanks to Alfred Deakin, God love him. He went originally to the US, said "God no,"

40 thankfully. Disappeared down south and came back with a good system. We continue to lead the world in our water reforms. And, God help me, I don't want to be in any of those other countries. They are a disgrace when it comes to these things and they are decades, if not longer, away from ever achieving the reforms and

45 changes we have done here.

THE COMMISSIONER: I'm going to confine my attention to Australia, I think.

DR LOCH: Good place.

DR ADAMSON: Very sensible.

5 DR LOCH: So let's not throw the baby out with the bath water in this process.
Let's recognise that we are world leading in this endeavour. And, yes, we can
always improve. Yes, it can always be better and we should strive to do that, and I
understand that's the process that we're going through here today and I appreciate
10 please, let's not lose sight of the fact that this is pretty, pretty important and useful
stuff.

THE COMMISSIONER: Thank you both.

15 MR BEASLEY: Thank you very much.

THE COMMISSIONER: I hope I have benefitted. I think I have. I thank you very
much for all your effort. It's much appreciated.

20 DR LOCH: Thank you for your time.

DR ADAMSON: Thank you.

25 THE COMMISSIONER: Now, I think we can - - -

MR BEASLEY: Going to break for lunch now, or - - -

30 THE COMMISSIONER: - - - give ourselves a break for lunch now and, at 2
o'clock, what happens?

MR BEASLEY: We have got Mr Rendell who asked to be heard in relation to
RMCG.

35 THE COMMISSIONER: That's good. So he may need to be updated about the
evidence of the last 20 minutes or so.

MR BEASLEY: I think he has been here the whole time, but if he hasn't been –
yes.

40 THE COMMISSIONER: Great. That's good. Thanks. Very well. We will
adjourn until 2 o'clock.

45 <THE WITNESSES WITHDREW [12.50 pm]

ADJOURNED [12.50 pm]

RESUMED

[2.00 pm]

5 MR BEASLEY: Commissioner, we have Mr Rendell here to give evidence. He is one of the co-authors of the RMCG report which has been tendered and is exhibit RCE53.

THE COMMISSIONER: Thank you.

10

<ROBERT JOHN RENDELL, AFFIRMED

[2.00 pm]

<EXAMINATION-IN-CHIEF BY MR BEASLEY

15

THE COMMISSIONER: Please sit down, Mr Rendell.

20 MR BEASLEY: Mr Rendell, you were a co-author, were you, of a report entitled Basin Plan GMID Socio-Economic Impact Assessment, Final Report, October 2016.

MR RENDELL: Yes, I was.

25 MR BEASLEY: Was one of the other co-authors – that report notes that Mr Matthew Toulmin, T-o-u-l-m-i-n, was the key project contact. Mr Toulmin is no longer with RMCG; is that right?

MR RENDELL: That's correct.

30 MR BEASLEY: But you're still with RMCG?

MR RENDELL: Yes, I am.

35 MR BEASLEY: And what's your position there?

MR RENDELL: My title is Senior Fellow, for want of a better word. I was one of the original founders of the business and now only have a very small portion acting as a consultant within the firm.

40 MR BEASLEY: All right. And can you provide the Commissioner with your – first of all, your tertiary qualifications?

MR RENDELL: I have a bachelor of agricultural engineering.

45 MR BEASLEY: And in terms of your work experience, what – how long ago did you – were you one of the founders of RM Consulting Group?

MR RENDELL: It's almost 30 years.

MR BEASLEY: Okay. And what work have you been mainly involved in as part of that business?

5

MR RENDELL: Well, over the years I've been involved with all aspects of the Murray-Darling Basin. In the early days it was the salinity management plans. In more recent times was the cap and the nutrient plans, and then we were involved in the first socio-economic study that was done for the Basin Authority at the start of the Plan. So been involved at that level, but at the same time been involved with individual farm businesses right throughout the – through the Basin.

10

MR BEASLEY: And providing advice on what sort of matters?

MR RENDELL: Ranging from technical irrigation to farm business, to regional strategic impacts.

15

MR BEASLEY: All right. And - - -

THE COMMISSIONER: I take it RMCG has other strings to its bow if it has got offices located in Torquay, Warragul and Penguin.

20

MR RENDELL: Yes, it has. The business started in Bendigo and in more recent times has expanded to those areas. The major - - -

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THE COMMISSIONER: I think I know for sure that Torquay and Penguin are not in the Basin.

MR RENDELL: No, that's true.

30

THE COMMISSIONER: Neither is Melbourne, I suppose.

MR RENDELL: Well, the Melbourne people do a fair bit of work within the Basin. I wasn't - - -

35

THE COMMISSIONER: Sorry. I'm not – I'm not suggesting for a moment - - -

MR RENDELL: Sorry.

THE COMMISSIONER: No, I'm just curious. I assume that RMCG does more than just Basin work.

40

MR RENDELL: Sure.

THE COMMISSIONER: An agricultural consultant.

45

MR RENDELL: Agriculture and regional work.

MR BEASLEY: Can I just ask you Mr Toulmin's – what was his qualifications and experience?

5 MR RENDELL: I thought you would ask me this, and I should have checked, I understand he has got a masters in economics.

MR BEASLEY: Right. And when you say you were co-authors of this report, did you take responsibility for any chapters or did he or was it entirely a joint work.

10 MR RENDELL: My emphasis would be more on the water and the production aspects than the farm aspects.

MR BEASLEY: So what chapters does that mean? Does that mean – who took responsibility, for example, for chapter 5, Production Impacts?
15

MR RENDELL: That would have been a joint – a joint responsibility, although the water Basin and the production I would take responsibility for.

MR BEASLEY: What about chapter 8, Regional Economic Impacts?
20

MR RENDELL: Matthew took responsibility for that.

MR BEASLEY: Okay. Can I ask you to just, first of all, go to page 1. I notice it says here that:
25

The study was commissioned by a group of stakeholders within the GMID with an interest and concern about water use, irrigation and environment. Group is called the GMID Water Leadership Forum.

30 It sets out local councils, water authorities, irrigation sectors, CMAs, food processing companies, the VFF, and the Local Member for Shepparton. Who's the local member for Shepparton?

MR RENDELL: Suzanna Sheed.
35

MR BEASLEY: Right. And how did it come about that your firm was retained to prepare this report?

MR RENDELL: The group issued a Terms of Reference.
40

MR BEASLEY: Right.

MR RENDELL: Of which we tendered and were selected.

45 MR BEASLEY: All right. Is there a copy of those Terms of Reference attached to your report? I don't think there is. I was looking for a letter of – was it – we might have – do – I don't suppose you have a copy on you? No?

MR RENDELL: The project brief in the summary - - -

MR BEASLEY: No. Just before you go to that, do you have a copy of the Terms of Reference?

5

MR RENDELL: Not with me, I don't I believe.

MR BEASLEY: All right. Okay. Now, you wanted to take me to the study brief, did you, on page 1?

10

MR RENDELL: Yes.

MR BEASLEY: So the aim of the study:

15 *To understand what the loss of consumptive water through the implementation of the Basin Plan has meant to the towns –*

etcetera:

20 *establish current and accurate base line data. To understand “what the GMID will look like” in a socio-economic sense, upon final implementation of the Plan.*

So that was the three matters that you were asked to address?

25

MR RENDELL: Yes, it was.

MR BEASLEY: All right. And I notice at the front of the, inside the front cover, there were six drafts of the report prepared. It says one for September '16 author Matthew Toulmin, approved by Ron Rendell. What does – does that mean Mr Toulmin actually drafted the report and you looked at it after he had produced that draft?

30

MR RENDELL: No, it doesn't. And it's probably slightly sloppy or incorrect - - -

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MR BEASLEY: All right. You tell the Commissioner what the interpretation of that would be.

MR RENDELL: The correct interpretation is that Matthew and I worked together on it and collectively approved it and wrote it.

40

MR BEASLEY: All right. And then - - -

THE COMMISSIONER: I take it you are the senior of the two?

45

MR RENDELL: At that point, no, we were equal partners in the business.

MR BEASLEY: How many partners were in the business?

MR RENDELL: As of now or then?

5 MR BEASLEY: Then?---Then there were seven.

MR BEASLEY: Right. Okay. And did other staff help you with this report by collecting data or - - -

10 MR RENDELL: Yes, they did.

MR BEASLEY: What sort of qualifications do they have and what sort of things did they do?

15 MR RENDELL: Charles Thompson is an agricultural scientist who has worked in mainly horticulture and in water use salinity, the Basin Plan, over – since he came from England in 1988 or something.

MR BEASLEY: What was his input into the report?

20

MR RENDELL: He assisted in calibrating and working with the water numbers.

MR BEASLEY: All right. Anyone else?

25 MR RENDELL: Not to my knowledge.

MR BEASLEY: All right. Staying on that inside cover, draft 1, author Toulmin, approved Rendell, and you've explained that. Then it says issued to Suzanna Sheed, who you've told us is the Local Member, and David McKenzie. Who's David
30 McKenzie?

MR RENDELL: The group – the GMID leadership group is co-chaired by David McKenzie, who is a community person.

35 MR BEASLEY: All right. So does that mean it was only issued to those or was it everyone who was part of the – what's it called again – the GMID Water Leadership Forum; did everyone get a copy of it?

MR RENDELL: I can't remember how wide it went.

40

MR BEASLEY: All right. Does it help you to look at comments. Got:

Draft report for comment by Forum.

45 I assume that's something you were told, as the authors of the report that the draft had been commented on by the forum?

MR RENDELL: Yes, but I can't recollect to the extent.

MR BEASLEY: That's all right. What was the – this was an agreed process, was it, that you would issue a draft of the report and that the forum, I can see on draft 3,
5 draft 4, draft 5 and the final draft, was issued to the forum for what sort of feedback or commentary type process? For example, was there a meeting to discuss the draft that you attended?

MR RENDELL: I can't remember, and may I suggest that there was a number of
10 iterations which was going around internally, etcetera.

MR BEASLEY: Just pausing there. When you say "internally, etcetera", you mean a number of iterations of the report going on within your firm.

15 MR RENDELL: Yes, yes.

MR BEASLEY: Right. Who to?

MR RENDELL: It would be mainly Matthew and myself.
20

MR BEASLEY: Right. Okay. But what I'm seeking to understand is, in terms of these various six drafts, certainly there was a – the first draft was report for comment by forum. I just want to understand what the process was for that. Was there a meeting or did you get a written response with comments. How was that done?
25

MR RENDELL: At one – at one stage we presented a summary to the forum.

MR BEASLEY: Right. At a meeting?

30 MR RENDELL: At a meeting.

MR BEASLEY: Yes.

MR RENDELL: And got feedback, which we would have attempted to explain a bit
35 further some of the issues that were raised.

MR BEASLEY: And does that mean that of the various people, representatives of local councils, water authorities, etcetera, that you mentioned on pages 1 and 2 of the report, that were part of the GMID water leadership forum, they were all given the
40 opportunity to provide some form of feedback of the draft report at this meeting, were they?

MR RENDELL: They would have. Some of them would have provided comments, not all by any stretch.
45

MR BEASLEY: All right. Can you recall what the nature of the comments were? What were the sort of things being discussed?

MR RENDELL: In my understanding they would have been comments of explanation and understanding.

5 MR BEASLEY: Just go from your memory. That's what you are telling us, is it, from your memory?

MR RENDELL: Yes, yes, sure.

10 MR BEASLEY: Yes, go on.

MR RENDELL: They would have been questions about, "How did you get to this number or why did you get to that number?"

15 MR BEASLEY: All right. And were minutes taken of these meetings?

MR RENDELL: Not of those comments – sorry, there are minutes of the meetings. They are in very, very brief minutes. They would have said something like, "There was a discussion", or something.

20 MR BEASLEY: Do you have copies of those minutes?

MR RENDELL: I have some copies of minutes, but some emails of those minutes I wouldn't have kept, but David McKenzie would have those minutes.

25 MR BEASLEY: All right. Well, I know you want me to put in evidence some material that you have given us. I'm just wondering would you be able to provide the Commission of minutes of those meetings please; would you be happy to do that?

30 MR RENDELL: I would, except that I don't believe I have them all.

MR BEASLEY: Of the ones you have got, obviously if you don't have in your possession you may not be able to give them, but to the extent that RMCG still has in its possession minutes of these meetings you would be happy to provide them to the Commission?

35 MR RENDELL: Yes. I would, but I would suggest a direct contact to the secretary would also get them too.

40 MR BEASLEY: Secretary of what?

MR RENDELL: Sorry, to David McKenzie of the GMID.

45 MR BEASLEY: All right. Well, perhaps I wasn't clear. So there's minutes. The minutes were actually kept by the - - -

MR RENDELL: GMID leadership group.

MR BEASLEY: Right. Rather than your firm.

MR RENDELL: No, we didn't - - -

5 MR BEASLEY: Okay. So - - -

MR RENDELL: We didn't keep minutes.

10 MR BEASLEY: But you might have some copies, you're saying.

MR RENDELL: Of their minutes.

MR BEASLEY: Right. Okay. So you're happy to provide us with some – the
15 copies of their minutes that you have?

MR RENDELL: Yes.

MR BEASLEY: All right. Thank you. There's also a draft to Professor John Rolfe.

20 MR RENDELL: Yes.

MR BEASLEY: Who is Professor Rolfe?

MR RENDELL: Professor Rolfe an economist from RMZ consulting.
25

MR BEASLEY: Right. And he did a peer review, did he?

MR RENDELL: Yes, he did.

30 MR BEASLEY: All right. Did the report change much from draft 2 when he did
the – let me rephrase that question? From his peer review of the second draft,
because of the content of that peer review, did the report change much?

MR RENDELL: I cannot specifically say whether there was any direct change,
35 except that we noticed his comments and where, for example, the base case is not
well-defined in the executive summary, etcetera, we tried to - - -

MR BEASLEY: Sorry, you are reading from his peer review now, are you?

