

REPORT ON PROCEEDINGS BEFORE

**PORTFOLIO COMMITTEE NO. 5 – INDUSTRY AND
TRANSPORT**

WATER AUGMENTATION INQUIRY

UNCORRECTED PROOF

At Lismore on Tuesday, 1 August 2017

The Committee met at 10:10 am

PRESENT

The Hon. R. Brown (Chair)

The Hon. P. Green
The Hon. G. Pearce
The Hon. P. Sharpe
The Hon. M. Veitch

The CHAIR: Welcome to the tenth hearing of Portfolio Committee No. 5, Industry and Transport, inquiring into augmentation of water supply in New South Wales. The inquiry is examining water demand and supply, the suitability of existing water storages, flood history and technologies to mitigate flood damage, and water management practices including for environmental water. Before I commence I acknowledge the Widjabul people of the Bundjalung nation, who are the traditional owners and custodians of the land on which we meet. I also pay my respects to the elders, past and present, and extend that respect to any other Aboriginal persons present.

Today, we will hear from the Lismore City Council, the Northern Rivers Regional Organisation of Councils and the Clarence Valley Council. This will be followed by the Ballina Fishermen's Association, the New South Wales Professional Fishermen's Association and OceanWatch. We will finish the day with representatives from Norco, the New South Wales Sugar Milling Cooperative, New South Wales Cane Growers and the Clarence Environment Centre.

Before we commence I will make some brief comments about the procedures for today's hearings. In accordance with the broadcasting guidelines, copies of which are on the side table, while members of the media may film or record Committee members—this applies to any in the gallery who wish to take photographs—people in the public gallery should not be the focus of any filming or photography. So I am asking that people in the gallery are not photographed—only us.

I also remind media representatives and others that they must take responsibility for anything that they publish about the Committee's proceedings. It is important to remember that parliamentary privilege does not apply to what witnesses may say outside their evidence at the hearing. I urge witnesses to be careful about any comments they may make to the media or other persons before or after they complete their evidence, as such comments would not be protected by parliamentary privilege.

There may be some questions that witnesses could only answer if they had more time, or with certain documents to hand. In these circumstances witnesses are advised that they can take questions on notice and provide answers within 21 days of receiving those questions in writing. If there are messages to be delivered to Committee members, they should be handed up through Committee staff. If witnesses wish to table documents they should indicate that that is what they wish to do and Committee staff will collect them.

To aid audibility of the hearing I remind Committee members and witnesses to speak into the microphones. In addition, several seats have been reserved near the loudspeakers at the back for persons in the public gallery who have hearing difficulties. Most importantly, could everybody please turn their phones to silent or turn them off. Phones disrupt the hearing and may also interfere with the Hansard recording equipment.

ROD HAIG, Strategic Engineer (Water and Waste Water), Lismore Council, sworn and examined

MICHAEL MCKENZIE, Manager, Planning and Delivery, Rous Water, Rous County Council, affirmed and examined

The CHAIR: I welcome witnesses from Lismore City Council. I note the Lismore City Council has not made a submission, so what we are hearing from you today is the first we have heard. Do either of you wish to make opening statements? Take as much time as you like.

Mr HAIG: Just to clarify, I represent Lismore City Council. Michael represents Rous County Council, which is a county supply.

The CHAIR: The water supply.

Mr HAIG: Yes. Rous County Council provides bulk water, which we then reticulate to our customers. We have different roles. We will be able to answer questions depending on—

The CHAIR: Depending on what we are asking?

Mr HAIG: Yes.

The CHAIR: Mr McKenzie do you have an opening statement?

Mr McKENZIE: I would like to provide the Committee with an opportunity to understand Rous County Council and its functions. As Rod mentioned, Rous County Council is a bulk water supply authority. We recently merged two other functions in June 2016, voluntarily through the efficiency process for local government. We have now taken on two additional functions—flood mitigation services for the Richmond flood plain, which was Richmond River County Council's function at the time; and weeds security functions, which was from the former Far North Coast Weeds County Council. Rous County Council provides those three special-purpose functions. As Rod correctly pointed out, we provide bulk water supply services to constituent councils—Lismore City Council, Byron Shire Council, Ballina Shire Council and the lower reaches of Richmond River County Council.

The CHAIR: As the bulk water supplier, how many storages or what sort of quantity of water do you have available?

Mr McKENZIE: Rous has essentially four main supply sources. The source for providing most of the supplies to those four constituent councils is Rocky Creek Dam. Rocky Creek Dam is located about 30 kilometres north of Lismore. We have another dam supply in the coastal hinterlands, Emigrant Creek. It is a much smaller supply and only really supplies water to the Byron Shire Council. We have a number of alternative sources, one being Wilsons River. That is a run-of-the-river source on an unregulated section of the Richmond River water-sharing plan. It delivers water to our water treatment plant, similar to Rocky Creek, and provides water to the region.

We have a couple of alternative sources—groundwater sources—in the Alstonville Plateau area. We provide those generally during drought times or in times of drought restrictions. We have water bores located in the Woodburn area and the coastal cities as well.

The CHAIR: So does water from those sources go through each of those major centres with its own treatment plant, or is there the one treatment plant?

Mr McKENZIE: At Rous there is a main treatment plant, which is our nightcap water treatment plant. That plant is located just adjacent to Rocky Creek Dam. As I have mentioned, the Wilsons River source provides water to that plant as an alternate source. The other plant is Emigrant Creek Dam plant—it is located adjacent to that dam infrastructure and only provides water to Ballina. Our groundwater sources provide to the local area in and around where those sources are located. So the Alstonville buffer only provides to Alstonville and to Wollongbar, and Woodburn provides it to the lower end of Richmond Valley.

The CHAIR: Do you have a history that you could provide to the Committee on notice about the security of those water supplies and what has happened in the past over the last period of time?

Mr McKENZIE: Rous went through a fairly extensive process in reviewing our demand and secure yield.

The CHAIR: What was that again?

Mr McKENZIE: Demand—we have called it a future water strategy. Because Rous County Council does not provide other services like sewerage and stormwater services, it is very difficult for us to be considered an IWC centre because we do not control the whole sphere of those—

The CHAIR: Could you explain for Hansard what is IWC?

Mr McKENZIE: Integrated water cycle management. I think it refers to a question that the parliamentary inquiry is to address. Rous does not provide those other additional services. Rous went through a process of reviewing all the available options, analysing all our current demand and secure patterns and also undertaking a fairly robust process in and around what a secure yield looks like. What we have determined is that while our current status is we have a more than adequate supply for the demand in our current reach, that will be depleted by around 2024 to 2028, depending on our initiatives in the demand management space, and at such time we need to augment our supply.

So Rous's current approved strategy, approved by our councillors in 2014, is to engage with enhanced demand management to try and further extend our sources and then to look at groundwater extraction for augmenting the supply. Our third strategy is indirect potable reuse, which we will take highly treated effluent water, reappportion it somewhere into our sources and then utilise that existing capacity to augment our supply.

The CHAIR: Does any of that strategy address the potential for stormwater recovery?

Mr McKENZIE: No. The strategy looked at a plethora of different options in and around what options are available for augmenting our supply. It looked at what was the best cost benefit and social benefit for the augmentation of our network and it determined that those were the strategies that we should proceed in the first instance. We looked at stormwater harvesting, but those options were very low-scale considering the environment in this area, given that it is not very big urban centres. So those options were considered not to be the most cost benefit and we did not proceed with them in the actual strategy.

The CHAIR: Is that strategy available as a public document?

Mr McKENZIE: It is, and I have got a copy here if anyone wants to peruse the outcome. The copies are in accordance with DPI Water: your copy of your IWCM work needs to be on that website, so we have a section dedicated to our future water strategy.

The CHAIR: Would you be able to table that document today for the benefit of the Committee?

Mr McKENZIE: Yes, I can. That is an overview of the actual strategy. The detailed studies behind the documentation that I have just tabled today are available on our website.

The CHAIR: Mr Haig, given the evidence from Mr McKenzie, could you explain to the Committee where the council fits in? You are a customer, I take it?

Mr HAIG: To a certain extent. We are what is called a constituent council and, as Michael said, Rous Water is a county council which provides services to the constituents. There are two members from each constituent council that forms the council of Rous County Council. But, yes, they supply water to the constituent councils and we are then responsible for reticulating that water to our customers. Just one minor clarification: In addition to the water that we receive from Rous County Council, which supplies the bulk of our local government area, Lismore City Council does also operate a very small water supply at Nimbin, which is not connected to the regional supply, but it is of fairly minor consequence.

The CHAIR: Has Lismore council looked at areas such as stormwater reclamation apart from the wholesale supplier—in other words, in your own right?

Mr HAIG: No.

The CHAIR: As one of our recent inspections we went to Orange City Council. Orange City Council has, I guess you would call it, a fairly large pilot now of a stormwater catching and recycling system and it appears to us that that is probably something that will or could be applied across local government certainly for similar-sized populations and population centres. You have done no studies in that regard?

Mr HAIG: To my knowledge, no.

The CHAIR: Lismore council is responsible for wastewater?

Mr HAIG: Yes, we are responsible for the treatment of all wastewater that we serve within the local government area.

The CHAIR: You have one treatment plant, do you?

Mr HAIG: We have got two major treatment plants that serve Lismore; one is called East Lismore and one is called South Lismore—separate catchments. We also operate a small treatment plant at Nimbin. Nimbin has its own discrete water and wastewater and then the major Lismore areas are served by Rous for water and we operate our own wastewater treatment separate from Rous.

The CHAIR: What sort of coordination is there regarding the management of these particular satellites or systems that are not part of the main Lismore shire works?

Mr HAIG: Are you referring to water supply or—

The CHAIR: Yes, water supply.

Mr HAIG: The Nimbin supply?

The CHAIR: Yes.

Mr HAIG: Can I get the question again? What are the arrangements for coordination?

The CHAIR: Do you have any input into that at all, technical or otherwise?

Mr HAIG: I do, yes.

The CHAIR: So the technical aspects are still the responsibility of Lismore council?

Mr HAIG: Yes, both for water reticulation within the local government area and also wastewater treatment within the local government area.

The CHAIR: Mr McKenzie, you mentioned that just recently or within the last couple of years the Rous group have taken on the responsibility for flood mitigation.

Mr McKENZIE: Yes. Previously those services were provided by Richmond River County Council and through a voluntary process we have merged with that council. For the benefit of the panel, Rous Water's historical governance structure provided support to those two other councils and we have shared the same general manager.

The CHAIR: I think, Mr Haig, you mentioned that there are two representatives of each area council on the Rous board.

Mr HAIG: On the Rous council, yes.

The CHAIR: How many councillors are there?

Mr HAIG: There are four constituents.

The CHAIR: So that is eight representatives?

Mr HAIG: There are eight members, yes.

The CHAIR: In relation to the floods here in April, what role did Rous play on the mitigation side? Was the joint venture operating by then or not?

Mr McKENZIE: Yes, it was operating by then. We merged in July 2016. One of the operations for Rous is the operation of the Lismore and South Lismore flood mitigation scheme. Lismore City Council actually operate during the emergency events; so they are tasked with the physical operation of the levee scheme based on their capacity to deliver that service, which at that time we were a very small council. We also undertake areas outside the Lismore area and operate rural flood mitigation schemes as well. So that is our primary remit in relation to flood mitigation.