40 MR RENDELL: Yes, yes.

MR BEASLEY: Right. Okay.

MR RENDELL: Yes. We attempted to – to include that, because he said there was
45 a couple of minor areas where there might be more mention, and how much
specifically I haven't gone back and compared the two.

MR BEASLEY: Right. But you've got a memory that you tried to address some of the comments that he raised in his peer review; is that right?

MR RENDELL: Yes. Or at least – at least reflected on them.

5

MR BEASLEY: All right. And in relation to the meetings with the GMID forum – leadership forum – Water Leadership Forum was there one meeting for each draft? In other words was there five or six meetings?

10 MR RENDELL: No.

MR BEASLEY: How many were there from your memory.

MR RENDELL: Might have been one or two.

15

MR BEASLEY: Only one you can remember, or two?

MR RENDELL: Yes.

20 MR BEASLEY: All right. Was there any other written feedback in relation to any of these drafts from the Water Leadership Forum that you recall?

MR RENDELL: No. One of the difficulties we had with the drafts was that we were getting more and more data - - -

25

MR BEASLEY: Right.

MR RENDELL: - - - at the last minute.

30 MR BEASLEY: Yes.

MR RENDELL: It was extremely difficult to get the data from the – on some of the water use, etcetera, and entitlements. So there was, I think, between three, four and five there was some extra data that we kept tweaking the numbers, probably unnecessarily.

35

MR BEASLEY: Okay. By “unnecessarily”, what do you mean?

MR RENDELL: Well, we spent a lot of effort to change numbers a few – one or two per cent, without changing the conclusions.

40

MR BEASLEY: Right. And the final report issued to the forum, did that report require their sign-off for publication?

45 MR RENDELL: No, it did not.

MR BEASLEY: Right. So they didn't have any say in the content of the final report then.

MR RENDELL: No.

5

MR BEASLEY: All right. So page 8 sets out under the heading 2.2.3 – I'm just taking you through the report now to see if I've got a correct understanding of the approach you've taken to your analysis and final conclusions. 2.2.3, Production Impact Assessment, you've recorded and analysed the historic reductions of water over a four year timeframe in the southern connected Basin and in the GMID, identified a likely reduction in allocation volume, and I think you've done that in relation to different climate scenarios; is that right?

10

MR RENDELL: Yes.

15

MR BEASLEY: Extrapolated from the Southern Connected Basin to establish total volumes and distribution that would have occurred in the future in the absence of the Plan. So the quantum of reduction in production is then estimated; correct?

20

MR RENDELL: Mmm.

MR BEASLEY: And then you've calculated an economic value for the loss of production; correct?

25

MR RENDELL: Yes.

MR BEASLEY: And ultimately when you get to the chapter 8, I think there's the there's the firm EconSearch who has run a model to use a figure for loss of production to produce an estimated figure for job losses based on that; is that correct?

30

MR RENDELL: Yes.

35

MR BEASLEY: So I've summarised that correctly. Page 16, very bottom paragraph, you are talking about the 21 per cent less available water due primarily to buyback and then you've got this statement:

It is proposed the change in production over these two periods is a very good indicator of the net effect of buyback.

40

So your theory is that there is a direct link, and you would have heard the other economists comment on this, but your theory is that there's a direct proportional link between reduction in water and reduction in production.

45

MR RENDELL: Let me just explain that slightly, please.

MR BEASLEY: Yes. This is where you want to say your different approach or philosophy you were talking to me about before?

5 MR RENDELL: No, I want to go – no, not at this – not at this point.

MR BEASLEY: No. All right. Go on.

10 MR RENDELL: I just want to say there's a fundamental energy agronomic equation - - -

MR BEASLEY: Yes.

MR RENDELL: - - - between production as in quantity and water input.

15 MR BEASLEY: Right.

MR RENDELL: And water can come from rain or from irrigation.

20 MR BEASLEY: Yes. Haven't lost me so far.

MR RENDELL: The relationship between water and production is a fundamental science, and the comments that were made before were made much more around how this can vary at the margin. And, yes, a poor irrigator, for example, can use a lot of water and not produce much. And there are different crops, but for the same crop and – sorry, for different climatic years, temperature, etcetera, will change that relationship. But there is a fundamental agronomic engineering relationship between water and the quantity of product that is produced and that underpins the assumption.

30 MR BEASLEY: When you say it changes at the margins, do you mean that there are other factors that will influence the amount of production other than the amount of water that's available?

35 MR RENDELL: Yes, that's true. But if you look at the graphs of any – and I saw one just the other day at a conference – you will see that the trend line is quite consistent plus or minus 10 per cent between growers, between years. But fundamentally, the underlying trend relationship - - -

MR BEASLEY: Yes.

40 MR RENDELL: - - - is the basis. But between years and individuals - - -

MR BEASLEY: Yes.

45 MR RENDELL: But collectively as a whole, it is not around the margins.

MR BEASLEY: All right. If you just pause there for a moment. I will come back to when you look at the graphs and what that means. But in terms of these other

factors, you don't disagree, for example – were you sitting in the hearing room when
- - -

MR RENDELL: Yes. Yes.

5

MR BEASLEY: All right. You don't disagree, for example, that the price that a farmer or irrigator can obtain for their produce or their crop will be an influencing factor on production. You agree with that?

10 MR RENDELL: Let's – let's define "production".

MR BEASLEY: Go ahead. Do that first.

15 MR RENDELL: If you're saying that price affects the relationship between water and the quantity of product, no.

MR BEASLEY: No.

20 MR RENDELL: If you are saying that the price affects how much water a farmer chooses and, therefore, how much production is made, yes, I do agree.

25 MR BEASLEY: In other words, if the price of a particular crop or product drops, that irrigator may not use the same amount of water, may use much less water or none at all, because it will no longer be economically viable to grow that crop or produce that produce.

MR RENDELL: However, you are falling into the same trap that was fallen into before.

30 MR BEASLEY: Yes.

MR RENDELL: And that is that individuals may make that decision - - -

MR BEASLEY: Yes.

35

MR RENDELL: - - - but collectively across the southern Basin, the total amount of water that's used, if someone doesn't use it, someone else does. So you need to do the collective, not just looking - - -

40 MR BEASLEY: By someone else, that someone else could be the environment.

MR RENDELL: Under the – at the moment, the environment is not trading the water, and, therefore, any water that – each – so this is going back to the basics.

45 MR BEASLEY: Yes.

MR RENDELL: Each year there is a certain amount of water made available.

MR BEASLEY: Yes.

MR RENDELL: All of that water gets used either this year or next year.

5 MR BEASLEY: Does everyone always take up their whole allocation?

MR RENDELL: Yes, and this was an absolute furphy that was discussed before, that over the last – since about 2000, since the '02 drought - - -

10 MR BEASLEY: Yes.

MR RENDELL: - - - there hasn't been any water that hasn't been used. Individuals – see, there's a confusion between individuals using water - - -

15 MR BEASLEY: Yes.

MR RENDELL: - - - allocations, and the market and trade. And when we take anecdotal views of one person and keep talking about one person, instead of seeing the system as a whole – and if you look from '01/02 - - -

20

MR BEASLEY: Yes. But the system as a whole is broken up, isn't it, into different industries. For example, if – you've, in your report, you deal with the dairy industry. I mean, they would, I imagine – would I be wrong in assuming they would act fairly consistently depending on the price of milk and the price of water?

25

MR RENDELL: I will try and restate that - - -

MR BEASLEY: No, just – no. Just – what's the answer to that question? I mean, if the price of milk drops through the floor, I imagine that there aren't 50 per cent of dairy producers producing milk and 50 per cent not. It would be a fairly consistent strong drop in milk production, wouldn't it, in those circumstances, for that industry?

30

MR RENDELL: The dairy industry doesn't – as we see, the dairy – again, the three industries, and we can – we've actually got three different sorts of water - - -

35

MR BEASLEY: Yes.

MR RENDELL: - - - within the region, and that's a simplification, but it's a useful simplification, I believe. If you take the dairy industry, the number of cows is the determinate of how much feed they need.

40

MR BEASLEY: Yes. Yes. Of course, yes.

MR RENDELL: And the amount of feed they need can be supplied, and they need to have about 60 to 70 per cent from fodder. So there's no opportunity to substitute it all with grain. They would get sick. So you need to have at least 70 – about 60 to 70 per cent from fodder. That can then come from irrigation and rain-fed.

45

MR BEASLEY: Yes.

MR RENDELL: Fundamentally, in a price – in a price drop - - -

5 MR BEASLEY: Yes.

MR RENDELL: - - - the farmers stop – drop their cow numbers slowly, and over time, you will see a change.

10 MR BEASLEY: Right.

MR RENDELL: And you can see that in our production.

15 MR BEASLEY: Right.

MR RENDELL: But collectively, the Southern Connected Basin acts as one market of water. And if the dairy farm industry uses less, as it will – it looks like it's going to this year because of shortage of water – the water they don't use is used by someone else. So there's not unused water in the system. That's an absolute furphy.
20 Each year we use the water that's allocated, and the market works to transfer that water from one area or one farmer to another.

THE COMMISSIONER: So at an individual level, the farmer decides that he or she wants to reduce the herd because Coles red thumb is too vigorous in the downwards
25 direction, and he or she then decides to sell the unused portion of water to somebody who wants to raise cabbages.

MR RENDELL: Exactly. And it's all used. The concept – and this is something that was in the – said this morning again, that 70 per cent of the water is unused.
30 That is just rubbish. There is no other way of describing it.

MR BEASLEY: No. I don't think anyone said – I think what was said was that 70 per cent of people that – unless I misheard, please tell me if I'm wrong, the 70 per cent figure – I only recall being mentioned that 70 per cent of irrigators and farmers
35 that have sold a – well, part of a water entitlement have also kept part of their water entitlement. They've only sold – partially sold.

MR RENDELL: Sorry, I will take you to Professor Wheeler's evidence and also to the evidence this morning - - -

40 MR BEASLEY: Yes.

MR RENDELL: - - - where they suggested that people only use 70 per cent of their allocation, and they've been underusing.

45 MR BEASLEY: Right. Yes.

MR RENDELL: And we know that the water in the system has been fully used. I mean, we are now in a supply - - -

5 MR BEASLEY: Yes. Can you explain the graph then – sorry, the table on page 21 of your report. Table 3.5. I must be misreading it because it says:

Carryover allocation 1125 use 941. 2009/10 allocation 1659 use 1134.

10 Am I misreading that? That indicates a complete use of the allocation or – it doesn't seem to.

MR RENDELL: Because, again, you're taking a one-year look at the situation, and if you look at - - -

15 MR BEASLEY: Well, that's all I can do on this table. It only gives a year at a time. What else should I be doing?

MR RENDELL: If we look at the period from '01/02 to now - - -

20 MR BEASLEY: Yes, well, I can only look at '07/08 to '15/16 on this table, and it seems consistently that use is usually – well, sometimes it's a bit more; sometimes it's a bit less.

25 MR RENDELL: Can I – can I explain this.

MR BEASLEY: Feel free to explain it, yes.

MR RENDELL: Okay. Can I take you to the table - - -

30 MR BEASLEY: Yes.

MR RENDELL: - - - on – in the summary of - - -

35 MR BEASLEY: Yes, what page?

MR RENDELL: Page 2 of the summary of ES1.

MR BEASLEY: Yes. Yes.

40 MR RENDELL: Or better still, can I take you to the – if you've got the update report.

45 MR BEASLEY: Yes, we do. Yes, that's tab – so you've also recently done another report that's called Update on GMID Water Availability Scenarios and Irrigated Production.

THE COMMISSIONER: Which page, Mr Rendell, of the updated report?

MR RENDELL: The first page of the summary.

THE COMMISSIONER: I'm sorry. The first page of the summary?

5 MR BEASLEY: What page is that?

MR RENDELL: Page 1.

MR BEASLEY: Page 1. Right.

10 THE COMMISSIONER: Yes.

MR BEASLEY: Is that table SMD Climate Scenarios; right?

15 MR RENDELL: Yes. Yes.

MR BEASLEY: Yes.

MR RENDELL: What I've recorded in there is the last 13 – 12 years. Sorry. I say
20 13 because we've just about got the 13th now. The last 12 years, I've recorded the
water that's allocated to the – for the irrigators' entitlements. The environmental
entitlements are excluded from that table. And you will see there that the amount of
water that's allocated varies from about 2,000 to about 6,000.

25 MR BEASLEY: Yes.

MR RENDELL: And what happens is that the bottom – the water that's available
every year is taken up primarily by horticulture, the water that's there in most years
is taken up primarily by the dairy industry, and the water that's occasionally there is
30 taken up by both the cropping industry, the rice in particular, but it's also the period
as to when carryover increases. And what we've seen happen in recent times is that,
quite clearly, the value of horticulture is so much more than rice. So the pressure to
try and change water from an irregular to a more reliable product is – is really strong.

35 MR BEASLEY: Because for horticulture you need to water all - - -

MR RENDELL: Every year.

MR BEASLEY: Every year, yes.

40

MR RENDELL: And what we have effectively got, and I don't know whether
you're aware, but the aim of the storage is two-fold. One is to take water from the
winter so that it's available for the irrigation season and the second is to take water
from one season to another season to create reliability. In the Murray system, which
45 is the easiest one to demonstrate, the Victorians decided that they would allocate less
entitlements called high security.

MR BEASLEY: Right.

MR RENDELL: They would then put a lot of water aside to secure that for the following year. And if there was any left over, would then have a low security
5 product.

MR BEASLEY: Right.

THE COMMISSIONER: How does carryover fit into that arrangement?
10

MR RENDELL: Can I just halt, can I answer – can I just finish and come back to that?

THE COMMISSIONER: Yes, no, take your time. Do it your way.
15

MR RENDELL: So Victoria had – and this is prior to – to the drought. And Victoria had these two products of high and low, and what happened was that if you didn't use it, you lost it.

20 MR BEASLEY: Yes.

MR RENDELL: And up until about 2004, if you didn't use it, you lost it, it went back into the pool. And so the comments about people underusing prior to the drought are quite correct. If you take New South Wales, and – I'm sorry, Victoria
25 did that because they had a policy of setting up dairy and post Second World War we had a very large dairy which needed a fairly secure supply of water. New South Wales gets half the inflows also, exactly the same inflows each year, of which New South Wales chose to set up a different system. New South Wales chose to have less high and they had what we call a general security, which is a fill and spill mentality.
30 They fill the dam and they allow people to use it all in that year. So New South Wales did that because it really doesn't matter for rice crop whether you use it this year or next year. The problem with making something reliable is you end up with less water. So the yield - - -

35 THE COMMISSIONER: You have got to eke it out over a period that may have dries in it?

MR RENDELL: No. What I mean is that if you keep the water in store from one year to the next, you don't leave room for all of the inflows and, therefore, the yield
40 that the – so Victoria, for example, on average, although it's more reliable, gets less water than New South Wales for the same inflows.

MR BEASLEY: Right.

45 MR RENDELL: So there is a yield/reliability trade-off. Carryover was introduced both in New South Wales and Victoria in order to enable people to plan better but not lose it – use it or lose it. As a result of carryover, we are seeing the market

decide that we would like a lower yield but a higher reliability. So when you took – when you took me to that table and showed the years, what we’re talking about there was years where there was a build-up in carryover. This last year there has been a decline of carryover of about 800 gigs.

5

THE COMMISSIONER: Just remind me, is the carryover two or three years?

MR RENDELL: The carryover is from one year to the next but you can keep getting ad infinitum.

10

THE COMMISSIONER: So it’s two years, but going always to the next year.

MR RENDELL: Well, if you want to, until it spills.

15

THE COMMISSIONER: Does it require physical water of the aggregated carryover amounts to be, as it were, reserved?

MR RENDELL: Yes, absolutely.

20

THE COMMISSIONER: So it’s not like money and banks.

MR RENDELL: No, no. It is – so that is why a lot of people are confused at the moment with the low allocations and the large volumes of water that are in the storages.

25

THE COMMISSIONER: Because there’s a whole bunch of farmers who can say, “That’s my next year’s water there.”

30

MR RENDELL: Yes, absolutely. And we have now got a new market coming in autumn where people are saying, “I’m putting aside water for next year to safeguard my reliability.” And, in addition to that, the other thing which has happened which has changed things is following the ’06/’07 inflows which were the lowest on record, we have now putting aside more, in Victoria and New South Wales, to safeguard high reliability. So we’re now – we’ve now effectively, with that – and we’ve stopped New South Wales having unlimited water. So there has been three things that have changed the yield reliability. So when we start to talk about 2,750 numbers, we need to think about that 2,750 was done prior to an understanding of these changes.

35

40

The yield reliability relationship now is quite different, and farmers are electing to carry more over and it was also being said in the comments this morning that farmers are utilising more of their allocations. In fact, that is completely wrong. Farmers are utilising less of their allocations because of carryover, and we have had some spills, so some of that – what happens - - -

45

THE COMMISSIONER: I may be mixing up two things. They’re using less of something that you said earlier was completely used?

MR RENDELL: Yes. And this is the – sorry, this is the two bits. All of the water that’s available is being used. However - - -

THE COMMISSIONER: But some of it by carryover.

5

MR RENDELL: But some of it isn’t they’re not as much available because they’re choosing to carry it over and, because of their punting they’re – in reliability, there has been some more spills. So, in fact, they’re using all that they’ve got.

10 MR BEASLEY: What do you mean by “spills”?

MR RENDELL: Okay. What happens is that if I carry water over and there is more inflows, those inflows belong to the entitlement holders.

15 MR BEASLEY: Right.

MR RENDELL: The carryover belongs to whoever owns it.

MR BEASLEY: Yes.

20

MR RENDELL: Right? When – if the inflows are such that the dam fills and it starts to overflow, the water that is in carryover is deemed to have spilt.

MR BEASLEY: Right.

25

MR RENDELL: Because by being there, they’ve stopped someone else’s right to fill.

THE COMMISSIONER: So first in, first out?

30

MR RENDELL: If you store it, there is a risk. And so what – and this is – this is the, you know, the yield reliability thing. So what’s happening is that all the water that can be used is, except that because people are carrying over more they’re taking a risk and there’s more spills. So when people say that – and this is, and I included in my update the Murray-Darling Basin cap figures, and this has been quite a deficiency of the Murray-Darling Basin Authority is that they have not been providing these cap figures until recently, and when they have they haven’t actually explained them and they’re looking at - - -

40 MR BEASLEY: Cap figures being the actual amount of water that’s being used; correct?

MR RENDELL: Yes. The amount of water – sorry, we need to make the distinction between used and diverted.

45

MR BEASLEY: Yes.

MR RENDELL: The cap figures are diverted.

MR BEASLEY: Yes.

5 MR RENDELL: The Murray-Darling Basin Plan is on diversion. Production, when
we talk about production, is on use on-farm. And they can be different figures. But
if you look at the cap figures, you will see that since '95 the usage relative to the
permitted amount or the amount that was assumed in the Basin Plan is 1,000
gigalitres a year.

10 THE COMMISSIONER: This is on page 5, is it, table 27?

MR RENDELL: This is on page 5, yes, of the updated report. And this is from the
Murray-Darling Basin's website and I included there – not so that you could read the
15 numbers at all.

THE COMMISSIONER: No. I can barely do that.

MR RENDELL: But in order that it was evidence. And the problem with this:
20 indicates that the amount of water that is being used – by diverted – has – is much
less than what was assumed under the cap. What the Basin Authority hasn't given us
is the assumption on the 2009 resetting. My guess, and it's a guess with a bit of
knowledge, is that about half of the water is pre-2009, and about half of it is post-
2009, and is a result of carryover. So this would suggest that the change in reserve
25 policy, the change in the use of carryover, and the change in letting New South
Wales have unlimited water means that there's about 500 gigalitres of water that is
not being used but is now being – going down the river as the other half of the water.
And it's interesting - - -

30 THE COMMISSIONER: What do you mean as in the other half of the water?

MR RENDELL: Okay. We've spent 100 years managing our river to maximise the
amount of water that can be diverted into entitlements. Approximately half of the
inflows end up as entitlements. The other half is water that's all sorts of – some of it
35 useful, some of it quite unuseful down the river.

THE COMMISSIONER: What do you mean by "unuseful"?

MR RENDELL: For example, water that's going in the summer months keeping the
40 river high, wetting areas that are natural evapotranspiring - - -

THE COMMISSIONER: So artificially high in summer is an example of unuseful.

MR RENDELL: Well, can – yes, can be.
45

THE COMMISSIONER: That's what I understand by that word.

MR RENDELL: Yes – yes – yes – yes. So the – and this policy change of carryover is a big change from 2009, which I would be suggesting we need to take stock and look at the impact of that. Sorry. That was a diversion from your previous question.

5

THE COMMISSIONER: No, not at all.

MR BEASLEY: Sorry. Are you still asking questions on that, Commissioner? No? Can I just ask you to see if you can explain to me chapter 5, which commences at page 30 of the October 2016 report. I've already taken you through those four bullet points on 30 about what's in this chapter, but if we go straight to page 36, I want you to tell me where these figures come from. So milk production, the Basin Plan – sorry, I've skipped ahead, but you do run various scenarios as to likely reduction in water depending on an average climate scenario, a medium wet climate scenario, etcetera, through those pages.

15

MR RENDELL: Yes.

MR BEASLEY: And then, when we get to 36, you've said:

20

The Basin Plan has impacted both in the total value of milk production and on the resilience of the sector of any future doubt.

Then you say:

25

The modelling shows a reduction of 234 gigs in the available allocation for the dairy sector in the average climate scenario.

Where does the figure of 234 gegalitres come from?

30

MR RENDELL: Okay. We spent an inordinate amount of time trying to get some numbers on water use.

MR BEASLEY: Right.

35

MR RENDELL: It's difficult because the Authority keeps water – information on diversions, not on water use.

MR BEASLEY: Right.

40

MR RENDELL: The ABS only gives us figures once every five years.

MR BEASLEY: Right.

MR RENDELL: And they do not split between dairy and other grazing, which makes it also difficult to determine. We do have some – we do have industry data and we have individual, like Murray Irrigation keeps good data. And by looking at

45

the water use efficiency, and in particular we – the comment was made we don't include that, but the dairy industry has been increasing its water use efficiency by about point 6 per cent per year over the last 30 years. The rice industry has been – sorry, point 7 and the rice is about point 6 per cent per annum. I don't put those
5 figures in the report. That was – we spent a lot of time trying to reconcile. One of the difficulties with reconciling was that we didn't have the '15/'16ABS data, we only had the '10/11. So we were doing from all sorts of sources including to try and reconcile and get the numbers, which is why, if you go to the graph – the table on page 24 - - -

10 MR BEASLEY: 24.

MR RENDELL: Sorry, before even 24.

15 MR BEASLEY: Right.

MR RENDELL: The table on page 12.

MR BEASLEY: 12, yes, water use by sector over time.

20 MR RENDELL: We spent an inordinate amount of time reconciling that to water use data to diversions, to deliveries and to industry production so that we could come to a baseline of water use.

25 MR BEASLEY: Where did you get those, because it says source – excuse me – RMCG. Where have you got the data from?

MR RENDELL: From about 10 different sources. Firstly the ABS each year; secondly from the Murray-Darling Basin's published versions, although they change
30 from year to year. So we have had to go back and use old reports that we did back in the salinity management days to get the '70s. We've used industry data and in a couple of the cases we used some confidential industry data to make sure that that was a reasonable reference point. And that's – that took a lot of work to get to that point.

35 MR BEASLEY: Yes. Okay.

MR RENDELL: Because I believe that the trend, underlying trend line is absolutely critical in terms of not overstating the impact of the Basin Plan, as many people do. I
40 know we're criticised for that, but I would argue that the fundamental shift in industry, and we see there the shift from grazing to rice was the big one at first. We haven't got it labelled there but the big shift when trade opened up was to the wine industry. And then there has been the almond and the cotton shift go on in more recent terms. And that's fundamentally market forces and trade which has got
45 nothing to do with the Basin Plan. And we wanted to make sure that we got that. We then said okay, figure 24 was our attempt at saying if we had those five – and we call them climate but in fact they're really allocation scenarios because the use by

industry is not determined by the climate that year, it's determined by the allocation, which is a combination of a couple of years.

5 So they are really allocation scenarios. We then said, given the direction of the
almond industry, over the next five years what's the likely water use if we had a
repeat of those different allocation scenarios today given the Basin Plan? So that is
our fundamental basis at which point we then said, "How much water has there been
removed as a result of buyback and farm efficiency." That was, believe it or not, an
extremely difficult task because the numbers weren't published and even now under
10 the Authority's number they do not include – as we mention in our latest report, they
do not include some of the state figures. They also do not tell us exactly the split
between general security and high security.

15 THE COMMISSIONER: Is there some reason for this lack of published data of
which you are aware?

MR RENDELL: Chaos or conspiracy – always chaos.

20 MR BEASLEY: Not always.

THE COMMISSIONER: It doesn't have to be one or the other. I mean, is there
some custom of keeping these things?

25 MR RENDELL: Yes. Well, yes, there is. The fundamental – my fundamental view
is that prior to the Basin Plan we had the States all cooperating in its own funny way
under the Murray-Darling Commission, moving very slowly, but the states had
responsibility. Since we've gone to the Basin Plan, we have had a federally imposed
system and the states comply. The data – actually, most of it – belongs in the states
and - - -

30 THE COMMISSIONER: The MDBA can obtain data from the states.

35 MR RENDELL: Yes. But every bit is in different forms and the prime bit is sort of
– there's an interface and whatever - - -

THE COMMISSIONER: I'm just wondering why it shouldn't be published.

MR RENDELL: Because they don't collect it that way. You know - - -

40 THE COMMISSIONER: Why not make it available in all its messy glory?

MR RENDELL: Well - - -

45 THE COMMISSIONER: Not least so people like yourself can make suggestions for
better ways of collecting and publishing.

MR RENDELL: When we launched this report and the Phillip Glyde and so forth were at the meeting, and I've forgotten his name, his offsider, got up and said, "Yes, we agree with you that it's difficult to get the numbers of the recovery and we are going to try and do it. They have done it, but again they've done it at the point the
5 Commonwealth holds. The state holds some water over as entitlements, and they don't ask the question necessarily where has it come from. So we have put our best attempt and in the first report, we did not have as good data as we had in the second, but the numbers in the second are not that – marginally different. We have then made an attempt at the mix between general and high. And one of the questions
10 about the 2,750 and the 450 is what water is the most use to the environment? Because water isn't water. This whole idea - - -

MR BEASLEY: What does that mean?

15 MR RENDELL: This whole idea that one megalitre of water - - -

MR BEASLEY: Yes.

MR RENDELL: - - - is equal to another megalitre of water is – in the Basin Plan is just rubbish. The - - -
20

MR BEASLEY: Explain why.

MR RENDELL: Because a megalitre in the drought is a - - -
25

MR BEASLEY: Yes.

THE COMMISSIONER: It's time and place, isn't it?

30 MR RENDELL: It's time and place and quantity, sorry.

THE COMMISSIONER: I think you can take it for granted that I have not heard anybody nor read anybody who has put in any serious material to this Royal Commission that doesn't think that time and place are critical to and understanding
35 of the character of a megalitre.