The CHAIR: So, technically speaking, Mr Haig, if the Lismore council has the operating responsibility for that flood mitigation strategy what do you physically do to mitigate floods in Lismore?

Mr HAIG: Council are responsible for the operation of the pumps. Once the levee is closed—there are stormwater pipes that run through the levee for normal operation to drain stormwater—once those gates are closed, if you did not have a means of getting water within the catchment over the levees you would actually flood from inside. There are three major pump stations, which are effectively assets owned by Richmond River County Council, but under an agreement we operate and maintain—

Mr McKENZIE: To a degree, yes.

Mr HAIG: We operate and maintain to a certain extent those pump stations. Also, while Rous County Council is responsible for the operation of the levee mitigation such as the levees and the like, council is probably more involved in the response to flood, together with the State Emergency Service [SES] and the

hierarchy that was formed at the time. Council, as well as operating the mitigation, is then more involved in the response, whereas Richmond County Council is more the asset owner of those mitigation schemes. But council is far more involved in operating those mitigation measures and then responding in the event that the levee is topped.

The Hon. MICK VEITCH: I want to continue talking about the flood. With the most recent flood in Lismore, to date what types of discussions and forums have been held with government agencies to look at what occurred during the flood and what could be done better?

Mr HAIG: During the flood there was a joint agency response team, which included the SES and other government departments. Since then there have been debriefs as to how the response happened and what could be done better. There has been a call for a more public inquiry but until now it has been more of an internal and joint debriefing as to what did occur and how future responses could be better. There has also been the use of possibly a more formal inquiry.

The Hon. MICK VEITCH: The Tweed Shire Council submission to this inquiry stated that "Large percentages of North Coast populations are naive to the flood threat, are unaware of emergency procedures, live in areas that were zoned for habitation prior to good understanding of flood risk, place overreliance on flood mitigation infrastructure, and undertake building modifications and uses without due consideration of flood risk." What are your views on that statement?

Mr HAIG: I think to a certain extent that would also apply within the Lismore area. There were certain things about that response regarding evacuation orders and the like but I think to a certain extent, possibly the levees have caused some people to rely too heavily on the levee and not necessarily be quite ready when it does top.

The CHAIR: Would you be able to supply the Committee with any maps, documents or diagrams that give an overview of the location of the levees; in other words, what areas are outside the levee and what areas are inside? Is that sort of document or work available?

Mr HAIG: I am sure we could provide that document in conjunction with Rous.

Mr McKENZIE: Yes, Rous has all the technical infrastructure locations that are on the geographic information system [GIS] maps. In relation to the March-April event we have undertaken work to ascertain flood peaks that are across the catchment so we are working with our partners, the NSW Office of Environment and Heritage, to hydraulically map that area so we can get a better appreciation of the inundation of Lismore during a particular flood event. We are also trying to extend that to the rural catchment as well as best we can. For some locations it was very difficult to obtain flood information because of the sheer tyranny of distance.

The CHAIR: Do you have any idea when that work may be completed or available for public consumption?

Mr McKENZIE: Yes, we believe that should be completed by the end of the month. It is with our modeller, to clarify and make sure that we get some interpretation of that analysis.

The CHAIR: Who is the lead agency, Rous or the Office of Environment and Heritage? In other words, to whom should we write to ask for the information?

Mr McKENZIE: Good question. As I understand it, the Office of Environment and Heritage, through its Northern Rivers branch, has engaged tech services for that work but we have heavily relied on fieldwork undertaken by Rous County Council.

Mr HAIG: With respect to plans, the ones Lismore City Council could provide would be zoning maps. We also have studies which show the one-in-100-year flood and we could also provide our local environmental plan that would give zoning restrictions within different areas.

The CHAIR: That would be very helpful. We will write to you formally and ask for that on notice.

The Hon. MICK VEITCH: So every flood has its own characteristic; it has a life of its own. My question goes to the preparedness of the population around emergency procedures and understanding what to do. What were the characteristics of the most recent flood in Lismore that made it different to previous floods?

Mr HAIG: One of the characteristics was that there had already been a minor flood event or a major rainfall event a month or so before, which meant that the molecular antecedent moisture content, as it is called, would have been high.

The Hon. MICK VEITCH: So saturation?

Mr HAIG: Saturation of the soil, which meant that any further rainfall would be predominantly runoff rather than infiltration. The other thing that occurred to my knowledge was that there was sudden, unforeseen, very high intensity rainfall immediately prior to the flood so that flood projections which had been determined prior to the major flood—there were unforeseen rainfall events that rose much quicker than had been anticipated. Again my understanding until a reasonable time before the prediction was that it would not necessarily over top but then there was a change in circumstances.

The Hon. MICK VEITCH: So what was the population's response to the alerts and warnings, and what was the timing of those?

Mr HAIG: Again, these are questions that would be possibly better addressed to the government agencies that were responding. Part of the issue was that because there was a sudden change in flood heights, the evacuation orders were given much earlier than probably was anticipated so members of the community had little time once the evacuation orders were given. I think this is also true for some of the distances as well but due to the fact that the evacuation orders were given much earlier than they may have been anticipated, there was very little time for people to effectively make preparations.

The Hon. MICK VEITCH: My last question relates to flood mitigation infrastructure. In light of the most recent flood, it is an opportune time to look at the flood mitigation structure in the valley. Do you have any suggestions for improvements or enhancements of flood mitigation infrastructure?

Mr McKENZIE: Yes, one of the things that Rous is working on with the Office of Environment and Heritage is that we have made our grant submission to review not only the incidents of this particular event but also to look at ways of improving both the operation of South Lismore and CBD flood mitigation infrastructure. One of the things we need to be able to do is to ascertain any modification to certain infrastructure and ascertain the benefits so we can provide a benefit cost back to government agencies to fund those particular studies.

One of the things we noticed out of this particular event is that there was substantial rain in the upper parts of our catchment which precipitated a fairly large white wave down the Leycester Creek system. One thing that was evident was that some of this flood infrastructure was inundated quite early. Some of the more socially less affluent areas were impacted relatively quickly as a result of this flood. Some of the anecdotal evidence we saw from the SES was that there were areas of floods that they had not seen for a generation or two so that was somewhat of a surprise to them. We are taking this opportunity to look at ways where we could probably review that flood mitigation infrastructure and look at opportunities to better protect the community.

The CHAIR: By that do you mean you are looking at potential flood mitigation in the upper catchments or just building the levee banks higher?

Mr McKENZIE: There are a couple of things. One of the operations of the South Lismore levee floodwaters around the southern part of the town towards the aerodrome through to the Wilsons River, there are a number of viaducts on the disused rail line. There are also embankments for that rail line and there is also a levee in that location and the South Lismore drain. One of the things we will investigate is any works to modify that existing infrastructure provides a benefit to reduce flood levels or inundation, or the severity or duration of that flooding. That is an opportunity we should explore through that background information.

Mr HAIG: Mr McKenzie may clarify this but one concern is that if you were to, for instance, increase the height of the levee to protect the CBD you would, in doing so, actually have greater effect in other areas such as North Lismore. Effectively you would be constraining the flow so that North Lismore would be affected more so. Obviously in looking at amending flood mitigation you have to look at both predicting the CBD and what the impacts of that would be on other non-CBD users. When the flood levee was introduced it was determined that it was more dangerous in effect to have that protected because when it topped North Lismore it would very quickly get inundated. It was decided that having it gradually come up would be best. To a certain extent, trying to protect the CBD more may increase impacts in other areas.

Mr McKENZIE: That is correct. One of the things is that through the review of the original flood levee schemes, the North Lismore area was determined to be an area in which they could not provide flood mitigation protection because of its physical topography. It represents one of the areas that is most adversely affected by floods. It is a larger area for raising interest in grant applications.

The CHAIR: In relation to Rous and your gross water production facilities—the dams—do or did any of those storages play any role in the flood flows? Were the dams that overtopped outside the main feeders that created the floods here?

Mr McKENZIE: Our dam supplies are sensitive to water supplies. While they provide very minimalistic flood attenuation, they are not designed for flood mitigation. They provide no relief like you would

see at some of the larger capacity dams, for example at Wivenhoe, where they have flood attenuation in that particular design philosophy as being of water and a potable water supply. While they provide the minimal, they are not intended to do that at all. They are within the catchment. We did trigger our dam safety emergency plan during that event, and we went to what is called an amber alert. We started the process of notifying residents who may be affected by a dam failure scenario in the very unlikely event of that occurring. That is also part of what Mr Haig referred to as the independent review in relation to the State Emergency Service's response to that event.

The CHAIR: After the flood mapping is done you will probably be better able to provide advice about what you could do. Are any of your flood mitigation strategies likely to look at your upper catchments or only down here?

Mr McKENZIE: No, not at this stage. The main body of work is to address what modifications we can make in the Lismore area to better either mitigate against flood relief and provide flood ratings around the town or to provide strategic modifications that would not adversely affect other areas and provide additional benefits.

Mr HAIG: Mr McKenzie mentioned the southern levee that would divert water from Leycester Creek. There has been a provision to do further excavation along that alignment to prove the efficiency of that bypass. A development application has been lodged and consent has been given. Obviously, it is a major undertaking involving substantial earthworks, but that has been mooted as one way of at least helping to bypass flows from Leycester Creek. It would not necessarily help water coming down Wilsons River, but it would at least divert some of the water to the south of the city.

The CHAIR: How big is your catchment?

Mr McKENZIE: That is a good question.

The CHAIR: Just roughly.

Mr McKENZIE: The catchment of the total Richmond River Valley is in the vicinity of 6,000 square kilometres. That is roughly broken into thirds; that is, the Wilsons River, the Richmond River, which heads towards Kyogle, and the Bungawalbin River. It is a similar size catchment to those main three systems.

The CHAIR: So it is roughly three similar sized catchments.

Mr McKENZIE: I vaguely recall it being 6,000 square kilometres.

The CHAIR: I just wanted a rough idea. You will have to excuse my and our ignorance, but we have come here cold and without a submission. I am trying to get as much information out of you as I can. Once we have had a look at it we might come back with some specific questions, particularly in relation to the work that has been proposed. Of most interest to this Committee would be that study once it is completed. If that is only a month or two away, that would be fantastic.

Mr HAIG: In addition to flood studies undertaken by Rous County Council, council has also commissioned flood studies of its own. As I said, they look at a one-in-100-year flood and other stuff that is probably more Lismore centric, while I assume the Rous County Council model would be more catchment specific.

The CHAIR: Have those studies been completed?

Mr HAIG: They were completed some time ago. Again, we could provide that information.

The CHAIR: The Committee will write to you about that and hopefully get more information. The issue of water diversion from the Northern Rivers to the west—the so-called Bradbury schemes—has been raised again in some of the submissions. There appear to be some technologies available around the world, although we are having trouble getting our hands on that information. There appear to be technologies available for upper catchment flood mitigation that involve dams, but not permanent dams. It is the same sort of idea that you have with your basic schemes for council approval for housing blocks. In other words, you have to have a tank or holding tank to detain rather than to retain water so that the flow going out to the gutters is reduced over time. In fact, that appears to be the basis behind the Orange stormwater scheme, whereby they divert their stormwater into a detention dam—not a retention dam—and then pump off the top of that. The majority of it builds up and has time to flow down the catchment to whatever creek systems are supplied. That is why I am curious and why I am asking these questions. Have you looked at or will you be looking at any of those sorts of technologies in your studies of flood mitigation in the entire Richmond River area?