MR RENDELL: And yet we – so the – and coming back to the concept of carryover, in that if we look at the spills, there are more spills happening, there is a very strong argument that that water is actually the most valuable water for the
40 environment. It has come about as a policy change. It's not in the 2,750 at all. And if we go back a few years, the Barmah Lake – forest, for example, got a much bigger flood because of the spills that happened on top of the natural spills.

THE COMMISSIONER: And these are spills that occur when the reservoirs have
45 reached, in effect, capacity; isn't that correct?

MR RENDELL: Yes. And - - -

THE COMMISSIONER: And so we can – if there’s one piece of hydrology that’s well recorded, it’s that event, isn’t it?

5 MR RENDELL: Yes. And the issue is that the Environmental Water Holder cannot possibly release the waters to create those floods. The policy that has enabled carryover – which I think is a very good policy, and it has been, you know, economically fantastic – means that we have bigger spills in wet times, which means that that is doing for the environment what the Basin Plan could never do.

10 THE COMMISSIONER: Well, it’s part – is it not, in a sense, part of the Basin Plan because the Basin Plan includes rules?

MR RENDELL: This policy of carryover has happened totally outside of the Basin Plan and happened just prior to the Basin Plan.

15 THE COMMISSIONER: The Basin Plan accommodates these jurisdiction by jurisdiction operating rules, doesn’t it?

MR RENDELL: Yes, but in the modelling that was done for the 2009 plan of what we needed and what was going to be the impact - - -

THE COMMISSIONER: Yes.

MR RENDELL: - - - carryover – the assumption on carryover was that it didn’t exist, or if it did, it wouldn’t change anything.

THE COMMISSIONER: Doesn’t that suggest that the model needs to be revisited?

MR RENDELL: I personally believe that we should - - -

30 THE COMMISSIONER: I’m only asking for your personal opinion.

MR RENDELL: Sorry.

35 THE COMMISSIONER: Does it suggest that the modelling should be revisited?

MR RENDELL: I strongly suggest that we should revisit it now and say what are the major changes that have happened, not redo the whole modelling, you know, and but say - - -

40 MR BEASLEY: Yes. Yes.

MR RENDELL: - - - what are the major changes, and the two major changes that are obvious are that we’ve had carryover and a change in reserve policy and that we’ve taken – we’ve now got less water, and we’ve got some projects we now know exactly what they are. So let’s look at that as a package and say have we achieved what we thought we were going to achieve? Is it better or worse?

THE COMMISSIONER: And modelling is, I would have thought, of its nature an intellectual approach to the world which requires more or less continuous review, scrutiny, and improvement.

5 MR RENDELL: Yes, and there's no enthusiasm in the Authority to do that.

THE COMMISSIONER: Why?

10 MR RENDELL: I think they've charged with an Act to deliver and hell-bent on doing it.

THE COMMISSIONER: Well, there's nothing in the Act that says don't remodel. To the contrary, I would have thought.

15 MR RENDELL: I think it's just they've set on a fairly fixed path. But just – sorry, going back to the basis of our calculations.

MR BEASLEY: Yes. Yes. Yes.

20 MR RENDELL: So the first step was to say what has really happened in history. What's the changes? What's the evolution? What do we think is going to be in the next five years? Then we spent a lot of time trying to work out exactly what entitlements had been taken - - -

25 MR BEASLEY: Yes.

MR RENDELL: - - - and – sorry, I don't mean taken. I don't mean that at all because I happen to think that the whole project is brilliant, but in terms of, you know, the Basin Plan.

30 THE COMMISSIONER: That's all right. No.

MR BEASLEY: Yes.

35 THE COMMISSIONER: You're not talking about highway robbery?

MR RENDELL: No. No.

THE COMMISSIONER: No. No. That's all right.

40 MR RENDELL: That then said okay, if that wasn't – if that hadn't happened - - -

MR BEASLEY: Yes.

45 MR RENDELL: - - - who would have got – who would have been using the water? And we've spent quite a bit of time across the southern Basin to distribute it. Clearly - - -

THE COMMISSIONER: This is – this produces, as it were, an estimate by you of the 500 gegalitres, is that right, for the southern Basin?

5 MR RENDELL: Well, it was, in our view, entitlements of about 1,200 - - -

THE COMMISSIONER: Yes.

MR RENDELL: - - - or sorry, entitlements of 1,400 - - -

10 THE COMMISSIONER: Yes.

MR RENDELL: - - - which varies from about 500 to about 1,400, depending upon the allocation.

15 MR BEASLEY: Yes.

THE COMMISSIONER: Yes.

20 MR RENDELL: And so we distributed those according to what we thought the mix was by industry, by different years.

THE COMMISSIONER: Yes.

25 MR RENDELL: And, clearly, horticulture has gone on totally unabated, quite almost irrelevant to the Basin Plan. The only thing the Basin Plan has done for horticulture is it has provided some incentives in farm efficiency and given it some things.

30 THE COMMISSIONER: Partly, that's a function of the fact that unless you've got to kiss your trees goodbye, you will keep – or your vines goodbye, you will keep them alive.

35 MR RENDELL: Well, yes, that's true, but the other one is – and I sent a table, but – in to indicate the relativity between income per hectare of horticulture and the income of, say - - -

THE COMMISSIONER: And it's worthwhile.

40 MR RENDELL: And it's just a factor of 10.

THE COMMISSIONER: Yes. Yes.

MR RENDELL: It's – and that's where - - -

45 THE COMMISSIONER: It's the high-value irrigation.

MR RENDELL: And that's where I have some trouble.

THE COMMISSIONER: Isn't that right?

MR RENDELL: Yes.

5 THE COMMISSIONER: Yes.

MR RENDELL: I have some trouble with the economists who say, "Market forces and the rest of it". Horticulture is an order of 10 whether the market drops a little bit or whatever. The ratio - - -

10

THE COMMISSIONER: It sounds to me like you're furiously agreeing with them, that is, that presents its own dynamic in the market, namely its worth outlaying more than other industries might outlay because it's more lucrative at the end.

15 MR RENDELL: And – exactly.

THE COMMISSIONER: Isn't that correct?

MR RENDELL: Yes, exactly. And so what has happened is that horticulture has been just proceeding on. I mean, there's a very high capital investment - - -

20

MR BEASLEY: Yes.

MR RENDELL: - - - and it has been proceeding on. We saw - - -

25

THE COMMISSIONER: What is the significance of that for an assessment of impact on the Goulburn-Murray Irrigation District?

MR RENDELL: There is a finite volume of water. If - - -

30

THE COMMISSIONER: Albeit variable?

MR RENDELL: Yes, and if you're going to say who would have used the water if it hadn't been converted to the environment, you have to say that the horticulture would not have used any of that water, would not be any different to what it is today with or without the Plan.

35

THE COMMISSIONER: And is this because different sectors have different, say, employment profiles.

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MR RENDELL: No. It's just purely - - -

THE COMMISSIONER: Then what's the significance of - - -

45 MR BEASLEY: Because you've got to water the plants because they're permanent, and they only need a certain amount of water, so it's always the same unless the industry is growing.

MR RENDELL: Well, the industries have been growing.

MR BEASLEY: Yes.

5 MR RENDELL: And the price of water - - -

MR BEASLEY: Yes.

10 MR RENDELL: Either as an entitlement or as a temporary - - -

MR BEASLEY: Yes.

MR RENDELL: And by the way, I believe they're exactly the same. The market is sensible.

15 THE COMMISSIONER: Yes. Yes.

MR RENDELL: You know, anyone who thinks they're – you know. The price of water is determined at the price at which someone gives up something.

20 MR BEASLEY: Yes.

MR RENDELL: And that's either the dairy farmer or the rice, and for horticulture, what they pay for their water is still way below the productive potential of that water. So it doesn't matter what the price has been doing; horticulture is still able to be buying it.

25 MR BEASLEY: Still buying it.

30 THE COMMISSIONER: Well, now, doesn't that mean that in terms of, say, a reduction in employment in the dairy industry, the – or a driver that you would identify is the very disparate return on water input between horticulture, high, and dairy, nowhere near as high.

35 MR RENDELL: Yes, and if the water was completely reliable, it would be inevitable that the dairy industry would disappear completely.

THE COMMISSIONER: And that's a result of what I'm going to call market.

40 MR RENDELL: However, that - - -

THE COMMISSIONER: Isn't that right?

45 MR RENDELL: Yes, that's right; however, it will not happen because horticulture cannot have a year where it doesn't have water. So horticulture - - -

THE COMMISSIONER: Well, it can, and it will, and there will be lots of vegetable death, but I understand what you mean.

MR RENDELL: Sorry. But I would say - - -

5

THE COMMISSIONER: To the extent they can, they seek to avoid not watering their trees because they will die.

MR RENDELL: The history in the last drought was that horticulture attempted to try and underwater. Those who did now all rue the day.

10

THE COMMISSIONER: Quite. My point entirely.

MR RENDELL: So what we've got is that total in mind where – which says about 2,000 in the drought. Horticulture will keep developing until we get the next drought that puts a limit on them.

15

THE COMMISSIONER: Well – but an even bigger drought might be another way of putting it.

20

MR RENDELL: If we had a repeat of the last drought – this is – last drought, horticulture used about just under 50 per cent of the available water. This next drought, they're going to need about 80 per cent if they had a repeat.

THE COMMISSIONER: Quite. Quite, and if it's worse, it will be - - -

25

MR RENDELL: Well, so horticulture has been going on completely – relatively uninfluenced by the Basin Plan. So whether we took out the water, the 1,200 gigs or not, makes no difference to the horticulture.

30

THE COMMISSIONER: And it is the horticulture that is one of the main drivers for the effect on dairy industry; isn't that right?

MR RENDELL: Yes. But what's then happened is that we have some other water, which is this most years water which is what the dairy industry can survive quite happily on. And they will outcompete the rice industry. So the water that's there for most years sets the size of the dairy industry. And that amount of water that's there most years has declined, for two reasons. One is horticulture has pinched it and the other is that the Basin's environment - - -

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40

THE COMMISSIONER: Horticulture has outcompeted for it.

MR RENDELL: Yes. Sorry, it's not - - -

THE COMMISSIONER: There's nothing underhand or inappropriate.

45

MR RENDELL: No, no.

THE COMMISSIONER: Insofar as our government's devised systems, the system seems to be devised to achieve just that outcome.

MR RENDELL: And - - -

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THE COMMISSIONER: Isn't that right?

MR RENDELL: Yes, absolutely. And fortunately the New South Wales having general security allocations, Victoria having high, South Australia having very high, has actually turned out to be a good mix of that. So we then took the water.

10

MR BEASLEY: Yes.

MR RENDELL: And distributed it by the industries that we believed would – across the southern Basin, would have used it if it had still been there.

15

MR BEASLEY: Okay.

THE COMMISSIONER: And all this to show that Goulburn-Murray has been more greatly affected than other places?

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MR RENDELL: To show that - - -

THE COMMISSIONER: I don't mean that was the purpose. I mean with a consequence of showing that; is that what you mean?

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MR RENDELL: The consequence of what we've done is to say that - - -

THE COMMISSIONER: The conclusion, I should say.

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MR RENDELL: The conclusion is that South Australia has not effectively reduced its water use, because the horticulture has been slowly – pretty stable. Sunraysia, and by that I mean both sides of the river, has increased its water use quite significantly because of the almond development. Murrumbidgee has decreased its water use, but fortunately the new genetic variety of cotton came in at exactly the right time and they use less water, produce more, and whilst they've reduced their water use the economic exact in the Murrumbidgee has been to offset and the Marsden-Jacob report, which I completely agree with – it was suggested it was a different report to ours. It's not at all. It's acknowledging that the – the cotton industry has just fortuitously at that time happened and compensated and it's worked together.

35

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THE COMMISSIONER: And the cotton has, to a degree, replaced rice.

MR RENDELL: Yes, absolutely. Yes. And then - - -

45

THE COMMISSIONER: Now all of that – what you've just described are matters which don't seem to be driven by the Basin Plan as such; is that correct?

MR RENDELL: Absolutely. Absolutely. And on top of that, the Murray Irrigation, which is a major rice area, has not been able to convert to cotton and it has given up – because of the weather – it has given up its water for two reasons: one because some of it has drifted to the horticulture and some because it's the last cab off the rank for the Basin Plan. Because the GMID is the other one, they have the high reliability water, which is what both the horticulture and the Basin Plan wanted, and so they have about halved – the GMID have halved, of which roughly half of the half has been due to the inevitable - - -

10 THE COMMISSIONER: This is the 500 which is buybacks and farm efficiency combined?

MR RENDELL: Yes – yes.

15 THE COMMISSIONER: Well, now, what should I gather from the work you have updated in the 6 June 2018 document? What are the consequences, so far as you were concerned, leaving to one side at the moment your criticisms of data publication and analysis by the MDBA itself? For the Basin Plan, what are the conclusions that you seek me to draw from this update?

20 MR RENDELL: That the original work was reasonably close, and not substantially different.

25 THE COMMISSIONER: Which original work?

MR RENDELL: Sorry, the work in the previous report.

THE COMMISSIONER: Your work, sorry.

30 MR RENDELL: Yes.

THE COMMISSIONER: Yes. Thank you.

35 MR RENDELL: Secondly, that the amount of total water recovered probably is a bit higher than what - - -

THE COMMISSIONER: On page 25, that's where I got the 500 gigalitres from, is that the total amount you're talking about?

40 MR RENDELL: Yes.

THE COMMISSIONER: That's in Victoria.

45 MR RENDELL: Yes. Yes. The other one is that the GMID is now half the size of what it used to be.

THE COMMISSIONER: In terms of water available, you mean?

MR RENDELL: Water being delivered in the system.

THE COMMISSIONER: Yes. What do I draw from that that?

5 MR RENDELL: That the region has been - - -

THE COMMISSIONER: Disproportionately reduced. Is that what I should draw, or not?

10 MR RENDELL: The region has been reduced by two factors. One is water trade.

THE COMMISSIONER: Yes.

15 MR RENDELL: And the other is it and Murray Irrigation have borne the majority of the reduction in water use.

THE COMMISSIONER: You mean more of them have sold in the buyback?

20 MR RENDELL: It's not necessarily sold in buyback.

THE COMMISSIONER: First of all; is that right? More of them sold in the buyback than others?

25 MR RENDELL: No. They actually – the Basin Plan actually attempted to distribute the buyback - - -

THE COMMISSIONER: I know.

30 MR RENDELL: - - - fairly uniformly.

THE COMMISSIONER: I know. But I don't know it succeeded, did it?

MR RENDELL: It wasn't that big a failure.

35 THE COMMISSIONER: I'm not suggesting it's a failure.

40 MR RENDELL: No, but I mean in terms of its aim. But what's happened is the back trade. For example, in Robinvale, for example, they quote that 46 per cent of the entitlements was purchased by buyback. Now, Robinvale has doubled, tripled, four times the water use through trade out of the GMID.

THE COMMISSIONER: But what's the significance, if anything, of that? That just shows a market at work.

45 MR RENDELL: Yes. But ultimately if you remove some water from a system and – sorry, if you change the use of the water to the environment, it has to come from

somewhere, and what we have tried to do is say where did it come from ultimately?
Who, what area, if that hadn't happened, would that water have come from?

5 THE COMMISSIONER: Well, I suppose I'm struggling to work out what's the
point of working out what would have been the case if something hadn't happened?

MR RENDELL: Because as - - -

10 THE COMMISSIONER: Is it to blame someone for something or to assign some
political condemnation, or what?

MR RENDELL: No, no.

15 THE COMMISSIONER: What is it?

MR RENDELL: It's so that we can, if we're going to have - - -

20 THE COMMISSIONER: I'm going to ask you about 450 upward in a moment, but
just concentrating on this 500, your page 25, you estimate the buyback at 428.6.

MR RENDELL: Yes.

25 THE COMMISSIONER: 410.6, direct Commonwealth, 28 from the NVIRP
connection program. Right? And then 70.7 gigalitres from farm efficiency. So the
lion's share of the 500 total recovery in Victoria being buyback of one form or
another, indeed the lion's share being direct Commonwealth buyback. Now, those
are cases where farmers willingly sold and obtained money; isn't that right?

30 MR RENDELL: Yes.

THE COMMISSIONER: Some of those farmers have then continued to use water
which they've bought on the market.

35 MR RENDELL: No, no. That's where I - - -

THE COMMISSIONER: Well, have they or not.

MR RENDELL: No.

40 THE COMMISSIONER: And, by the way, would that matter? That's their choice,
isn't it?

45 MR RENDELL: No, no. If they've continued to use water then that is the knock-on
effect. If they've sold but continued to use it they can only continue to use it because
someone else is giving up the water.

THE COMMISSIONER: No. I understand that. The whole idea of the whole system is to reduce the consumptive use.

MR RENDELL: Absolutely and all we're saying is that the reduction - - -

5

THE COMMISSIONER: So why does it – what was worthwhile to be studied about the proposition that somebody who sold water to the Commonwealth in a buyback may then be able, depending upon whatever undertakings were given – may then be able to go into the market to buy water from somebody else? What's the point? It's true, but I'm wondering if it's any more than trivially true?

10

MR RENDELL: No – no – no. The point is if you look at the – and this comes back to my fundamental that the total value of agricultural production is proportional to the water that's used in the region. And if you look at the impact of the buyback on the regions, three regions – two regions have had no impact. One region has had an offset.

15

THE COMMISSIONER: All right. I'm sorry to sound so abrupt. So what?

MR RENDELL: Because the Plan has said that this is being shared equally by everybody.

20

THE COMMISSIONER: Where does the Plan say that?

MR RENDELL: Because the Plan is then saying, "We have fully compensated to these regions." And the - - -

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THE COMMISSIONER: When you say a "region", you mean something other than the aggregate individual water holders?

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MR RENDELL: The aggregate of the – sorry, the regions are predominantly based on irrigated agriculture.

THE COMMISSIONER: I understand that, but if individual irrigators and then an aggregate of those individuals have taken up buyback, that's what the laws permit, encourage, in the past.

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MR RENDELL: Absolutely. And - - -

THE COMMISSIONER: So what is the point of observing that in, say, the GMID, there was a lot of take-up of that?

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MR RENDELL: Because of the winners and losers and - - -

THE COMMISSIONER: But they're the winners, aren't they? The ones who get money for their water.

45

MR RENDELL: Sorry, let's go back a step. The number of dairy farms who change hands every – about every 10 years is the average life of a dairy farm. And so the concept is that there is continually buying and selling going on all the time. So this – the people who sell are not necessarily anything new or different. It's just
5 that they weren't replaced with new money into the district to expand. That money went out, effectively, with the water potential.

THE COMMISSIONER: And so?

10 MR RENDELL: Which means that the dairy industry in the region is half what it is
- - -

THE COMMISSIONER: And so? That's the effect of the market.

15 MR RENDELL: And we were asked to then say 'what is the impact on jobs in the region?' And we've done that.

THE COMMISSIONER: With a view to saying the dairy farmers shouldn't have taken up the offers?

20

MR RENDELL: No. With a view - - -

THE COMMISSIONER: Or shouldn't sell their farms or shouldn't decide they prefer to do something other than dairy farming?

25

MR RENDELL: With a view to saying if you are going to offer support to communities for the impact, then identifying where the impacts is, is part of then saying who gets the support. And if you're going to do something for the Basin Plan, is it fair that two communities consume the water and no one else does?

30

THE COMMISSIONER: I don't – honestly don't know any more what you mean by communities contributing water. Farmers sell their entitlements. Community doesn't have the – own the water.

35 MR RENDELL: The - - -

THE COMMISSIONER: What do you mean by the community giving up water?

MR RENDELL: The - - -

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THE COMMISSIONER: Once trade was brought in you can trade, depending upon valley restrictions up and down, and one little village could lose all its water because
- - -

45 MR RENDELL: Absolutely.

THE COMMISSIONER: - - - the big people in that little community decided to sell it all.

MR RENDELL: Yes.

5

THE COMMISSIONER: Or they would prefer to go dry land farming than worry about the water, and meantime they will fondle the money that comes in by way of purchase price. What say does the community – whatever that word means in this context – what does the community have by way of a say under the Water Act, the Basin Plan, or indeed the common law, in relation to those decisions? I may or may not think that's a good way to organise society, but I don't understand what the Basin Plan – why you would blame the Basin Plan for that. As you correctly point out, these things existed before the Basin Plan came along, a huge amount of the recovery was achieved before then.

15

MR RENDELL: There is no doubt that the Basin Plan took – changed waters use from agriculture to the environment, and the use that it changed was in two communities around the Murray Irrigation area and around the GMID. Both of those two communities are the only two of the Basin – of the southern Basin that have had water reductions and hence production of the region has changed. And we've then estimated the job losses that are associated with that. It then becomes a value judgment and a political thing as to what the impact and whether that's right or wrong. Legally, you're absolutely correct. All we - - -

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THE COMMISSIONER: Not suggesting it's not just legal; I'm suggesting it's social.

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MR RENDELL: Well, if - - -

THE COMMISSIONER: If I have a water entitlement I have it. The community doesn't.

30

MR RENDELL: If the government - - -

THE COMMISSIONER: Maybe that's the wrong model. Maybe we should be saving it for public, and it all be collectivised, but we have taken political decisions notoriously against that so that if I had my watering entitlement the community doesn't have it. Now, does that mean that I get the price for selling it and the community gets a subsidy because I sack my irrigation workers? Is that how it works?

40

MR RENDELL: The - - -

THE COMMISSIONER: So I have a capitalist model for the owner of the water and a socialist model for the workers who are thrown out of work; is that – is that the idea?

45

MR RENDELL: The – the – that –

THE COMMISSIONER: You could just ask the capitalist to pay proper redundancy, I suppose.

5

MR RENDELL: And that is the – that is - - -

THE COMMISSIONER: Well, it won't work, will it, with contract labour, though? There's no such system of redundancy for contractors you don't retain again.

10

MR RENDELL: The – I suppose the comment that's made is the Authority is saying that the impact is spread uniformly across the area, and - - -

THE COMMISSIONER: I don't understand what this uniform impact is. Across all the settlements, big, small, thriving, not so thriving, diversified, not diversified. There's going to be, what, some numerically expressed equality of impact? It sounds like a chimera to me.

15

MR RENDELL: Can I – I understand what you're saying, and I'm not - - -

20

THE COMMISSIONER: Could you respond to it, please?

MR RENDELL: And what I – my response is that – is that it is a decision as to where it goes, what we need to be up-front about is where did it happen and what's – up until that point, where the water has been removed from has not been acknowledged.

25

THE COMMISSIONER: Although, as I understand it, you've identified from available data where it's come from.

30

MR RENDELL: That's what we've attempted to do.

THE COMMISSIONER: Yes. And I think you've made some criticisms that, for whatever reason, that that data retrieval collation analysis was perhaps more difficult than it might have been, had there been different behaviour by the MDBA and the Commonwealth and probably the states; is that right?

35

MR RENDELL: Yes.

THE COMMISSIONER: Thanks.

40

MR BEASLEY: Going back to page 36 of the first report, so we've arrived at 234 gigalitre reduction. You then say:

45

This translates into 440 megalitres of lost milk production.

And I assume that's based on the 5,600 litres a cow to, what – where it says 3 megalitres a cow, that's three megalitres of water per cow, is it? Then at an average milk price of 46 cents a litre, it goes to:

5 ...a reduction in annual farm gate value of dairy production of 200 million.

Then you say 8.42, when we get there:

10 ...confirms an even larger loss in the value of dairy processing output of over 300 million a year.

What I need your help with is when you – in the section of the report that actually deals with impact of reduced production, and I know you've used EconSearch, I think, to help you. But at page 54, I'm not sure I understand, based on the figures
15 you've got in 5.5.1 at 36 which we've just gone through, we've now got at 8.2 gross regional product changes for dairy farming, direct annual change is \$93 million, flow-on \$38 million, total \$132 million. How does that – I don't quite understand how that's – stacks up with the figures on page 36. Can you explain that?

20 MR RENDELL: Can you give me a second?

MR BEASLEY: Yes, sure. No, take - - -

25 THE COMMISSIONER: Take as long as you need. Don't feel rushed.

MR RENDELL: You asked me, when we started, which areas do I take most responsibility for.

30 MR BEASLEY: Yes. This isn't one.

MR RENDELL: You're now moving into the area where I take least responsibility.

MR BEASLEY: All right. Fair enough.

35 MR RENDELL: I'm not trying to – I'm not - - -

MR BEASLEY: No. Can I help you? On page 36 the estimate is a reduction in annual farm gate value of dairy production of 200 million. The table I just took you to on page 54 we have got dairy farming 132 million reduction, mixed farming 17
40 million reduction and dairy processing, 54 million reduction. And then we have got the total 202 million. Is that the same as the 200 million on page 36?

MR RENDELL: No.

45 MR BEASLEY: No. Okay.

MR RENDELL: No, no.

MR BEASLEY: Then I need your help, if you can.

MR RENDELL: My understanding is that the – what we've done on 5.5 is the gross value of production.

5

MR BEASLEY: Right.

MR RENDELL: I believe this is the economic impact, which is a lower figure.

10 MR BEASLEY: Right.

MR RENDELL: Which is why it's discounted to the 132.

15 THE COMMISSIONER: If the water is all being used, but reallocation thrust for example from dairy to horticulture, does that mean that another region's GRP is being increased?

MR RENDELL: Yes.

20 THE COMMISSIONER: And so this is exactly what the market is intended to achieve.

MR RENDELL: Absolutely. And there is a - - -

25 THE COMMISSIONER: Is that correct?

MR RENDELL: Yes. And there is no doubt that the gross value of irrigated agricultural production has increased over the period of the drought totally and the Basin Plan.

30

THE COMMISSIONER: This is the fulfilment of the aim of those who devised and politically sponsored the reform to bring in water trade, isn't it?

MR RENDELL: Well, water – yes, I agree, the water - - -

35

THE COMMISSIONER: The notion that Adam Smith's invisible hand will allocate the water to the highest value use; is that not correct.

40 MR RENDELL: You're absolutely correct. And I would add to that that until we meet the limit of the cap there was no point in doing that, because there was unlimited water, so you didn't need to. But once we had a limit, trade was the inevitable - - -

45 THE COMMISSIONER: There's a preordained scarcity, which gives you the capacity to arbitrage according to different assessments of risk and return.

MR RENDELL: Yes. And - - -

THE COMMISSIONER: Which is a market.

MR RENDELL: Yes, absolutely. And across the Basin, there is no question, and it will continue to increase - - -

5

THE COMMISSIONER: So you may guess my question. So why is that a bad thing?

MR RENDELL: I don't believe it is.

10

THE COMMISSIONER: But it might be an occasion for one region to get compensation?

MR RENDELL: It might be - - -

15

THE COMMISSIONER: Why?

MR RENDELL: It might be a reason, if the government has deliberately – as opposed to the market – made a decision and paying people to say, “Have we paid appropriately?”

20

THE COMMISSIONER: Well, I'm presently at a loss to understand. Once the people, by their Parliaments, decided that consumptive use had to be limited so as to leave under the concept of sustainable diversion limit, enough for the environment to get by, thereafter the market as you've, with respect, usefully explained it, will perform the allocation, won't it? Region to region, sector to sector.

25

MR RENDELL: Yes, one limit in the – a couple of market failures, one of them is - - -

30

THE COMMISSIONER: I'm not suggesting it's a perfect market, no.