Mr McKENZIE: One of the characteristics of the catchment is that it is quite large

The CHAIR: Yes, 6,000 square kilometres.

Mr McKENZIE: With flows generated from a catchment that size, localised retention schemes are not necessarily considered favourable from a cost-benefit point of view. In addition, anecdotally the Richmond River area is the third most biodiverse region in Australia. Our upper catchments are formed either by national parks or State forests. Some of that catchment would not suit that type of technology, where we put in storm retention dams. As clarification, the grant application for the analysis of the modifications to the Lismore or central business district schemes is currently with the Office of Environment and Heritage. So the grant process needs to happen to determine whether our application will be accepted.

The CHAIR: So you do not have the grant yet?

Mr McKENZIE: No, we do not have the grant yet. The Office of Environment and Heritage is providing the analysis on the predicted flood level across the catchment so that we get a better appreciation of who was adversely affected.

The CHAIR: That is the work that will be done in about a month.

Mr McKENZIE: Yes.

The CHAIR: If you get your grant, you will do your work after that.

Mr McKENZIE: We will be able to piggyback on that initial work.

The CHAIR: I have a better understanding now.

Mr McKENZIE: A lot of the flood mitigation we are looking at is to try to make improvements as a result of the anecdotal evidence that we saw during this particular event. We are not looking at this stage at areas outside the CBD and the greater Lismore area.

The CHAIR: As an overall observation, I take it that most of the socioeconomic damage was done in the Lismore CBD. Or was it mostly outside in the rural production areas? Where did most of the economic damage occur?

Mr HAIG: Obviously, the greatest value would have been in the CBD and the like. However, I am sure that rural areas with primary production would have been significantly affected. In terms of the quantum, it would probably have been focused on Lismore, but I am sure there would have been primary producers who individually would have been significantly impacted.

The CHAIR: Where would you suggest the Committee go to look for that sort of breakdown? Who would have that sort of information?

Mr McKENZIE: I believe the cane growing industry would probably have information about the impacts and losses as a result of that event. As Mr Haig pointed out earlier, there were two significant events, the early March event and the late March event. The early March event was significant in a lot of reaches. It had a higher peak in some localities than the event at the end of March. It was a double-whammy effect for farming and agricultural industries on the lower floodplain because they had two floods in very close proximity. As far as I understand it, a lot of the damage in the rural environment was to general council infrastructure—roads, bridges, culverts and drainage. I believe Richmond Valley Council experienced substantial damage as a result of the first event, which was significant in the Bungawalbin catchment.

Mr HAIG: As Mr McKenzie said, damage to public infrastructure was significant, particularly council owned and operated roads and the like. Again, depending on the measure of impact you look at, it would definitely have impacted in the CBD, but it also impacted individual primary producers. It also had a significant impact on the councils in terms of trying to rectify all the damage to public infrastructure.

The CHAIR: What is the standard format for accessing resources to repair such damage? Do you rely on State Government or Federal Government disaster relief funding? How do you manage that?

Mr McKENZIE: There are two processes to the National Disaster Relief and Recovery Arrangements [NDRRA]. The first is that the emergency response is generally a 30-day response to clean up and restore as many services as possible to an acceptable level and as a result Lismore City Council and others spent a substantial amount of time undertaking a return to a satisfactory state having regard to public health and safety. Then there is a greater response to reinstate the infrastructure that was significantly damaged. So the process for that is to make application to the State through New South Wales Public Works for a review and assessment, and the assessment is advised of the successful outcome of those applications to reinstate infrastructure.

The CHAIR: Mr Haig, you may not care to comment but has the response for the resources to undertake that work been adequate and timely?

Mr HAIG: I would suggest that I would have to take that on notice because I was not actually directly involved in the flood response. There are definitely people at council who would be in a better position.

The CHAIR: The Committee might direct a question on notice not to the witness but to council. That is probably the proper way to do it.

Mr McKENZIE: I can provide a response on behalf of Rous. We are still assessing some of the infrastructure that was damaged, especially in the Lismore area. It was a massive undertaking to collate the necessary information to make an application for funding. We have already put in three claims for levees that were breached as a result of either the earlier event—so these are earth embankment levees ranging from a metre or so to three metres high. Some of the locations are actually close to residents and Rous has general concerns in and around the speed and necessary preparedness for repair. One of the concerns that we have, whilst we made an application and our local New South Wales branch of Public Works has agreed with our summations and our conclusions and announced despatches to head office, we understand as a result of assessment and collation of all the necessary applications across the North Coast and everyone else who was adversely affected that there might be a six to eight week wait or delay before we get notice. Obviously there is just concern for Rous in and around these levees because they provide protection for life and property and we wish to expedite those repairs as soon as we can. There are quite clear breaches of the levee as a result of the flood and obviously any acceleration of the grant processes would be highly favourable.

Mr HAIG: Just in terms of rectifying damage, one thing that council benefits from is that we did have flood damage on many council buildings and other infrastructure. So a lot of the rectification of public buildings is being funded from flood insurance that council had. I am not sure to the extent that that would cover roads and other infrastructure like that, but certainly a lot of the rectification would impact on public buildings in the CBD and other areas have been funded by flood insurance that council did have.

Mr McKENZIE: One of the grant conditions for accessing those arrangements is if the matters are insured they are not subject or available to be subject to those grant applications. One of the other conditions that gives concern to local authorities is the use of councils' resources in undertaking speedy repair, especially associated with the general purpose councils where they are undertaking road route rehabilitation. Some of the exceptions are that you cannot use your internal resources and I believe Tweed are making application in relation to seeking some clarification on a better arrangement. One of the concerns for Rous is we are undertaking preparedness for the repairs to these levees but we just note that with the extensive damage to the infrastructure on the North Coast the access to external contractors to undertake those repairs is going to be challenging—namely, for that to be undertaken in such a manner where you are going to satisfactorily address landowners' concerns about making repairs and access those resources because it is a finite resource.

The CHAIR: In other words, the physical resources may be stretched?

Mr McKENZIE: I believe that will be the case when we get closer to these grants being applied. So we are trying to line up our contractors to do these works. Rous does not have the capability to do those works. It is not something that we do on an ongoing basis. Our operators and construction crew are more minor and this is quite substantive damage. We are looking to contractors to undertake those works.

Mr HAIG: Just a comment on the stretching of resources. It is my understanding that as a result of all the damage to roads, et cetera, our available resources are stretched to respond—you have got the emergency response but then you have got the long term and I think we are stretched. The other thing I understand that happened in the area was that local contractors, plumbers, electricians, were stretched as well and that was obviously impacting on the ability for councils to undertake repair and rehabilitation of public infrastructure as well.

The Hon. GREG PEARCE: Are these levees the only flood mitigation measures that have been put in place for Lismore?

Mr McKENZIE: That is pretty much the primary—just for the benefit of the Committee, the Lismore levee scheme was sort of finalised in 2006 or 2007 as I understand it. That was a major undertaking to provide a levee system for the CBD and South Lismore area. There is an extensive network of rural levees and flood mitigation gates which also provides some protection to the farming area, approximately in the lower area, but there is no other substantive flood mitigation infrastructure relating to the protection of Lismore.

The Hon. GREG PEARCE: Were they designed to meet one-in-100-year levels?

Mr McKENZIE: No. The particular design was based on modelling undertaken at the time. Just to clarify that, it is the likelihood of a one-in-20-year occurrence but it is one in any given year that that level could be overtop of a 20-year event. This particular event was assumed to be a one-in-40-year event or close to that, but there is anecdotal evidence in and around the catchment that there were areas which received a greater than one-in-100-year event either of rainfall or flood peak. So the catchment was not homogenous in the flooded response—some areas were significantly adversely affected and others also.

The Hon. PAUL GREEN: Can you just clarify your first comment?

Mr McKENZIE: Sorry, one in 20. The levy is designed for a one-in-20-year occurrence. It was based on providing the best available protection for cost benefit. This was the first event that overtopped the levee in Lismore so it was a new experience for all residents to have not seen a flood of that magnitude since about 1989 or thereabouts.

The Hon. GREG PEARCE: It was more than a new experience. I have visited Lismore several times but I am not very familiar with it. This morning I went for a walk down Molesworth Street and when you look over into the river it is a very long way down. It is hard to imagine that the water was able to come up over the bowling greens and other parts. Did the river actually come up and over? Is that how it happened?

Mr McKENZIE: The way the levee system is designed, there are a number of relieving points within the levee system to have control of the inundation behind the levee. Some of the considerations are to the life and properties to try and prevent as best as possible the direction of concentrated flows to properties or otherwise. At the end of Molesworth Street you actually rise over a little hill and that is the relieving point next to a branch street pump station. Just for the benefit of the Committee, the flood level in Lismore was probably at the height of this roof through the more quite substantive event.

The CHAIR: The ceiling just here?

Mr McKENZIE: I am trying to gauge the level of the ceiling. It was about that height.

The CHAIR: We get the idea.

The Hon. GREG PEARCE: Was the river rising up or was the water coming from other directions?

Mr McKENZIE: There were two noticeable events for the community. There was an inundation of flash flooding inside the levee, so our pumps were not capable of delivering water out of the levee at the time. That was relieved by early morning but the river rose, and rose quite quickly then inundated and filled the basin behind the levee and it was over the top of the levee pretty much in a number of locations.

The Hon. PAUL GREEN: Have you totally exhausted the grants from the Country Town Water Supply and Sewerage Program?

Mr HAIG: Council has not had any projects funded by that program for a considerable amount of time. Again, I think there was a cut-off as to when that ended and basically under what is called best practice management the intention is that the larger councils, in particular, are sustainable. We have a strategic business plan that looks at our long-term needs and in accordance with strategic best planning we can ensure that we have that sustainability. The need for grant funding for councils that have achieved best practice is no longer really required.

Mr McKENZIE: Just clarification from Rous's position, as part of our future water strategy we are looking at extended groundwater investigations. That investigation is potentially eligible for country town water and sewerage in the investigation. One of the things we are working with the regulator, DPI Water, in and around our eligibility but we think we have to do a separation of our Integrated Water Cycle Management Plan [IWCM] to potentially be eligible for that funding. We are looking at potentially retrospective funding for the work that we have done today.

The Hon. PAUL GREEN: You no longer receive a dividend from the demand management system, or best practice as we know it?

Mr HAIG: From the State Government?

The Hon. PAUL GREEN: Yes.

Mr HAIG: Effectively, no. With the cutting off of the town system, as I say, under best practice we are required for our strategic business plan to demonstrate our long-term financial viability. We have not had any projects on the program for a very long time. I think the last one that was on the program may have been Nimbin water supply. Council has not received any funding under that program for an extended period.

The Hon. PAUL GREEN: What are your plans to meet expansion of commerce and industry in the future?

Mr HAIG: The strategic business plan has projected growth. We have determined what infrastructure is required to service that growth. That is part of our 30-year capital works program. Then you have to ensure that you set the user charges in such a way that you do achieve financial sustainability. Obviously there are limits to which you can lift those charges and get community support.

The Hon. PAUL GREEN: You are on track with that?

Mr HAIG: Definitely, yes. We review our strategic business plan on a regular basis.

The Hon. PAUL GREEN: Pricing of water is a very big issue, as you know.

Mr HAIG: Yes. If new development becomes needed or if there are changes to growth projections, that is all taken into account in our planning process.