MR RENDELL: No, no. But there are a couple of market failures happening at the moment and one of them is the trade restrictions that are happening, and the other one is the Swiss cheese effect of infrastructure, and in an ideal world we wouldn't have done the infrastructure upgrade until we had finished the buyback.

35

THE COMMISSIONER: I understand that.

40

MR RENDELL: So there's – it's – so in that sense, there is a need to understand what's happening where so that you can be alerted to market failure and you – and the governments do respond.

THE COMMISSIONER: Of course, there's market failure and market failure; depends what market you are talking about. In the market for water entitlements, it might be very artificial to say to somebody, “Because your farm is part of a large infrastructure scheme, you can't sell.”

45

MR RENDELL: Yes. And that's – that's - - -

THE COMMISSIONER: That probably would not have been all that popular.

5 MR RENDELL: No, it wouldn't have been.

THE COMMISSIONER: So you can't have it both ways, can you?

10 MR RENDELL: No, no, I don't – I'm not suggesting that. I'm just saying that there is some dilemmas that - - -

15 THE COMMISSIONER: This doesn't sound to me like a defect in the Basin Plan is what I'm really coming to. It sounds to me like it's the fact that all market operations produce the possibility, at least, of relative losers.

MR RENDELL: Yes.

THE COMMISSIONER: Yes.

20 MR RENDELL: Yes. And if you make a deliberate intervention in the market, which is what the Basin Plan is, then you are politically and morally responsible for the winners and losers.

25 THE COMMISSIONER: I don't know that I do look forward to a future where that is universalised, but anyhow.

30 MR BEASLEY: The corresponding increase in gross regional product that the Commissioner discussed with you and other regions, one of those – you mention the Master Jacobs report in the Murrumbidgee. That's one where these – the water recovery programs by the Commonwealth have estimated over the next 25 years to cause it to have an increase in gross regional product of about, in round terms, \$500 million, I think the report says.

35 MR RENDELL: There's a number of assumptions in that calculation.

MR BEASLEY: I'm sure there are.

40 THE COMMISSIONER: I think it's fair to say there are a number of assumptions in every one of the publications on this topic I have ever read.

MR RENDELL: Sorry. Sorry. Yes, I'm sorry.

THE COMMISSIONER: Yes. Some of them are really quite important.

45 MR RENDELL: Yes. The key assumption there - - -

MR BEASLEY: Yes.

MR RENDELL: - - - is that the – there is assumed a switch from rice to cotton.

MR BEASLEY: Cotton, yes.

5 MR RENDELL: And the increased production due to the switch has been included as a benefit of the Basin Plan - - -

MR BEASLEY: Sure.

10 MR RENDELL: - - - which I don't agree with.

MR BEASLEY: Right.

15 MR RENDELL: I think you need to separate out the two bits and in - - -

MR BEASLEY: You don't agree with it because - - -

20 MR RENDELL: It should be – it's not that – I don't disagree that the Bidgee will have an increase of whatever the number is - - -

MR BEASLEY: Yes. All right, yes.

MR RENDELL: - - - total gross there.

25 MR BEASLEY: Yes.

MR RENDELL: The attribution to me is that the Basin Plan has slightly decreased because they've lost rice, but because of the other factors that is happening, the switch to rice, the region, collectively, grossly - - -

30 MR BEASLEY: Switched to cotton immediately.

MR RENDELL: - - - a switch to cotton has, therefore, increased and will have a total net increase.

35 THE COMMISSIONER: The Plan, seen in the context of water trading, which preceded it and which was understood to continue, and seen in the context of the operating rules which long preceded it and in some days were understood to continue, the plan is agnostic about or indifferent to farmers, individual and
40 collectivised, that is, overall, cropping choices. Isn't that right?

MR RENDELL: Yes, and – yes, and, therefore, to attribute the increased production in the Bidgee to a change in cropping practice has got nothing to do with the Plan.

45 THE COMMISSIONER: That's what I understand.

MR RENDELL: Yes.

THE COMMISSIONER: The Plan is not a pro-cotton, pro-rice, pro-dairy cattle, pro-agriculture, and whatever else. It's not pro any of those things. It actually seems to be premised on the proposition that one of these market, proto-quasi-market mechanisms will guide farmers' choices in that regard. Isn't that right?

5

MR RENDELL: Yes, but I keep coming back to the comment that ultimately, the water that has been changed use has changed from one to another.

THE COMMISSIONER: Yes.

10

MR RENDELL: And what we've tried to do is identify which use has decreased and which has increased and in the – and then attributed the change in production to that.

15 THE COMMISSIONER: Does this mean that – again, putting it quite crudely, if, by those mechanisms that you and I have been discussing, water is shifted from a high-labour, low-return industry to a low-labour, high-return industry, that is something which requires compensation to the former.

20 MR RENDELL: Sorry, can you repeat that? I missed it.

THE COMMISSIONER: If all these factors produce a shift of water from a high-labour, low-return industry to a low-labour, high-return industry, the former requires compensation.

25

MR RENDELL: If the Plan has caused that.

30 THE COMMISSIONER: Whether it's the Plan or, as you correctly say, governmental decisions approved by Parliament, that is, a political decision. Is that the idea, that if there is a shift from high-labour, low-return to low-labour, high-return, that is an event that calls for compensation to the former. Is that the idea?

MR RENDELL: No, I don't – I hope I'm not saying that.

35 THE COMMISSIONER: Well, that's why I warned you it was possibly a bit crude, because that's a fairly confronting proposition, that a higher – the thing which the theorists, or perhaps I should say the propagandists, say is the genius of free enterprise capitalism that it has got it all wrong, that when it works, we should apologise and give people cheques to make up for it.

40

MR RENDELL: No, I think for me, the Plan was about smoothing and some of the
- - -

45 THE COMMISSIONER: A social welfare approach to transition, that's a different thing.

MR RENDELL: Yes, and that's what I think we're trying to provide the basis for, that information.

5 THE COMMISSIONER: I see. So if I think of your work as being an attempt to provide some empirical support for a request for social welfare transitional payments, transfers I should say, would that be a correct context?

10 MR RENDELL: We haven't attempted to try and go the next step and say what should the response be.

THE COMMISSIONER: I understand that.

MR RENDELL: And I - - -

15 THE COMMISSIONER: But you are trying to say, aren't you, that there has been a discernibly disproportion effect if you assume some kind of equality as the ideal?

MR RENDELL: Yes, there has, although in our report - - -

20 THE COMMISSIONER: You will gather that I'm not sure I accept the premise that equality is the ideal.

MR RENDELL: No. No, I understand that. Can I note, though, that in our report, which has never been given any credit, is we acknowledge the two things that the
25 buyback – sorry, one important thing in the buyback – and I take you to the graph of
- - -

MR BEASLEY: Yes.

30 MR RENDELL: - - - in the last report which showed when buyback happened.

MR BEASLEY: Yes. Yes.

MR RENDELL: And there is no doubt that buyback was a very positive structural
35 adjustment for the dairy industry - - -

THE COMMISSIONER: Yes.

MR RENDELL: - - - at that particular time because who knows what the price of
40 water would have crashed to - - -

THE COMMISSIONER: Yes. No. I - - -

MR RENDELL: - - - because it actually came – the buyback – as – well, I tried to
45 point it - - -

MR BEASLEY: Sorry, what page of the report are you on?

MR RENDELL: Page 9.

MR BEASLEY: 9, right.

5 MR RENDELL: I try to point out that the majority of the buyback happened after the peak price.

MR BEASLEY: Sorry, is this the later report?

10 MR RENDELL: The second report, yes. Yes.

MR BEASLEY: Yes, okay. Sorry. All right.

15 THE COMMISSIONER: So this is figure 2.3, isn't it?

MR RENDELL: Figure 2.3, yes.

THE COMMISSIONER: Yes.

20 MR RENDELL: And you will see there that it peaked right at the drought - - -

THE COMMISSIONER: Yes.

25 MR RENDELL: - - - and it did crash afterwards.

THE COMMISSIONER: Yes.

MR RENDELL: The - sorry, the - just look at the top - the top two - - -

30 THE COMMISSIONER: 2,300, yes.

MR RENDELL: And then it dropped right down to about 1,200.

35 THE COMMISSIONER: Yes.

MR RENDELL: Now, that crash - who knows how much more that would have crashed and what pain there would have been - - -

40 THE COMMISSIONER: I take your point. I take your point.

MR RENDELL: - - - in the dairy industry and the same in the wine industry. So that's - - -

45 THE COMMISSIONER: Thank you. Just bear with me. One of the reasons why I'm asking about what prism I should see your work through is because I'm intrigued to know your - the consequences you see from what you report at 3.4.2 on pages 17 and 18: The 450 gegalitre upwater impact, you will recall, as you know better than

anyone, that the 450 gigalitre upwater has, as a prerequisite to it being made available, that the measures in question have no adverse socio-economic impact.

MR RENDELL: On the individual.

5

THE COMMISSIONER: Well, you have, with respect, anticipated one of the areas. I'm not going to get into that now, but, of course, you're absolutely right. I don't think anybody thinks that if one person loses a job, that's the end of the inquiry, but you will appreciate there is a difficulty, particularly in the absence of explanatory
10 texts in the statute of the Plan, there's a difficulty – and, well, the intergovernmental agreement for that matter – there's a difficulty understanding what we mean by netting it off. That's the real problem, I think.

MR RENDELL: Absolutely.

15

THE COMMISSIONER: Not least of which is moving from one vicinity or region to another. But what I wanted to ask is this: I should assume, shouldn't I, that at least the first and third of the four dot points on your page 18 are significant, substantial, and material reasons to doubt that those – that prerequisite could ever be
20 satisfied.

MR RENDELL: If you paid enough, you can offset those differences.

THE COMMISSIONER: If you paid enough?

25

MR RENDELL: For the farm – at the moment, the farm – the 450 is predicated on a farm efficiency of a subsidy of where the 1.7 factors - - -

THE COMMISSIONER: So in other words, in order to get the 450 gigalitres, there would have to be some kind of just terms compensation for everybody whose bank
30 account represents an integer in the impacts you've noted; is that right?

MR RENDELL: Well, that's one option.

THE COMMISSIONER: That's completely unrealistic, isn't it? It has never
35 happened in this country, has it, that you trace through all the economic effects of a political decision and give everybody who might be called a loser – I don't mean that in a nasty Donald Trump sense – I mean somebody who is disadvantaged by the change financially that you give them some sum whose net present value is thought
40 to reflect that loss.

MR RENDELL: I - - -

THE COMMISSIONER: I've never heard of that happening.

45

MR RENDELL: Except that that is the story that the Murray-Darling Basin Authority is peddling at the moment.

THE COMMISSIONER: Really?

MR RENDELL: That the infrastructure to the GMID, that the farm efficiency and the buyback has left – as has collectively - - -

5

THE COMMISSIONER: No, I understand that. That's not the 450 gicalitres, is it?

MR RENDELL: Well, no. But it's the first – it's the first 2,750.

10 THE COMMISSIONER: They don't have a prerequisite of no socio-economic adverse effect for those measures.

MR RENDELL: Except that they are peddling the view that there has been no adverse impact.

15

THE COMMISSIONER: I understand. That's why I'm - - -

MR RENDELL: So, in a sense, you're saying it's impossible but at the moment the Authority is saying, "We've achieved it." I don't think they have achieved it, and I agree with you that - - -

20

THE COMMISSIONER: Well, we are by definition talking about different measures from those which would supposedly justify the 450 gicalitre upwater, aren't we?

25

MR RENDELL: No, we're not, because the couple of hundred megs of farm efficiency has already been got is deemed to have been advantageous to the regions by the Murray-Darling Basin. That's their work at the moment. They're saying that it's had a positive impact. "We have saved water," etcetera. Which - - -

30

THE COMMISSIONER: And that goes into the accounting, does it, for the 450 gicalitre.

MR RENDELL: No, it goes into the 2,750.

35

THE COMMISSIONER: That's what I thought. But I'm asking about the 450 gicalitre upwater.

MR RENDELL: Yes. And I'm saying it's exactly the same as the - - -

40

THE COMMISSIONER: They can't use it more than once, though.

MR RENDELL: Sorry, the process and the beneficiaries and the amount of money is the same as what's being using to date on the farm efficiency.

45

THE COMMISSIONER: I'm now asking your opinion, not your – if I may say so, your disapproving paraphrase of the Authority's approach. Your opinion is that it

won't be possible, should I assume from your first and third dot points on page 18, for the 450 gigalitres ever to happen unless there is this unprecedented flurry of cheques?

5 MR RENDELL: My understanding of the test, as it is at the moment, is that it is quite possible, because it's to do with willing participants, and - - -

THE COMMISSIONER: No. That's buyback, isn't it?

10 MR RENDELL: No, no. The farm efficiency test was very narrow in the first, and the recent MINCO meeting sent – has made it change the agreement to see if they can have a broader test beyond the simple willing participants with no individual impact. And that is the - - -

15 MR BEASLEY: You have to be a willing participants for an efficiency measure too, don't you? And - - -

MR RENDELL: Yes, you do.

20 MR BEASLEY: And it's a form - - -

MR RENDELL: But under the test at the moment, which they've just – under the MINCO agreement that has just – which was different, a different agreement to the disallowance labour agreement, under that agreement – the new one – they've been
25 told to see if they can modify the test that was in – that was put into the Plan.

THE COMMISSIONER: So as I understand it, though, that won't make it easier to get upwater.

30 MR RENDELL: No.

THE COMMISSIONER: It will make it harder.

MR RENDELL: Yes. It is – at the moment it is very easy to get the upwater and if
35 that - - -

THE COMMISSIONER: You mean you just have to find somebody to participate in a – in a deal?

40 MR RENDELL: Yes.

THE COMMISSIONER: But as I - - -

MR BEASLEY: It is a bit of a buyback itself. The efficiency measure participant is
45 selling part of an entitlement - - -

THE COMMISSIONER: They get money's worth, not just money.

MR BEASLEY: It's just that they get an upgraded drip system or something else.

MR RENDELL: I find it strange that economists talk about water savings and all those sorts of things. Farm efficiency is just a buyback with a subsidy.

5

MR BEASLEY: Yes.

THE COMMISSIONER: I understand your point, with respect.

10 MR RENDELL: And all this rubbish about, you know, farm efficiency, what happens is that we've been on this farm efficiency thing for hundreds of years, and if we go back to the 80s where I cut my teeth on laser grading, the amount of economic development on-farm efficiency of laser grading makes these farming efficiencies stuff look small. I mean have been on it, the conversion to drip – I mean in
15 horticulture from sprinklers – from furrow to drip has been an enormous investment. This farm efficiency is just a little bip on the whole natural evolution.

THE COMMISSIONER: Which would have happened even without the program.

20 MR RENDELL: It would have happened. It's just a case of when.

THE COMMISSIONER: Yes.

MR RENDELL: And it has brought forward some works but at the same time if you
25 look at the dairy centre in particular, the dairy industry was in the drought. It was coming out of that. There's no way farm efficiency works would have happened. There would be a halt, because they didn't have the money. So it definitely brought forward some work that, without the drought, would have happened anyway. So farm efficiency for me, it's just pure and simple buyback with a lolly. I mean – isn't
30 it?

THE COMMISSIONER: Yes. Thank you. I yes, I think the answer is yes.

MR RENDELL: And so individuals will participate with buyback – with farm
35 efficiency. I mean, I have clients who – I mean, I personally think that there are better ways than – to get the environmental outcomes than the farm efficiency 450.

THE COMMISSIONER: So what about buyback?

40 MR RENDELL: And I think there's much better ways than that too. But having said that, individual clients, if you're offered a subsidy to do something you're going to do anyway, of course you take it up.

THE COMMISSIONER: Yes.

45

MR RENDELL: And the water is lost, and all it means is that the water is perhaps got a year or two ahead of when – of when – and gone out of the system.

MR BEASLEY: You sent in to the Commission a notice of intention. You raised a few areas you wanted to address and I want to give you the opportunity to do that. Do you have that document with you?

5 MR RENDELL: Yes.

THE COMMISSIONER: I've read that, Mr Rendell. If you want to – and it is clear to me that in some of your answers you've already elaborated on these in principle. If there's something – these are the ones where you've shaped this by way of a
10 response to Professor Wheeler and others. If there's anything you want to add that you haven't already talked about this afternoon, just identify which of the dot points you're talking about for me; that's all. Have you got that – have you got that?

MR RENDELL: Yes, I have. And I'm just – when I flick - - -
15

MR BEASLEY: There's a copy behind tab - - -

MR RENDELL: Yes. No, I've got it in here. I'm just – sometimes you flick through and - - -
20

THE COMMISSIONER: That's all right.

MR BEASLEY: Try tab 4.

25 THE COMMISSIONER: Tab 4, you've got eight dot points there.

MR BEASLEY: I want to know about your first point return flow, "Whilst there's a little bit of truth". You then say it's totally incorrect. What's the little bit of truth, first of all?
30

MR RENDELL: I liken it to the climate denialist approach, and that is you can take a section of the temperature range and you can find a period where there's a decline in temperature. But if you step back look at the whole picture, you see there has been an increase in temperature.
35

MR BEASLEY: All right.

MR RENDELL: If we look at – and I have been involved in hydrologic water balances across the Basin Plan for many years, and was involved in the first salinity management plan where their whole aim was to stop water – water getting into –
40 salty water getting into the river and causing environmental damage. So yes, there is some water that – of which, for example, if we take – if we take the modernisation of the GMID as an example, some of that water was returned to the Murray as return flows.

45 MR BEASLEY: Right.

MR RENDELL: However, it's not necessarily at the right time of the year and it has got contaminants in it. So on top of that, though, the vast majority of the water that has been saved from that project is water that either went into the water table – and if you look at the area, you can see that there's a couple of areas, the Katunga
5 Deep Lead, the Campaspe Deep Lead, and the Loddon Deep Lead, whereby water is reused and available. The bulk of the area, the water goes underneath the Murray and out and causes saline discharges. So yes some of the water that was lost out of the channels was being returned and used, but it's become more saline in so doing. So it's better not to.

10 The bulk of the water either goes to the groundwater or, if you drive around the areas and I should – there's some aerial photos to show the amount of vegetation that no longer exists in the area, vegetation that is relatively unproductive, all of the dead trees, etcetera, that were caused by the most of the water that has been lost is actually
15 just transpiring locally. It is not getting back into the system. And so all of the water balances that I've done and been involved with would suggest, yes, there has been some water give back. A lot of it is not useful. It's at the wrong time, but the majority of it is actually being lost in local evapotranspiration.

20 THE COMMISSIONER: Do you disagree with the suggestion that this requires thorough going and localised study?

MR RENDELL: For the – yes, I do, because – and this is – and I haven't got the title, but I can get it for you – under the modernisation for which then became
25 connections for the GMID, there was a very large study done which had to pass the environmental biodiversity on this exact topic of return flows. And - - -

THE COMMISSIONER:

30 MR RENDELL: And it was actually – there was a report which actually looks at that and was very carefully scrutinised and the project was not approved until it was demonstrated that this was not – that it was genuine savings. And that's probably the largest report of the largest project, because that project is reducing water by the
35 most.

MR BEASLEY: All right.

40 THE COMMISSIONER: What else, if anything, needs elaboration in those eight dot points?

MR RENDELL: The other one was the – I take you to – I take you to the table again on page 1 of the second report.

45 MR BEASLEY: Yes.

MR RENDELL: And if you see there the years that I have located there, we have the three years of the drought followed by three years that were very wet. Those

three very wet years was when buyback occurred. Lots of farmers came out of their – with very high debt levels and sold their water, part of their water, which was for around \$2000 which at 7 per cent overdraft interest is about \$140 per megalitre that they saved. Because of the wet years, they went out into the market and were able to
5 buy water at \$20, \$30 megalitre for those years. The survey that was done by Professor Martin Jacob went out just at the end of those wet years and said, “Has buyback adversely affected you?”

10 And, of course, the people who sold and bought it back, saved themselves \$100 a megalitre, but if you then go to the next six years or whatever you will see that the price averages much more like \$130 to \$150, which happens to be exactly the same cost as the interest cost on the water that they gave up. So they got a short-term benefit from buyback, but ultimately all they’ve done is done an alternative source of financing. So not understanding that relationship is quite a deficiency in the
15 conclusion of what is a buyback. The other one - - -

MR BEASLEY: Your – sorry, your second bullet point:

20 *They confuse diversions entitlement of water used by farmers.*

I have to admit, reading the submission by Professor Wheeler and others, I didn’t think they did. I thought they separated each of those out as distinct concepts. Where do you say they confused?

25 MR RENDELL: They challenge my figures on water use with the published data by the Murray-Darling Basin. The Murray-Darling Basin does not publish water use data and my figures are water use. They have confused total diversions.

30 MR BEASLEY: Right.

MR RENDELL: And I use entitlements and water use.

MR BEASLEY: Right.

35 MR RENDELL: The other comment that I would make is that the fundamental thing about the 450 is that getting a number is actually very lazy. Just getting entitlements is a very lazy solution to actually improving the environment. And what we should be doing is, firstly, starting with the other half of the water. We’ve spent 100 years being very efficient at maximising the water that’s converted into
40 entitlements. We’ve done that at the expense of the environment. One of the rules at the moment is that we mustn’t change the security or reliability of entitlements.

THE COMMISSIONER: Yes.

45 MR RENDELL: However - - -

THE COMMISSIONER: Without compensation.

MR RENDELL: Well, we're not even looking at it.

THE COMMISSIONER: No, but I mean, you're right. It's a fortified piece of the Plan.

5

MR RENDELL: Absolutely. And clearly – and there's a number of examples whereby if we changed the rules, we could reduce the yield for the entitlement holders; however because the environment has entitlements, it would be quite easy to offset, and there's a number of examples whereby by changing the rules, we could do deals with the water. And if we actually stopped and said, "How can we manage this river to actually get a better environmental outcome", then maybe we would have some impact on entitlements, and then maybe we do some compensation, that would be a – we could get a much bigger bang for our buck.

15 MR BEASLEY: Right.

THE COMMISSIONER: You would still need to have in mind how much you needed, otherwise you might waste resources by giving too much or - - -

20 MR RENDELL: No. You see, I'm not sure that it - - -

THE COMMISSIONER: - - - not get enough.

MR RENDELL: I'm not sure that there's ever the right number.

25

THE COMMISSIONER: I'm sure there's no magic figure, but if you are talking about limits, you've got to be able to tell somebody you can't take more than X.

MR RENDELL: Sure, but we also could be looking at doing – changing to get better environmental outcomes with the same amount of water.

30

THE COMMISSIONER: Yes. I understand that.

MR RENDELL: And.

35

THE COMMISSIONER: The so-called supply measure.

MR RENDELL: Yes, but it is more than that. It's actually the sacrosanct view of – and I heard Andrew Reynolds from the Murray-Darling Basin, the operator, just the other day say, "The first rule is we manage it so that there's no impact on assets" which is fair enough. No need to give impact. Secondly, we make sure that the entitlements are secure. And then, thirdly, we then say is there any environmental benefits from operating. Now, that hierarchy is sacrosanct, and the problem with a number is just putting it down the river.

45

In fact, thank God we didn't – we didn't – we've got the SDL offsets because without that, we wouldn't have anywhere near the benefit from the water that we've

recovered by spending some of that money to utilise it better because, as I said before, just putting water down isn't going to necessarily get it out the Barmah Forest or etcetera at the time you need. The other one, though, is that we haven't spent any money on the operating system. We've spent an enormous amount on individual
5 systems, but the Murray River is still run by spreadsheets and our real time – we haven't put some serious money into operating the system to see how we could actually run it, you know, in a – particularly during the summer period, where every bit of water that's – that is unnecessarily down the river is water that we could use at other times.

10

MR BEASLEY: When you say unnecessarily down the river, what does that mean?

MR RENDELL: We have turned the river upside-down.

15 THE COMMISSIONER: Yes. Where in summer months, this triggers as a conduit for the desperately needed water for permanent plantings.

MR BEASLEY: For the permanent plants, yes.

20 MR RENDELL: And if we could operate that more efficiently with less water - - -

MR BEASLEY: How would we do that?

25 THE COMMISSIONER: When you say more efficiently, you mean delivering the water at a lower level or what?

MR RENDELL: Just the same as a farmer does, we don't have real time monitoring all the way down the system. When it rains, etcetera, our, you know – we're – we haven't spent the money on the infrastructure to bring it into the – to this century.

30

THE COMMISSIONER: So you're suggesting that we may be sending more water and thus, at higher levels during the summer months when that is unnatural than we need to in order to get the same irrigation input?

35 MR RENDELL: What I'm suggesting is that - - -

THE COMMISSIONER: Have I got that right or not?

40 MR RENDELL: Yes, but what I'm suggesting is even more generic in the sense that – is that farmers and systems have now got the latest technology to have full control and knowledge of where water is. We need to do the same for the operators of the river. Where the efficiency gains will be – it's not until we get that control and knowledge - - -

45 THE COMMISSIONER: Yes, no, I understand. No, I understand. That's an inherently attractive argument, yes.

MR RENDELL: And we haven't – in the 13 billion, we've spent almost nothing on that. And the other one that is critical is, as you've said before, is to look – is just pause. To me, it's a really good time to pause and say what a great job we've done. We've got this water. Things have changed. The world is not the same as what we
5 predicted. Is it better, or is it worse, and where – what things would give us our best return? But just going hell-bent on 450 with farm efficiency on something that was dreamed up, and, remember, the 450 was a very last-minute political - - -

10 THE COMMISSIONER: Well, I can't remember that because I wasn't there, but I am told by some people that's how I should view it, yes.

MR RENDELL: I was in the room when it was done. And it's interesting, you know, when there was discussions on that. And - - -

15 THE COMMISSIONER: So what discussions do you recall on that?

MR RENDELL: That South Australia wanted more water. The other states didn't want as much water. They then said, "Well if you can prove that it won't affect us socio-economically, we will give it in."
20

THE COMMISSIONER: This is water for the environment.

MR RENDELL: For the environment. And the South Australians, my perception was that they believe that the – we could easily do it without a negative socio-economic impact. So they went away happy thinking this will be an easy thing, and the Victorians went away happy because they thought, well, if it does happen, we will get a good deal. Otherwise, we can stop it. So it was one of those interesting
25 - - -

30 MR BEASLEY: Sounds like it covers all the objects of the Water Act, that deal.

THE COMMISSIONER: Yes, it's not a very edifying way of reaching an ESLT, I would have thought.

35 MR RENDELL: And that's why I would argue now is the time to stop and say okay. We've got X money left. What's the best use of that money?

THE COMMISSIONER: When you say X money left, that's until there's another appropriation.
40

MR RENDELL: Yes, but – sorry, there's a – I understand that there's a sort of a – there's a whatever the billion is between - - -

45 THE COMMISSIONER: There are appropriated funds not entirely expended. I agree.

MR RENDELL: Yes.

THE COMMISSIONER: But I'm not aware that Australia is about to run out of money.

5 MR RENDELL: No, sure. Sure. But – but at least spend what has been appropriated in the most effective way.

THE COMMISSIONER: That would be a good idea, yes.

10 MR RENDELL: And whilst - - -

THE COMMISSIONER: If only for the first time.

MR RENDELL: I'm not as critical as that of what has been done to date.