The CHAIR: We are out of time. Thank you gentlemen. We appreciate you coming. I hope our questions were not too inane but we are trying to get an understanding of what is happening here. We will write to the two organisations and ask for clarification on some of these matters and for permission to receive some of the studies when they become available.

(The witnesses withdrew)

MICHAEL MCKENZIE, Manager, Planning and Delivery, Rous Water, on former affirmation

ANTHONY BURNHAM, Manager, Waste and Wastewater, Tweed Shire Council, affirmed and examined

DAVID OXENHAM, Director, Engineering, Tweed Shire Council, sworn and examined

PETER REES, Manager, Utilities, Byron Shire Council, affirmed and examined

ANDREW LEACH, Manager, Asset Planning, Richmond Valley Council, affirmed and examined

GRAHAM KENNETT, General Manager, Kyogle Council, affirmed and examined

The CHAIR: Thank you to Northern Rivers Regional Organisation of Councils. We have received a submission from Tweed Shire Council, No 116, but we are going to hear from you as a body today. If you have any statements that you wish to make on behalf of your constituent organisations that is fine also. We have heard from Mr McKenzie already. Would you like to make an opening statement or put anything on the record?

Mr OXENHAM: I make a statement on behalf of Tweed Shire Council. Like most councils in New South Wales, Tweed has adopted and is implementing an integrated water cycle management plan in accordance with DPI Water best practice guidelines. Population growth and climate change dictate the need for an additional water source for Tweed Shire Council by 2026 despite significant reductions in per capita water consumption. The impacts of climate change are significant and our secure yield is predicted to substantially reduce in coming years. The option pursued by our council following an extensive review, assessment of options and consultation with the community, is the raising of the existing Clarrie Hall Dam to maximum its size to provide an estimated additional 20 years of secure water supply to 2046.

A greater degree of certainty around the planning and environmental aspects of dam augmentations would provide a clearer understanding and resolution of issues for our council. For instance, a clear set of guidelines for environmental flows east of the Great Divide, particularly in regard to climate change, would be invaluable. Town water supply storages should not be required to be designed and built to mitigate against the impact of climate change on environmental flows. Certainty within the Water Management Act for water supplies to be prioritised above environmental flows needs to be a priority.

Whilst the Tweed has a single-source supply, namely surface water, a contingency is required, and in that regard our council is pursuing a cross-border connection, given the close proximity to one of the most secure supplies in Australia. In terms of planning for water supplies, there is a need for more planning in a regional context and the solution is not by more regulation via the IPART or by the State Government taking over the planning role, as has previously been recommended to Government by others, but by the Government having a more proactive role in facilitating, coordinating and providing a streamlined interface with the regulatory authorities.

In regard to recommendation 18 from the June 2013 report by the Standing Committee on State Development on the adequacy of water storages in New South Wales we are unsure of the role, makeup and benefits of a Water Management Taskforce and would suggest that a more productive focus and outcome would be for the State Government to coordinate its regulatory authorities and not have multiple conflicting regulatory requirements—the outcome being the opportunity to balance regulatory requirements with the aim of providing the best social, environmental and economic result.

Following the recent March 2017 flood event it is evident that the Government needs to have a focus on additional funding mechanisms and opportunities to make our communities more resilient. An increase in the annual grant allocation for the Office of Environment and Heritage [OEH] for the flood management program is well overdue. There need to be opportunities for multiple funding rounds, and a review of funding exclusions under the NDRRA.

CHAIR: Thank you.

Mr REES: I have some dot points on the Byron Shire Council. First of all I would like to acknowledge that the water result was a significant success of the DPI Water best-practice management framework and also the Country Towns Water Supply and Sewerage Program over the last 10 or 20 years. Byron in the nineties had significant sewerage problems. They accessed that program and embraced best management. We now find that we are on a very sustainable path in water and sewerage. With the recent iteration of the strategic business plan we are now looking at the possibility of reducing water and sewerage rates. I will get onto that later.

Our biggest problem now in the water cycle is stormwater management and localised flooding issues in the Byron township and also in the north of the shire and around Mullumbimby. We are finding that that impacts on our sewerage system. When stormwater gets in there it collapses the system. Funds are now needed to allow council to implement a renewal program in our stormwater system. We currently have a \$12 million unfunded flood mitigation program, which is expected to grow to \$20 million by the time we finalise and adopt the northern part of the shire program.

Stormwater and flooding does not have a separate funding source like water and sewerage. It comes out of a general fund and there is a lot of competing interests in that fund, as I am sure you are aware. With respect to the recent floods in March this year, while we were not impacted as much as the Tweed and Lismore it did cause a significant impact on our community. Certainly for the public infrastructure our bill was something like \$5 million. What we are thinking—and what we are floating to this inquiry—is a DPI water-led stormwater program similar to the Country Towns Water Supply and Sewerage Program. That could perhaps be considered for stormwater upgrading and certainly flood mitigation. This, combined with some flexibility to access funds appropriately from the water and sewer fund, to get those synergies happening, might be a way forward.

CHAIR: That is an excellent suggestion.

Mr LEACH: I am here to support fellow councillors. They have much greater experience in these issues. I am here to support them.

Mr KENNETT: I have a brief statement prepared.

CHAIR: That is fine; go ahead.

Mr KENNETT: I am mindful of the two-minute limit.

CHAIR: There are no limits.

Mr GREEN: We are here to hear you.

CHAIR: We want to get it on the record, Mr Kennett. We are here to get facts, not save time.

Mr KENNETT: The main issue I want to bring to the attention of the inquiry is the need for reform of the regulatory environment within which local water utilities [LWUs] operate. The current regulatory environment lacks a whole-of-government approach, is inefficient, stifles innovation, and creates a barrier to the delivery of cost-effective, safe and reliable services to regional communities.

The biggest issue is the multiple agencies involved in regulating LWUs under a series of different legislation, most of which has not been reviewed for many decades, and in the case of the Water Act, over 100 years. A local water utility currently operates across at least 10 separate Acts, with at least eight separate regulatory bodies: Water Act—DPI Water; Water Management Act—DPI Water; Fisheries Management Act—DPI Fisheries; Dam Safety Act—Dam Safety Committee; Environmental Planning and Assessment Act—Department of Planning and Environment, councils; Protection of the Environment Operations Act—NSW Environment Protection Authority [EPA]; Public Health Act—NSW Health; Fluoridation of Public Water Supplies Act—NSW Health; Local Government Act—DPI Water, councils; and Water Industry Competition Act—Independent Pricing and Regulatory Tribunal, councils.

The most significant issues are associated with the risk-adverse, one-size-fits-all approach, of agencies such as NSW EPA and NSW Health. These two agencies have consistently shown that they believe they have the authority to place their individual goals and objectives ahead of all other considerations, and that they do not need to consider matters such as affordability or a community's willingness to pay to achieve these outcomes. This has created an environment where relatively low-risk affordable solutions for the delivery of water supply and sewerage services are often taken off the table due to the regulators' requirement to achieve a higher level of service, or reduce risk to extremely low levels.

The concepts of integrated water cycle management and the triple bottom line assessment of options against environmental, social and economic criteria are well supported within the industry. However, these are lost when the various regulators refuse to acknowledge the outcomes of these processes, and instead insist on imposing their standard requirements, which place their individual agendas as the highest priority. All water managers will have multiple examples of situations where these regulators have added excessive costs to an acceptable solution, imposed unwarranted standards on the premise of consistency, changed requirements during the planning of a project, adding time and cost, or imposed so many barriers that a project just never happens.

Of particular concern for the Kyogle community is the provision of new sewerage schemes for its many un-sewered villages of less than 300 people. Currently these villages have a series of closely placed, on-

site sewerage management systems that pose a high risk to human health and the environment, as well as restricting growth and economic activity in these villages and surrounding areas. However, the regulatory requirements for any new sewerage system means that the simple and affordable sewerage systems that have been operating in regional New South Wales for many decades are no longer valid options. So instead of a safe affordable solution, it is likely that these communities will never have a proper sewerage system. The risks to health and the environment and the restrictions on growth and economic opportunity will continue, exacerbating the low socio-economic position of these villages.

Throughout the last 20 years, there has been a partnership between the local water utilities and DPI Water. DPI Water provides regulatory oversight and has developed a best practice framework for local water utilities that has seen non-metropolitan water utilities in New South Wales become leaders in performance across Australia and, indeed, the developed world. This agency has shown a genuine understanding of the need for a balance between environmental, social and economic considerations and the management of risk associated with the delivery of safe and affordable water supply and sewerage services to regional New South Wales.

The current director of local water utility regulations in DPI Water has consulted with the management of local water utilities and recognised the need for more flexibility in the area of best practice requirements, particularly where the level of knowledge and sophistication in many local water utilities has far surpassed that of the regulatory bodies in the last decade or so. There is an example here of the Tweed Shire Council—one of the largest water utilities in the State. In calling for the reform of the regulatory environment, I put forward that the DPI Water should be provided with a regulatory oversight role that includes a veto power over the other agencies in all matters relating to local water utilities [LWUs] and the provision of water supply, sewerage, stormwater and flood management services to the communities in regional New South Wales. It is my belief that this type of regulatory reform will provide a genuine partnership between State and local governments, and provide clear direction for the industry into the future.

The current regulatory environment also restricts the ability and effectiveness of local water utilities to work collaboratively in regional strategic planning. The lack of regulatory stability and clear objectives means that long-term planning is made all the more difficult, particularly when it comes to partnerships required between State and local governments to deliver effective long-term regional solutions. We know that the willingness to work together exists between local governments, and we have a long history of regional collaboration in the Northern Rivers. In 2014 the Northern Rivers Regional Organisation of Councils [NOROC] prepared a Regional Water Supply Strategy Study that identified a series of potential future options for the region in the 50 years-plus planning horizon. This included a range of scenarios including connection of existing water supplies across local, regional and State boundaries, groundwater investigations, desalination, new dams and raising of existing dams, and direct and indirect use of recycled water. For this study to become a long-term regional plan, there is a need for a variety of investigations and studies on specific options and issues. The unfortunate outcome of this process is that there is no political will to invest in these things within the current regulatory environment.

The Northern Rivers also has a long history of natural disasters associated with flooding. The latest devastating floods associated with Cyclone Debbie have highlighted both the resilience of our communities and the need for broader reform of the current Natural Disaster Relief and Recovery Arrangements [NDRRA]. The need for reform should focus around both the response to the impact of natural disasters and the prevention of these impacts. One of the primary areas where the need for change has been highlighted is around the use of council staff and equipment to restore damaged infrastructure. The use of council staff and equipment is currently ineligible for financial assistance under the NDRRA. However, during these events the councils have little choice but to utilise their own staff and equipment in the initial response to these emergencies, and the use of a balance of council staff and equipment and external contractors provides the most effective and efficient restoration process. There needs to be recognition that when councils do this, and these costs are not reimbursed, something needs to give in terms of delivery of services, whether it be a loss of projects or the lowering of service levels in other areas due to the limited resources we have available, and restrictions on revenue generation caused by State government policies such as rate pegging.

The other area where there is a need for change is in the funding for mitigation works that seek to prevent or minimise the impact of natural disasters and flooding on public infrastructure, private property and people at risk. All councils in the region have floodplain risk management plans prepared in accordance with detailed New South Wales Government guidelines and requirements. The issue is not the lack of knowledge around what needs to be done; the issue is around the lack of funding to actually get these things done. Of particular concern is the lack of funding for increased resilience in infrastructure such as roads and bridges, and the voluntary house purchase schemes that see the removal of high-risk residential dwellings from flood-prone areas.

A concerted effort should be made to prove the long-term benefit of increased funding for resilience work over the ongoing funding applied to restoration of damages caused by natural disasters and extreme weather events, particularly where all predictions indicate an increase of the frequency and intensity of these events as the effects of climate change become more pronounced in coming decades. I dread being seen as the old local government stereotype crying poor, but there is a need for the New South Wales Government to recognise that local government is working within an environment of ever-increasing regulatory burden and an ever-decreasing level of financial assistance. If the New South Wales Government wishes to achieve high standards of environmental discharge from the relatively small point-source dischargers such as sewerage systems, and have a risk-free highly treated water supply for every community, then they need to recognise the impact of these outcomes on costs. If the New South Wales Government is not willing to pay for the outcomes their various agencies are enforcing upon local government, then give local government greater autonomy over the way we deliver services to our local communities so that we can consider the willingness of the community to pay for these various levels of services.

I summarise the seven principals of better regulation from the New South Wales Government's "Guide to Better Regulation" November 2009, and I paraphrase: establish that there is a need for government action in the first place; make clear the objectives; properly understand the impact of the regulatory action; action should be effective and proportional; consultation with industry and community; the simplification, repeal, reform or consolidation of existing regulation; and periodic review of the regulation to ensure efficiency and effectiveness. I thank you for the opportunity.

The CHAIR: Can I ask you to table your opening statement? We will take that as a statement. We will have to think about all of that; that was pretty interesting. How would you categorise Kyogle Council? It appears as though your description, as much as you gave, is of a council with not a lot of resources available—in other words, a low rate base—but a dispersed group of villages, which, of course, carries a high cost per table calendar. Is that an accurate description of Kyogle?

Mr KENNETT: Yes, absolutely, The statistics are there: 3,500 square kilometres, 10,000 people, 50 per cent in Kyogle and its villages and 50 per cent in rural areas.

The CHAIR: Before I hand over to my colleagues—and I noticed Mr Green scribbling frantically there and, of course, he has a lot of experience with local government, so some of those things probably struck a chord—I will make just one comment. This Committee a couple of years ago inquired into the Wambelong bushfires and exactly the same point was made by the local communities there in relation to the use of council infrastructure and gear to facilitate emergency repair and then the lack of reimbursement therefrom. So it is not the first time and in the first instance that it has been raised with this particular Committee. I daresay we will have a bit of a look at that when we get a chance. Mr Oxenham, Tweed Shire Council is very much a larger council than Kyogle in terms of the number of ratepayers and probably a smaller area. Is that correct?

Mr OXENHAM: Yes, by comparison. Our total square kilometres is in the order of 1,300 and a population of 90,000 people.

The CHAIR: So we have the two extremes. As best you are able to comment, what do you think of some of the points made by Mr Kennett? Do you see that they are transferable across to the larger councils? Do you also have similar sorts of problems, we will call them?

Mr OXENHAM: Most definitely. We are very supportive of what Graham has articulated today. Regulatory reform from our perspective is a priority. We deal with multiple agencies, all specifying their own requirements, and it is very difficult for us as a council to navigate through that. A greater level of support in terms of the disaster arrangements would be much appreciated. Council funding, emergency response, restoration work in terms of its own day labour and plant contribution, from my perspective, is going to cut the level of service to our communities, and that needs to be addressed.

DPI Water have been doing a fantastic job and I think we would all agree the best practice guidelines is for local authorities, local utilities in New South Wales, to best practise. We have financially sustainable business models which will see us provide water and sewerage services well into the future for our communities. They have played a big part in making our authority and other authorities across the State what they are today.

The CHAIR: Mr Rees, what would your comments be on behalf of Byron in relation to the issues raised by Mr Kennett?

Mr REES: We are fully supportive of that, and I use recycled water as an example. We get different messages from DPI Water and then we go to the EPA and it generally falls over when we are pursuing recycled water projects.

The CHAIR: In relation to recycled water, and specifically recycled stormwater, you might have heard my comment to an earlier witness that this Committee went to Orange to have a look at their stormwater recycling system—and I am not sure what funding method or funding route they took to get to where they were—but from what Mr Kennett says I take it you are saying that a similar sort of funding model to the sewage and wastewater side of the equation needs to be made available for stormwater. Is that what you are saying?

Mr KENNETT: Mr Rees raised that issue specifically but, yes, we have raised that in previous submissions. One of the concepts we put forward to try to bring forward into the integrated water cycle is that rather than the prescriptive nature of the accounting system where we must have a water fund and we must have a separate sewer fund we should allow the water and the sewer funds to be combined to also fund stormwater and flood mitigation. You could in effect end up with an integrated water fund that would be responsible for all that urban water—

The CHAIR: I also assume you are saying not integrated within the same amount but perhaps augmented; in other words, more money, otherwise you are robbing Peter to pay Paul, are you not?

Mr KENNETT: There are restrictions at the moment. Again this is around how we tend to stifle innovation because of these restrictions. I cannot put in place a project that warrants a small amount of additional funding for a project that may provide a benefit for small water treatment as my water supply because my water pump is to be only exclusively used for water supplies and my sewer fund is only exclusively to be used for sewer projects. But if I find an innovative project that has a benefit for the pair and an added stormwater benefit or flood mitigation benefit—

The CHAIR: There is no current path for you to go through?

Mr KENNETT: No. It must be separately funded. We went through this with the augmentation of the water supply at Kyogle where we provided an off-stream storage, an environmental improvement on the weir—stormwater treatment and flood mitigation works in essence in one block of capital works—but it was a difficult regime to manage the financing of that. We had to apply for elements of it separately because if we went to one agency for funding for one, they could only fund the element of the works that was associated, for arguments sake, with flood mitigation. It is old-fashioned.

The CHAIR: Before Mr Veitch asks his question, Mr McKenzie, as a bulk water supplier to some of these areas, what do you think about the comments made by Mr Kennett?

Mr McKENZIE: Rous is generally supportive of those comments. We are in a similar situation where our funds are isolated between our flood mitigation and our bulk water supply so they are specific. We are also subject to best practice guidelines. Rous went through the process of looking at a secure yield. We come with the three options I mentioned earlier. Indirect portable reuse, whilst DPI Water and the other agencies had a heavy involvement in our strategy for augmenting our future security yield in our preliminary investigations, we are finding again the regulatory burden that is going to be placed on us for indirect portable reuse will probably mean that option will not be explored in any real endeavour. We have already been told that will be quite a challenging project for us to manage in the future. It really falls back onto the two other options that came out that the community accepted and were willing to investigate but they came out as probably the options that we will explore going forward.

The Hon. MICK VEITCH: Tweed Shire Council's submission talks about creating more resilient infrastructure. During my time in local government we used to call it betterment. Post an event the funding available was only to bring it back to the standard upon which it was at. If there was a dip through a creek, instead of putting a culvert in, you only needed to put the dip back in; you could not fix it so that it would not flood next time. So it is betterment funding. Your comments this morning, Mr Kennett, also touched on creating more resilient infrastructure. The issue for government is how to fund that. Whilst I agree with the principle I also appreciate that we do not have a bottomless pit of money. Do any of your councils have a view about a constructive way forward with regard to that conversation?

Mr KENNETT: We lost six bridges in the last flood; three were completely washed away and six were damaged to the point where we do not believe it is economical to repair them. We put forward options to Roads and Maritime Services [RMS]. We were forced to price and rebuild those bridges in timber in 2017. Nobody builds bridges out of timber anymore.

The CHAIR: It keeps bridge and wall carpenters in jobs.

Mr KENNETT: We put forward three options for each of those. One was timber, as like for like. One was a concrete and steel structure, the same deck height and number of lanes. The other was an innovative design using a steel truss bridge that can have longer spans but they only come in two lanes and we build them

at a higher deck and they must be kept out of flood because they are not flood resilient, but if you put them up higher they are. We could build that bridge in one case cheaper than a bridge down low and we had to argue very strongly to get funding to allow us to rebuild that bridge. It was not even any more expensive than the less resilient structure that it was replacing. Now you talk about a funding model. There is a case where those bridges got washed away. Now we knew what needed to be done to them to make them more resilient.

If there had been the opportunity five or 10 years ago where we could have paid for half of them and someone else would have paid for half of them, those things would have been built before this flood and they would not have been washed away. That is the reality and the example in practice of what the policy at the moment creates; the situation it creates. We have two communities as a result of those bridge losses that had no access for a week. Our guys rebuilt a bridge in five days for one of those communities—a 30-metre long bridge, to get them into their properties where the cost of our guys tearing out there and doing that, because that is what they do every day, is not eligible for assistance under the Natural Disaster Relief and Regulation Arrangements [NORRA]. These are the sorts of ridiculous arrangements. We could spend half as much money and have got the bridge 10 years earlier.

Mr OXENHAM: One of the points we did want to make was that the Government's spending on flood recovery compared to its spending on flood mitigation or flood management is 10:1, so somehow that needs to be turned around. We are spending more money as a nation on recovering from floods rather than spending money on being more resilient. Case in point, Tweed Shire Council is very lucky because of the great base that we have. Eighteen per cent of our bridges are concrete bridges and we sustained minimal damage to our bridge infrastructure.

We had one old timber bridge that was completely washed away and in that situation we are going to be looking at betterment. We will fund, and have the capacity hopefully to fund, the betterment component of it, but we are in a very different situation to Kyogle and a lot of other councils. They are just not in that position so making our infrastructure more resilient and finding the funds somewhere in government is a priority. Each council has the capacity in some form or another to not just ask for 100 per cent of the funding of resilient packages but some component they could potentially fund themselves. I do not know if I have made myself clear there but there is capacity within councils to assist in the funding of resilience but we certainly need funding and money from high levels of government to make it happen.

The Hon. MICK VEITCH: Mr Rees?

Mr REES: I was thinking while the discussion was on that you have to divorce the two. It is recovery but there is also what I would call best practice ongoing expenditure. If you can get that right then your recovery money becomes less and less over time. That is why I think the concept of either combining funds or certainly bringing stormwater into the water cycle funding which we have for water and sewer would be a big step and having best practice stormwater management—certainly for our small towns like Byron Bay and Ocean Shores.

The Hon. MICK VEITCH: The other question relates to Tweed Shire Council's submission, which states, "Large percentages of North Coast populations are naïve to the flood threat, are unaware of emergency procedures, live in areas that were zoned for habitation prior to good understanding of flood risk, place over-reliance on flood mitigation infrastructure and undertake building modifications and uses without due consideration of flood risk." I will come back to Tweed council and expand on that, but what are the views of the other councils? Do you concur with that statement?

Mr KENNETT: Yes, of course. We saw it happen in the Tweed. The same applies, but to a lesser extent, for us because it is a smaller area and flood-affected properties are fewer and very small communities generally do not change as quickly. We get flood so often that is almost impossible not to be aware of where you live but even in this flood, there were two or three new people who had moved into a flood-prone area in Kyogle who had absolutely no idea that their property was about to go under water. When the State Emergency Service was running around knocking on doors it met them. But Tumbulgum, Murwillumbah and these areas have not seen a big flood for many decades. The former general manager of Tweed Shire Council assisted me with a recruitment process not long ago and he said, "Graham, 50 years ago when the last big flood came through there were 20,000 people living in Tweed shire. Now there are only probably 10,000 of them left alive and there are 90,000 people living there. They have no knowledge of what a flood looks like."