15 THE COMMISSIONER: No, I – and I didn't intend my facetious comment to be read that way either.

MR BEASLEY: Behind – sorry, have you finished with emphasising any point – parts of that?
20

MR RENDELL: Other than that if the 450 is done by farm efficiency, that it is, in my view, just buyback with a bigger dollar figure, and that the majority of - - -

MR BEASLEY: A greater cost to the taxpayer.
25

MR RENDELL: Yes, than if it was buyback.

MR BEASLEY: Yes.

30 MR RENDELL: But I'm suggesting I would want buyback by any stretch.

MR BEASLEY: Yes. No.

MR RENDELL: And that the water would be – the productive loss would be in
35 these communities we've identified.

MR BEASLEY: Yes. Just on – behind tab 1 of the folder there, at, I think it's 1.(i) for some reason. If you turn the page, you will get the review of the Basin Plan by Professor Rolfe that you had done. Do you have that?
40

MR RENDELL: Yes.

MR BEASLEY: What's – I just want to understand the – what ended up being published in the report is the two paragraphs under the heading Overview.
45

MR RENDELL: Yes.

MR BEASLEY: But nothing under the heading Major Comments was published. Was that because – and tell me if I’m wrong – was that because you took the view that those matters that he suggested as – in the heading Major Comments were addressed in subsequent drafts of your report?

5

MR RENDELL: I - - -

MR BEASLEY: Or you don’t know.

10 MR RENDELL: No. No.

MR BEASLEY: Yes.

MR RENDELL: I took the view for a number of reasons.

15

MR BEASLEY: Yes, go on.

MR RENDELL: The first one is that I thought some of the detail in that was – the report was long enough, as it was, so it wasn’t – it was how much do you put in.

20 Secondly, I took the view that under the Major Comments - - -

MR BEASLEY: Yes.

MR RENDELL: - - - the first sentence says there’s a couple of minor areas where there might be more mention. And when you read through, I thought it doesn’t add anything necessarily.

25

THE COMMISSIONER: Just so I can understand, I think you already told me that all the material under Major Comments so the first and second and then numbers 1 through 7 were matters that you considered.

30

MR RENDELL: Whether we put them in, I can’t say.

THE COMMISSIONER: Yes, but you considered them.

35

MR RENDELL: Yes, absolutely. And the – for example the first two, I didn’t – he said it may be helpful to explain the limitations and advantages, well that may be. And the second one was water use efficiency. As I said before that was a core element of our understanding the water use by different factors. So should I have put the whole thing in? Hindsight, maybe. But it wasn’t a – it was naïve mistake if it was a mistake.

40

MR BEASLEY: All right. You’ve provided us, this – this was an overhead, was it, originally?

45

MR RENDELL: Well, some information that I thought might have been – yes, sorry. There is – yes, thank you.

MR BEASLEY: Is there anything you want to draw to our attention in this.

MR RENDELL: Thank you. Yes. There's a table there of the dairy farm monitor project.

5

MR BEASLEY: All right. We won't have page numbers so you will have to tell us roughly.

THE COMMISSIONER: Page 2, isn't it?

10

MR RENDELL: Well - - -

MR BEASLEY: There you go. It was easy to find.

15 MR RENDELL: Yes. That is a longitudinal study of dairy farmers in the region.

MR BEASLEY: Yes.

MR RENDELL: And I - - -

20

MR BEASLEY: This is the table Historic Data North.

MR RENDELL: Data North.

25 MR BEASLEY: Yes, okay.

MR RENDELL: I included that because there is two columns that I think are very instructive. The first one is the Water Used column by year and the other one is the milk sold in kilometres of milk solids per hectare.

30

MR BEASLEY: Right.

MR RENDELL: And if you compare those two, you will see down the bottom that the average water used in millimetres is 844 and the average milk solids is 845. In other words one for one. But if you - - -

35

THE COMMISSIONER: You mean water and milk solids?

MR RENDELL: Yes. Per – on a per hectare basis. If you look at individual years, you will see that the relationship goes up and down.

40

MR BEASLEY: Yes.

MR RENDELL: And if you look at the years where it goes up and where it goes down, the water used includes rainfall in that total. And you can see that in the drought farmers used less of their own water and probably purchased in some grain, etcetera, and other properties. And during the wet years they weren't able to utilise

45

all of the rain. But fundamentally, over that time, there is a ratio – on average stays around that one for one. And that was going back to my argument before that there is an inherent underlying with changes from year to year. On the other side - - -

5 THE COMMISSIONER: By the way, what – I'm so sorry, what does ME stand for?

MR RENDELL: Something energy.

10 THE COMMISSIONER: It comforts me that I don't have to worry about it if you don't know.

MR RENDELL: It's megajoule of energy.

15 MR BEASLEY: Right. Okay.

THE COMMISSIONER: Thank you.

MR RENDELL: And you will see there - - -

20

THE COMMISSIONER: So this is fodder which, in a not so wet year, will be largely irrigation produced on the farm; is that right? Home grown feed.

MR RENDELL: Yes. And whether they purchased it from an adjoining – so if you
25 turn over the page, there's individual - - -

THE COMMISSIONER: It's metabolisable energy.

MR RENDELL: Sorry. Metabolisable, yes. Sorry. Thank you.

30

THE COMMISSIONER: Sorry, I should have known that, but I didn't.

MR RENDELL: If you look at this, this is individual farmers and what it shows there is the blue at the top is the purchase – is the concentrate.

35

THE COMMISSIONER: That's silage, is it?

MR RENDELL: No, that is grain or - - -

40 THE COMMISSIONER: I see. Right.

MR RENDELL: Basically grain. But what it shows is roughly 60 to 70 per cent on every farm is fodder. And if you get less than that, the animals don't survive.

45 THE COMMISSIONER: By fodder, you mean pasture and hay.

MR RENDELL: Yes.

THE COMMISSIONER: And silage.

MR RENDELL: And silage, yes. And you will see for example, farm number 1 there – I'm pretty sure I know who it is – farm number 1 there has got very little
5 grazing and the green is silage. Whereas another farm has much more grazing and less silage. But regardless of whether it's silage or hay, there's a certain amount that you have to have from fodder.

THE COMMISSIONER: Yes.

10

MR BEASLEY: Sure.

MR RENDELL: The other one that I wanted to show you was the curve of water
15 prices.

15

MR BEASLEY: Yes. So that's the table headed Water Allocation v Average Allocation price and year.

MR RENDELL: Yes.

20

MR BEASLEY: Yes.

MR RENDELL: And this is an updated curve from what was in our reports and even so should be updated a little bit further. All we have done here is plotted – and
25 this is not a model, this is just raw data.

25

MR BEASLEY: Yes.

MR RENDELL: We have not corrected it for anything, all we have done is said
30 what was the - - -

30

THE COMMISSIONER: The blue line is just in the nature of a best fit, is it?

MR RENDELL: Yes, yes. The data that has been put in there is the average
35 weighted price for the year from Murray Irrigation and when you come to water pricing it's very difficult to get good data because the states don't – unlike the land transfers, they are not scrutinised. So there is a number of purchases in temporary market whereby there's nought dollars put in, for example. The only one that we trust is Murray Irrigation because during – through that mechanism, money changes
40 hands. So the exact money that changes hands is weighted over the year.

40

MR BEASLEY: Yes.

MR RENDELL: What we have found is – and these are not corrected for CPI, this
45 is just raw data. And you will see there that the, except for the 2003 year, the first year of the drought, the relationship between price and available water seems to be very consistent and has not moved. Despite all the theories that demand should mean

45

that the curve changes, etcetera, the data says that nothing has changed. At the moment, I've put in two vertical – three vertical – four vertical lines there. The first one was the water that was actually available at July. The next three are the predicted amount of water as of a couple of weeks ago as to what water would be available this year.

THE COMMISSIONER: Is that the very dry inflows?

MR RENDELL: The first one is the very dry inflows. The second one was a 10 per cent dry inflows.

THE COMMISSIONER: Sorry, you've got to help me. There are four verticals. They are alternately thick and thin; is that right?

MR RENDELL: The first vertical is the actual water that people had announced at that time.

THE COMMISSIONER: Sorry. I'm just - - -

MR BEASLEY: That's water available now July 2018.

MR RENDELL: Yes. Sorry. The first on the left.

THE COMMISSIONER: The first on the left, the legend for it reads, "Water available now, July 2018."

MR RENDELL: Yes.

THE COMMISSIONER: What is the second one?

MR RENDELL: The second one says that if – if we - - -

THE COMMISSIONER: What's the legend for the second line? Is it very dry inflows, 90th percentile?

MR RENDELL: Very dry inflows, 90th percentile, in it.

THE COMMISSIONER: Thank you. The third one is allocation at November 2018 based on dry inflows.

MR RENDELL: Yes. Which is the 25 per cent aisle.

THE COMMISSIONER: And then the final one is allocation based on average inflows at November 2018 calculated in May 2018; is that right?

MR RENDELL: Yes.

THE COMMISSIONER: Thank you.

MR RENDELL: And the market has, back in – it's interesting to see what the market has done – back in February, the water price was around about \$100, and that
5 was because in February we had a very large amount of carryover water from the previous year. There was no information - - -

THE COMMISSIONER: So back in February – where do I find – pick up February on this?
10

MR RENDELL: It's not – sorry, not plotted.

THE COMMISSIONER: Thank you. Right.

MR RENDELL: I'm just saying that in February the price was about \$100 and that
15 corresponds to about the 2015 dot at which – at that point the most likely allocation with – was around the 2015. As it has got drier, the price – the temporary market, at 18 July was 245. It stayed dry and the market now is nearly \$300. So it has just moved up as the amount of water that's available or people – the market, believes is
20 available is just perfectly plotting that line on that allocation.

THE COMMISSIONER: That shows there is relation between concern about scarcity and price.

MR RENDELL: Absolutely. Absolutely. And what this – there's all sorts of
25 models about what's going to happen, what the impact of the Basin Plan is. We're saying that this curve over the last 20 years, whilst there's all sorts of reasons why it should have shifted up or down, the data doesn't give us any evidence to anything the contrary. And what we also know is that prior to the Millennium Drought we
30 were operating in the right-hand side of this curve.

MR BEASLEY: Right.

MR RENDELL: Now, since the Murray-Darling Basin Plan, we are not – there is
35 no longer going to ever be more than the five million megalitres. So if you go to that curve there, you will see that it will not exceed – that bottom right-hand side will not happen again because we will not have that available water.

MR BEASLEY: Okay.
40

MR RENDELL: So from this graph is where we've said this is the data on what's happened to water prices. And these are the basis for our understanding of water prices.

THE COMMISSIONER: Thanks.
45

MR BEASLEY: All right. Thank you. Is there anything further you want to say that you don't feel we've covered in terms of your response to any of the other evidence or anything else you want to say generally about the Basin Plan you think is relevant to the Commission?

5

MR RENDELL: I think I've probably said more than enough.

THE COMMISSIONER: No, not at all. I'm much obliged. Can I just take you to page 8 of these slides, please.

10

MR RENDELL: Yes.

THE COMMISSIONER: How do you understand the bottom line, long-term inflows?

15

MR BEASLEY: This is a table headed 'Water Use by Sector Over Time Across Southern Connected Basin.'

THE COMMISSIONER: Yes, thank you. 115 per cent of what?

20

MR RENDELL: Sorry, where am I?

MR BEASLEY: It's this one.

25 THE COMMISSIONER: The 1971 column.

MR RENDELL: Yes. Did I send that to you, did I?

THE COMMISSIONER: Yes, page 8.

30

MR RENDELL: Sorry, yes.

MR BEASLEY: That's it.

35 THE COMMISSIONER: What does the 115 per cent relate to – refer to? 115 per cent of what?

MR RENDELL: Of the long-term inflows into the - - -

40 THE COMMISSIONER: Thank you.

MR RENDELL: Into the system so we're just – also, that was the other - - -

THE COMMISSIONER: That was a wetter year.

45

MR RENDELL: They were wetter years, absolutely. And - - -

THE COMMISSIONER: That's fine, thank you.

MR RENDELL: And we were just trying to put some relativity between the wetness of the years and the water use availability.

5

THE COMMISSIONER: And in the next one, 'Water Extraction and Recovery', the diagram, 2019 for sustainable diversion limit, what's the figure you have in mind there? 2100 or what?

10 MR RENDELL: This is a Murray-Darling Basin diagram, which I think just sort of illustrates the changes. In terms of the figure at 2019, the sustainable – are you talking southern Basin or are you talking the whole Basin?

15 THE COMMISSIONER: I don't know. But if it's not yours, then that's fine. But you sent it to us.

MR RENDELL: Sorry. Because I wanted to show that we've actually – well, I didn't know whether we would talk about the growth and how we've – since 1995, we're in a very different and lots of the comments that are made about – and how people respond and areas and regions respond, has been very different in the different periods.

20

THE COMMISSIONER: Yes. I understand. Yes. Thank you.

25 MR BEASLEY: All right.

THE COMMISSIONER: That's all.

30 MR BEASLEY: Well, the first report is already in evidence. I will tender the update on GMID water availability scenarios and irrigator production across the Southern Connected Basin report, 6 June 2018.

THE COMMISSIONER: Thank you.

35 MR BEASLEY: I will tender the documents that are provided by Mr Rendell called RMCG SA Royal Commission, 30 July 2018. And I will also tender the document that is the notice of intention with the bullet points from - - -

40 THE COMMISSIONER: Thank you.

MR BEASLEY: Yes.

45 THE COMMISSIONER: Mr Rendell, thank you very much for your help. Much obliged, thanks.

MR RENDELL: Thank you. And I hope it has been useful.

THE COMMISSIONER: Yes, thank you.

5 <THE WITNESS WITHDREW [4.13 pm]

MR BEASLEY: That's the evidence for today. 10 o'clock tomorrow.

10 THE COMMISSIONER: Adjourn until tomorrow here. Thank you.

MATTER ADJOURNED at 4.13 pm UNTIL TUESDAY, 31 JULY 2018

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