Mr REES: I do not think I have been that brutal, but generally speaking you get a lot of that happening. People are not aware and they build in underneath their house and they are in a floodplain.

The Hon. MICK VEITCH: Mr Oxenham, it is one thing making the statement, but what is the way forward? How do we rectify that so it is not an issue in the future?

Mr OXENHAM: I will reiterate my statement. There are two parts. Ourselves, Lismore and other councils have built levees to protect certain residential and commercial areas. The people and the businesses behind those levees lose contact with the river and their environment and they think they are protected. The main levee in Murwillumbah is a one-in-100-year levee. It was 100 millimetres from overtopping. If it had overtopped it would have been catastrophic for the Murwillumbah CBD. The south Murwillumbah locality has a one-in-five-year levee and it was overtopped by about two metres. There was a levee there and many of the new people in that locality did not believe that or understand.

Constructing levees and flood mitigation works provides people with an enormous level of comfort, but it makes them somewhat removed from their environment. Similarly, as Mr Oxenham said, there are many new people in the shire. Tumbulgum gets flooded every year, twice every year or three times every year. It is very low lying; it is in the lower part of our catchment. A number of people there have lived there most of their life. In this event they were well prepared and lost minimal in terms of property damage and the like. However, there were new people who were extremely surprised at the level the floodwater reached and they were not prepared. About 60 or 70 cars were lost in that village.

When I first came to the shire 20 or 25 years ago, whenever there was a sniff of a flood people would move their cars to high ground. That did not happen on this occasion. We talk about making communities more flood resilient or building more flood resilient infrastructure, but communities also need to be educated. There needs to be more information in the community about floods and their effects and what they can do in a flood to mitigate the damage to their property and themselves.

The Hon. PAUL GREEN: Do you think that is because of population dilution? You have new people coming into town outnumbering the older people who have been there for a long time. They know what the previous floods did, whereas the new people have no idea about their capacity.

Mr OXENHAM: The new people do not know; they have no idea.

The Hon. PAUL GREEN: New people come to town—

Mr OXENHAM: We must provide information to the newer people in town. It is a local government, State Emergency Service and Office of Environment and Heritage responsibility. All of the agencies need to be involved. It is about better education of those communities. It is the old members of the community who are the cornerstone of understanding what to do and how to do it. I attended a number of flood forums convened by the State Emergency Service in the Tweed. There was a number of older people in that community who were well aware of what could happen and they had appropriate plans. Other members of the community, the council and the State Emergency Service need to draw on their knowledge to attempt to make their communities more resilient. In this day and age there is a very strong culture of people not wanting to accept reality or the truth about floods because of the impact they might have on their property and their property values. It is the key issue that we have had to deal with in the past, and we are continuing to deal with it.

The Hon. MICK VEITCH: Were the post-flood debriefings, meetings and forums conducted by government agencies constructive? We have heard elsewhere in the State that people were not happy with them. What was your experience? Were they constructive, worthwhile or beneficial?

Mr OXENHAM: The meetings in the Tweed were State Emergency Service flood forums. They were facilitated by independent consultants with the State Emergency Service, the Bureau of Meteorology, councils and police in attendance. Yes, there were some tricky questions and moments in the forums, but from my perspective they were very good. They were a great opportunity for the community to vent their frustrations, to raise their concerns and also to acknowledge the tremendous good work done and goodwill evident during the event and post the event. We have just lodged our submission, and from my perspective the record of that is extremely important and very valuable for our community.

The CHAIR: Where is that submission now? Who has it and to whom did you make the submission?

Mr OXENHAM: It is with the commander of our local State Emergency Service.

The Hon. PAUL GREEN: You indicated that you had a problem with the Independent Pricing and Regulatory Tribunal's role. Did you have any problems with the way that it assessed water pricing? It seems that the regulatory approach is out of whack.

Mr OXENHAM: I would like to clarify something. Local government water utilities are not regulated by the Independent Pricing and Regulatory Tribunal [IPART]. I believe an inquiry into regulatory constraints around local government undertaken by the Independent Pricing and Regulatory Tribunal last year recommended that the larger water authorities in New South Wales be regulated under the Water Industry

Competition Act by IPART. We have multiple regulators. Our primary regulator, for want of a better word, for water utilities is the Department of Primary Industries—Water.

The Hon. PAUL GREEN: Which you said is doing a good job.

Mr OXENHAM: In the main, it is doing a good job, but there is always room for improvement. It has undertaken some structural reforms in the past few years. The liaison that we have with the department is quite good. It is looking for ways to improve the best practice guidelines and its operations. There are issues, including the section 60 approval for recycled water schemes. That can become extremely problematic when you bring in all the other agencies that have input into recycling water.

The Hon. PAUL GREEN: That seems a bit crazy. It is like the old dual consent things; you get one catchment management authority saying yes and another saying no. There seems to be an opportunity to put that on the record and to get a one-consent scenario. How would you recommend the Committee approach this issue? You need confidence that if you take a proposal to the body it will be approved by all. You do not want one saying yes and one saying no.

Mr BURNHAM: I will respond to that. As indicated, we would like a lead agency to take on board all the other agencies' issues and to have the power to veto and to come up with a balanced outcome. We are not necessarily saying it has to be the Department of Primary Industries—Water, but it has generally had that role without the power over the years and it has had an understanding of our circumstances.

The Hon. PAUL GREEN: Do you believe that the Department of Primary Industries would be the best agency to do that?

Mr BURNHAM: I think so. As Mr Oxenham said, there have been many restructures so there is a bit of uncertainty from our point of view about its capacity and going forward in that regard. However, from a historic perspective, that would make sense to us. Just by the way of example, when we start a significant project now one of the first steps is trying to plan how we would corral all the various government agencies and their input early on to try and get some idea of their conflicts and then work our way through managing the conflicts. You almost lose sight of what the intent of the project is because all you are trying to do is manage their differences and the like.

The Hon. PAUL GREEN: And they are moving goalposts.

Mr BURNHAM: Very much so. We do find that.

The Hon. PAUL GREEN: That is annoying. You have limited resources as it is, never mind having to jump new hurdles.

Mr BURNHAM: Thank you.

The Hon. PAUL GREEN: Mr Oxenham, you spoke about the strategic plan being good as part of the Department of Primary Industries' management and best practice. Something was also said about a reduction of rates in water and sewerage. Was that you who said that?

Mr REES: No, that was me.

The Hon. PAUL GREEN: It is pretty encouraging to think that a council is going to reduce its rates. Can you tell the Committee how you are going to do that?

Mr REES: I said that we are considering it. We are in a position where we have come through the country towns program, we have got the best practice management in place and we have taken the opportunity to put the broom through the operations. We have already got composite crews doing stormwater and sewerage. It is about getting cost savings. In the next 30-year capital works we can probably reduce rates or maybe do some stormwater—

The Hon. PAUL GREEN: Recycle the rates.

Mr REES: Yes.

The Hon. PAUL GREEN: I know that with a portion of local government rates you do have the opportunity to apply a stormwater levy.

Mr REES: Yes, we do that.

The Hon. PAUL GREEN: I think the maximum rate used to be \$25 or you could charge \$5. Do you not maximise that? Can you give the Committee a bit of a snapshot about that?

Mr REES: In our case we do; it is \$25 a property. In total it is \$300,000 a year. It is then constrained as to what you can spend it on. We would not be able to spend it on upgrading the urban stormwater for existing roads, for example, as I understand it.

The Hon. PAUL GREEN: Would you like that to be opened up a little bit so that you could do more with it? It is not one size fits all. Rural and regional communities need to have a bit more responsibility in that particular levy.

Mr REES: I think there needs to be flexibility, as I said before, in water and sewerage to enter stormwater where there is shown to be that linkage. It should not just be laissez-faire but, again I hark back to the best practice guidelines, if we were able to get some things in with stormwater and then apply the funds accordingly.

The Hon. PAUL GREEN: That comes to the integrated water cycle suggestion that we should be able to use funds. If that was to be achieved, would you be of the view that there would also be a cap to ensure that councils do not raid that kitty and leave the other ones short where they really should also be banking some money for a future event or design?

Mr REES: We have always got to be careful with bureaucrats and money.

The Hon. PAUL GREEN: Because it is very tempting once you have got a free-for-all.

Mr REES: Definitely, but that is where the best practice guidelines come into it. There are certain hurdles you have got to go through before you can—

The Hon. PAUL GREEN: Do you know of, for instance, another State which is using the Integrated Water Cycle Management [IWCM] method? Where they have integrated all that and you can take a bit of money from this integrated water cycle strategy and put it into another?

Mr KENNETT: I am not aware of any. We did the best we could within the framework we have—the \$25 a head charge for stormwater management—but it is quite restrictive because it is essentially to manage what is already there whereas all of the things we needed to spend money on in stormwater were improvements such as open drains and a large amount of hydraulic bottlenecks. We combined stormwater and flood management to one budget area because it competes with the general fund—the \$25 charge you could charge without it affecting the rate pegging. We did the strategic planning, we looked at the financial modelling around what we needed to do and over what sort of time frame and it came out more like about \$90 a property. So the mechanism that we had to use was a special rate. So we charge a special rate for stormwater management—

The Hon. PAUL GREEN: Above the stormwater levy?

Mr KENNETT: No. You can only charge one or the other. You cannot charge both.

The Hon. PAUL GREEN: So you went for something else.

Mr KENNETT: So we had to abandon the \$25 levy and ask our community if they were willing to pay a \$90 a year stormwater special rate. It would only apply to the people within the villages. So it was closer to a user pays than the general fund general rate kitty, but it is still the general fund and the difficulty with that is that it is subject to rate pegging.

The Hon. PAUL GREEN: Did you get it up?

Mr KENNETT: Yes. We have put it in with an above rate pegging increase primarily focused on roads and bridges.

The Hon. PAUL GREEN: But that particular part was referenced to stormwater?

Mr KENNETT: It has to be. We have to prove to the Independent Pricing and Regulatory Tribunal [IPART] the levels of expenditure in those areas. It was possible but it still can only be spent on stormwater management. It does not integrate well those projects where there are multiple opportunities or multiple benefits. Of all of the recycled water schemes, the Orange scheme is a perfect example of where they have treated stormwater, pumped it to their dam and used it for indirect reuse. There were benefits across their water and stormwater—

The CHAIR: Can I just clarify something? Are you saying that this particular fund does not allow you to do that? It has to be used for what I will call wastewater because that is what it is—it is wasted if you do not do anything with it?

Mr KENNETT: Yes. We have two separate funds: Water and sewerage and a separate budget within the general fund for stormwater and flood management, but never the twain shall meet.

The Hon. PAUL GREEN: You spoke about some of your rural villages where the population growth is not huge. They have to carry significant infrastructure costs. That has a burden on what you can do within those villages. The cost-benefit ratio will never make it for those villages to pay the price. Are you suggesting that the Government should start again or that the Country Town Water Supply and Sewerage Program, which was a great initiative—

Mr KENNETT: Let us just remember the Country Town Water Supply and Sewerage Program was a program created to fund the backlog of works needed in 1996; it is still only being wound up decades later. Things that should have been done 20 years ago are just now being finished off. Whilst the Country Town Water Supply and Sewerage Program was handy, it was the New South Wales Government's commitment to local government when they said, "This is now your problem. You plan for it, you pay for it in the future. We will pay for everything that needed to be doing as at today when we hand it over to you." What we had not done up until potentially very recently with the Restart, was replacement with anything that looked to fund the future—improvements, growth. Our small villages are not going to grow. They have negative population growth. They are becoming centres of welfare because the services are so poor. We have a choice of either forcing the people who cannot afford it to upgrade their onsite sewerage systems to improve their safety or putting in place sewerage schemes so that we are putting that burden back onto the council.

We have done the feasibility analysis and it is cheaper for us to have a sewerage scheme than to try and force those people to each individually deal with their own effluent. The problem is when we go to the Environment Protection Authority [EPA] and say, "Here we go. This is what we want to do in this village. There is a nearby stream it can discharge back into. We are looking for similar licence limits to those that have been in place for the past 60 years in Woodenbong or Bonalbo without issue." The answer is, "No. It is a new storage scheme. You must go for the best practice requirements." They guise them as Essential Waters guidelines, which are enormously impossible and expensive to achieve and require high level and complex treatment systems. When you have highly skilled operators the costs start to blow out to the point where nothing is going to happen. I cannot give them the simple, affordable solution that has been in place in regional New South Wales for decades without issue, which is our point.

The Hon. PAUL GREEN: It is over engineered, like your bridges.

The CHAIR: It is over regulated.

Mr KENNETT: It is over regulated.

The Hon. PAUL GREEN: Over engineered and over priced, which is not affordable.

Mr KENNETT: It is risk adversity. There is a risk to the environment that something will go wrong. Do you know what? One of the guys from the EPA said to me one day that the lack of evidence of harm is not evidence of a lack of harm. What the hell are you supposed to do with that?

The Hon. PAUL GREEN: Can you give the Committee a bit of a snapshot about Clarrie Hall Dam? Do you know where it is up to? Is it happening? Has it been budgeted for?

Mr BURNHAM: Yes, it is progressing. Council has resolved to allow us to progress the planning phase up to and including getting an environmental impact assessment done and getting through that approval phase, along with purchasing the required land that was inundated by the raising of the dam. The project is worth about \$65 million and we are probably 15 months into that 10-year project. All going well we would hope the project would be completed by 2026. That is basically the same time line where our secure yield will meet our available current use. It is progressing well at this stage. Council though has continued to ask us in parallel to look at any other alternatives that might become available at this stage. Council will have to further resolve once we get the planning approvals to proceed to the construction phase and we do not have that resolution at this time.

The CHAIR: Unfortunately we are out of time. Thank you very much to Tweed Shire Council for providing us with a formal submission. Thank you very much to Kyogle Council for providing us with a submission, which effectively you have done, and some good ideas. The Committee may want to write to all of you or each of you to put some questions on notice, particularly given that your evidence appears to have raised more questions than we had. We would like any responses to any questions on notice within 21 days of their being received formally. Thank you very much for coming along and giving us your valuable time.

(The witnesses retired)

(Short adjournment)

GREGORY MASHIAH, Manager, Water Cycle, Clarence Valley Council, sworn and examined

TROY ANDERSON, Director, Works and Civil, Clarence Valley Council, affirmed and examined

The CHAIR: Would one or both of you care to make an opening statement? We have received your submission No 86 but if there is anything you would like to add now is the time to do it.

Mr ANDERSON: No more, Mr Chair, other than we thank the parliamentary inquiry for allowing us to have the opportunity to discuss the submission with the Committee.

The CHAIR: For clarification, is the Clarence Valley Council not part of Northern Rivers Regional Organisation of Councils [NOROC]?

Mr ANDERSON: No, we are not a member of NOROC group of councils, no.

The CHAIR: Are you a member of another regional organisation of councils [ROC]?

Mr ANDERSON: We are midway between NOROC and Mid North Coast Regional Organisation of Councils [MIDROC]. We are neither in nor out of either at the moment. We participate in both.

Mr MASHIAH: Having said that, there is a water alliance through the ROC and we are an observing member of the Northern Rivers Water Group, which is the water alliance. So we participate in that as an observer but we are not a formal member of the Northern Rivers Water Group alliance.

The CHAIR: Were either of you in the room with the previous set of witnesses?

Mr MASHIAH: No, we were not.

The CHAIR: Some very interesting points were raised, particularly from the representative for Kyogle Council, which is obviously a smaller distributed population council in a large area. We had Tweed Shire Council, which is large at 90,000 people. Could you give us a description of where you fit in all of that, how big is your catchment and how many people?

Mr ANDERSON: Clarence Valley Council area is around about 10,500 square kilometres and we have currently got a population of around 54,000 people.

The Hon. MICK VEITCH: During the morning sessions I have explored with witnesses a section out of the Tweed Shire Council's submission. There are two elements. The first one is to do with what they call creating resilient infrastructure, betterment funding processes. I am a supporter of the idea of improving after damage but the issue is funding and how we make that happen. What is your view about creating resilient infrastructure post a flood and any ideas on how it would be funded or appropriate funding mechanisms?

Mr ANDERSON: Mr Deputy Chair, we fully support the idea of building resilience into any flood damaged infrastructure and we have a classic example at Clarence. I have been at Clarence since midway through 2013. I was at Ipswich City Council in Queensland for an amount of time and I was, I do not know whether fortunate enough or unlucky enough to coordinate the flood recovery response from 2011 to 2013, the floods that hit south-east Queensland. The classic example of where we are not building resilient infrastructure and the narrow interpretation of the National Disaster Relief and Recovery Arrangements [NDRRA] guidelines is Six Mile Road in Glenugie, which is a rural road which leads to Grafton airport, a small airport. Since I have been at Clarence since midway through 2013 we have had five declared disaster events, all of varying scale, but that road has been washed out every time and we keep going back to repair it in exactly the same manner through the narrow interpretation from the State in regard to building resilience into the infrastructure.

The Hon. PENNY SHARPE: Regarding the interpretation, has something changed in the wording about the way in which the funds are dispersed, or is it just that the wording is too tight, or that people are interpreting it as what is in and out that has changed over time?

Mr ANDERSON: To be frank and open, it is the interpretation from the Department of Public Works in regard to that and we constantly get told—not only on this site but a number of other sites and rebuilds—that the funding is to rebuild the same infrastructure in the same place in the same condition.

The Hon. MICK VEITCH: Like for like.

Mr ANDERSON: Exactly, and you shall not move an inch away from that.

The Hon. PENNY SHARPE: But what do the actual words say that guide that decision? Is it in the legislation, is it in the regulations, are there departmental guidelines?

Mr ANDERSON: In the NDRRA guidelines it talks about resilience and betterment funding—and please do not quote me on the exact wording associated with that—but it is along the lines of you can build resilience and betterment. The betterment is a different approach to the funding and where councils may add, or the authority may add to that by providing some additional funds to, for example, provide some kerb and channel to a reconstructed road that was not there previously. They might want to better the project and contribute the funding at that point in time.

The Hon. GREG PEARCE: Perhaps you might want to take that on notice and send us back a direction of what the wording actually is.

Mr ANDERSON: Yes, certainly.

The Hon. PENNY SHARPE: That would be useful.

The Hon. MICK VEITCH: Six Mile Road at Glenugie is a good example of where if you had spent the money in the first instance you could have constructed something that would have avoided having to replace it five times.

Mr ANDERSON: Yes, definitely, not the damage it keeps on receiving, most definitely.

The Hon. MICK VEITCH: The Tweed Shire Council's submission further says:

Large percentages of North Coast populations are naive to the flood threat, are unaware of emergency procedures, live in areas that were zoned for habitation prior to good understanding of flood risk, place over-reliance on flood mitigation infrastructure and undertake building modifications and uses without due consideration of flood risk.

What are your views on that statement from the Tweed Shire Council submission?

Mr ANDERSON: We agree, to a certain degree, yes. I think levees and flood mitigation build a level of complacency. However, I must say in Clarence—as detailed in our submission—we did do some modelling associated with Grafton and have changed some of the evacuation patterns, routes, et cetera, associated with that. That was tested in 2013, which has been quite successful. Together with the State Emergency Service [SES] and the Local Emergency Management Committee we have been promoting that throughout Grafton, particularly in that area of the pocket that is first to evacuate, and making them aware of what actually does occur. With the full levee overtopping study we do have modelled animations about how the town will fill up should the levee overtop.

Mr MASHIAH: We do actually have some evidence in terms of the response for evacuation orders. In the March 2001 flood the evacuation of Grafton was ordered and about 20 to 25 per cent of people followed the evacuation order. So, first of all that shows there is a very low response. Even though it was eight years later, in 2009 there was another evacuation order issued and this was before the more detailed modelling Mr Anderson spoke about.

Only about 10 per cent of people evacuated the second time around. Our concern—using the old cliché about the boy who cried wolf—is that every time you order an evacuation of a town that is protected by a levee and the levee is not overtopped, people are reinforced in their minds that they have been protected by the levee. In 2013, as Mr Anderson mentioned—it was mentioned in our submission as well—the water lapped the very top of the levee. There was a 100-metre section where it came over but, thanks to the great modelling, we were able to only evacuate three blocks. People could see the water coming over and were able to evacuate. We were very fortunate in having just completed very detailed modelling. We had also been able to calibrate that modelling because we had had floods before 2013 with very good flood data. So we had good, up-to-date flood data. But as time goes on people's memories fade.

In the town of Yamba, for example, between the 2001 flood and the 2009 flood if you look at the census data you see that about 50 per cent of the people had not previously experienced a flood. Yamba itself does not flood but it gets isolated by floods. So, probably 50 per cent of the population were not aware that Yamba could be isolated for a week by flooding. As time extends since the last flood people's memories of the impacts of those events decrease. It is an ongoing challenge for the SES, which is the main combat agency in terms of raising awareness, and council—in terms of flood response and flood modelling—to try and increase public awareness of those issues and keep those issues in the forefront of people's minds.

In the area around Glenugie, which Mr Anderson has spoken about, because it floods very regularly, people are more prepared for floods. But there are people in towns which have never had their levees overtopped. Maclean and Grafton are protected by levees. The Grafton levee just celebrated its fiftieth

anniversary a couple of weeks ago, and the Maclean levee is 41 years old; it was built in 1976. Neither of them has ever been over-topped so the knowledge of how to respond if they were ever overtopped has disappeared because it is not within the living memory of most people.

The Hon. GREG PEARCE: Was that overtopping study more about what would happen if it was overtopped, not about the adequacy of the levee itself?

Mr MASHIAH: That is correct. One of the scenarios we looked at was what would happen if the levee was breached. We do continually assess the stability of the levee. One of the scenarios in the overtopping study was a breach of the levee in case it fails, in which case the towns would fill up a lot quicker than they would if there was a controlled overtopping. We looked at those scenarios, and the SES uses that data to inform their evacuation planning. It is a partnership between the towns of Grafton and Maclean in terms of council modelling and the SES units located in those areas for evacuation.

The Hon. GREG PEARCE: Were the levees designed on a 100-year level?

Mr MASHIAH: The original levee was designed with the knowledge of flooding that they had at the time. The Grafton levee was built in the sixties, and the Maclean levee was built in the seventies. They were originally designed for what was known at the time as a one-in-100-year flood. With subsequent knowledge of flood modelling and the increase in the flood record since that time, the Grafton levee is now classified as a 5 per cent levee—which is a one-in-20 average occurrence. In terms of public awareness I hate using the term "one in 20" because it builds this false impression in people's minds.

The CHAIR: That it is only going to happen once every 20 years.

Mr MASHIAH: We are talking about average exceedance probability [AEP], which means that in any given year there is a 5 per cent chance of the Grafton levee being overtopped. The Maclean levee is the same; it has a 5 per cent AEP, which means, on average, one in 20 years. Every time we have a flood we change the frequency of the design flow. The best example one of my manager colleagues gave was to think about the days when Ashton Agar first played cricket for Australia. After his first test match he had an average of 50, and after his second test match he had an average of 25 because he had been out to bat four times. We use a similar type of analogy in explaining to community members on our floodplain committee that the levee height has not changed but our knowledge of what is a 5 per cent event and what is a 1 per cent event has changed with the increase in modelling and increased floods. Australia has a very short period of flood records.

The CHAIR: You used the term "controlled overtopping" or words like that.

Mr MASHIAH: The levees are designed to overtop at a certain point.

The CHAIR: Yes. That is called "controlled overtopping"?

Mr MASHIAH: Yes.

The Hon. GREG PEARCE: Are the flood zonings aligned with the level of the levee? In other words, do you have, on the one hand, a levee that is for a one-in-20-year event, and land that can be built on that is more flood prone than that, or are they aligned?

Mr MASHIAH: The zoning is the same within the town. For example, all of Maclean is zoned for urban development. Generally, outside the levee areas we would require them to be above the 1 per cent flood level. Under the floodplain management manual, which was adopted by the New South Wales Government nearly 22 years ago—I think the current manual came out in 1995—you look at the risk. So there is a defined procedure to follow for zonings and for what is called the "flood planning level". There is a four-step process. The first step is doing the detailed flood study. It goes through to a floodplain risk management plan right through to implementing that flood plan. That flood management plan includes the zoning. There are considerations not only of the technical aspect—the flood level—but also things like the economic and the social aspects.

With our current review in the Clarence valley of the flood levels, we have had a new flood study in conjunction with those overtopping studies, which was adopted in 2015 by council. But we are still looking at the adopted flood planning level in Grafton because if we adopted a 1 per cent flood level in Grafton most houses would have to be built with the floor level five or six metres off the ground. In considering those factors in existing towns that is one of the things you need to look at in terms of the floodplain management manual. Fortunately, under the Local Government Act—I think it is in section 733—councils have a statutory immunity if they follow the provisions of that State Government manual. So it is very important that we go through the process to ensure that we have that statutory immunity in terms of individual damage. Obviously, that does not

help the property owners when there is a flood. Whilst the council is immune against action the property owners are still suffering loss.

The Hon. MICK VEITCH: In other parts of the State we have heard that people were not happy with the post-flood meetings with Government agencies. We heard this morning that the Northern Rivers councils were happy with the post-flood meetings with Government agencies to work out what happened, what could be done better and that sort of stuff. Where are your views or comments regarding those post-flood meetings that you had around Grafton?

Mr ANDERSON: I might leave it to Mr Mashiah to answer that in terms of basic history, because I have not had tenure in the Clarence for a major flood—only for a minor flood. I have been involved with the local emergency management committee. There has been some good feedback and cooperation with the group and also the community in regard to the minor events that we have experienced since 2013. I arrived in the back of the 2013 events in the Clarence. There was no real adverse feedback from the community that the system was not working with respect to engagement with council and the combat agencies. Mr Mashiah may have more advice on that.

Mr MASHIAH: The 2013 flood was the last major flood in the Clarence. The post-flood disaster committee that was set up by the State Government seemed to work very well. We did have the experience of a previous flood in terms of a disaster coordination committee that was established. Council offices were used to house that. Generally, council had very limited involvement with the feedback. We heard on the ground that people were quite happy with the way it was handled.

I should also mention that during the flood in 2013, Public Works, who were coordinating the overall emergency management across the State were very proactive in seeing if there was anything that we needed and whether they could assist, and whether they could get assistance from outside the area. The person who was acting in the New South Wales emergency management coordinator's role for Public Works would phone me up at least once or twice a day just to check whether there was anything that we needed during the period that we were isolated. So, we could not have asked for more from them in terms of their statutory role to assist us.

The Hon. MICK VEITCH: Thank you.

The CHAIR: On that same subject we have received evidence, in both this inquiry and a former inquiry of this committee in relation to a bushfire, that the use of council infrastructure to do emergency repair works post-flood or post-fire is not recognised in terms of the reimbursement and councils are therefore being left with the cost of having to provide their infrastructure, and, I take it, labour, outside what might be available by way of recompense under some of these disaster schemes. Has Grafton council had any experience with that? Say in 2013, how was the recompense to the council for its involvement in the post-flood recovery made? Was the council happy with the level it was recompensed?

Mr ANDERSON: I will probably have to take that question on notice. If I can seek a point of clarification? You are speaking about just housing that group, not about repair of damaged infrastructure?

The CHAIR: And the use of council infrastructure; so your gear to repair roads, to repair culverts, to do all that sort of work, labour, equipment and, I take it, not so much the housing of emergency people.

Mr ANDERSON: I probably can answer that question then. Yes, exactly, the guidelines and interpretation, again through Public Works but probably more through the Federal Government, is quite clear that council day labour is not to be used in regard to any repair and will not be compensated in any way, and that is anything that is outside the emergent works, and that also anything that happens within normal operating hours and council staff or equipment are used is not compensable in any way.

The CHAIR: So do you believe that that aspect needs to be addressed?

Mr ANDERSON: Yes, most definitely, it is a severe hindrance, particularly in regional areas. We do not have ready access to what self-contractors there are to be able to do that, or plant and machinery. Even though a disaster may happen we still have other work to do, and there is a lot of area in an area such as the council of the Clarence—10,500 square kilometres. There might be an area that is affected by flood that we are undertaking restoration works in, but there is a very large area that is not and we are still undertaking our works program as normal.

The CHAIR: So there is a direct cost to council and to the ratepayers of having to divert equipment and/or labour from other normal works?

Mr ANDERSON: Most definitely.

Mr MASHIAH: One other aspect, Mr Chair, is that sewer and water operations of council are considered a business under the guidelines and therefore are not eligible for any disaster assistance even though the water and sewerage infrastructure may be quite severely impacted.

The CHAIR: So the Government view is that you should insure. Is that right?

Mr MASHIAH: Well, it is something you cannot really get insurance for, flood insurance.

Mr ANDERSON: Or that you cost recover.

Mr MASHIAH: Or cost recover.

The CHAIR: So you are on your own?

Mr MASHIAH: Yes. We do have to make some allowance, obviously, in our budgeting for that.

The Hon. GREG PEARCE: Thank you for your submission. In your submission you talk about this idea of diversion of the Clarence River to west of the Great Dividing Range. Could you give us a bit of a background on that proposal and what your council thinks about it?

Mr ANDERSON: I will start but Mr Mashiah might finish. Our council has resolved six times that they do not support the diversion of the Clarence, and each time that has been unanimous in regard to council's position. That is based on the fact that damage to the environment and the ecological systems that work within the Clarence River emerge from there.

The CHAIR: You probably cannot answer this, but that is an all-encompassing position of council?

Mr ANDERSON: Yes.

The CHAIR: I wonder what the council's position would be on the diversion of floodwaters only.

Mr ANDERSON: Again, Mr Chair, like you said, I cannot answer that question.

The CHAIR: What I am asking you is that I guess the council's resolutions were not burrowed down to that extent to be able to answer that question. We might ask Clarence council for an opinion on that.

The Hon. GREG PEARCE: Are those decisions supported by an independent side to pick advice? How were they derived?

Mr MASHIAH: There was a Healthy Rivers Commission inquiry into the Clarence in I think it was 1999, from memory, and part of the outcome of that commission inquiry was the importance of regular flood events in terms of the fishing industry and also the cane industry. I believe you have representatives from the cane industry here with us later.

The CHAIR: This afternoon, yes.

Mr MASHIAH: And also in terms of fisheries, one of the aspects that Clarence Valley Council has been active in for the past 20 years is trying to manage the floodplain to address issues such as acid runoff.

The CHAIR: Solid sulfate soils.

Mr MASHIAH: As the sulfate soils and particular acids run off. So we have done things like open floodgates and—

The CHAIR: And you should be congratulated.

Mr MASHIAH: Thank you, Mr Chair, for that. I will pass that on to the relevant staff who have been coordinating that. The regular flushing of those areas, which are fish breeding grounds, by floodwaters is very important. So if floods were diverted there are significant concerns from the fishing industry about the ongoing viability of the industry because the grounds where fish breed, according to the studies that have been undertaken, would then be adversely impacted. So that is one of the reasons that the fishing industry has very strongly opposed, through our estuary management committee in particular and through the estuary management plan, any diversion of water and we have tried to ensure that the fish breeding grounds are protected.

The CHAIR: I just made the observation that most of those fish breeding grounds would not be the same areas of land that are subject to high residential development or business or commercial or other aspects. In other words, you are not talking about the township of Grafton itself, you are talking river peripheries, flooded-out areas, for breeding concerns?

Mr MASHIAH: The challenge is that the urban footprint on the lower Clarence floodplain is probably about 1 to 2 per cent of the total surface area and all the urban areas are surrounded by rural areas. So it is very hard to work out how you manage that 1 or 2 per cent without adversely impacting the other 98 per cent, or vice versa, how do you manage the 98 per cent without adversely impacting 1 or 2 per cent of urban area?

The CHAIR: The 2013 flood, you have described it as a major flood, correct?

Mr MASHIAH: It was the flood of record at Grafton.

The CHAIR: I am wondering how the 2013 flood would have enhanced the fishery on the Clarence?

Mr MASHIAH: The main issue with the 2013 flood—I guess with any flood in the Clarence the flood behaviour in the upper river is a lot different to the flood behaviour in the lower river because of the tidal influences in particular and also how wet the floodplain is already. The 2013 event was actually three floods.

The CHAIR: And they rolled up on each other?

Mr MASHIAH: Yes, within a three-week period—quite distinct flood events.

The CHAIR: So it was a prolonged flood.

Mr MASHIAH: It was a prolonged flood and that meant there was significant inundation of back swamp areas, and I understand that there were some areas that effectively were areas that were flushed that had not been flushed in floods probably since 2001, so it is probably 12 years. So from an ecological perspective, talking to our environmental scientists, I understand that it was actually quite beneficial because the bigger floods only get into those areas once every 10 to 20 years.

The CHAIR: Were there any concurrent blackwater events for the fishery?

Mr MASHIAH: Not that I can recall, and I think that is a result of the management measures that have been undertaken on the floodplain because most of the farmers now operate the floodgates and so only shut the floodgates when there is actually a flood coming and open them fairly soon afterwards.

The CHAIR: So it is their responsibility to operate their own floodgates, is it?

Mr MASHIAH: That has been passed on to them, yes.

The CHAIR: Do you have any oversight of that?

Mr ANDERSON: Yes, we do, and we work with those groups and undertake training et cetera . It is a two-way street of communication: they tell us what they need and, vice versa, we provide training associated with that and inductions and operate that through a number of committees et cetera as well.

The Hon. PENNY SHARPE: I was interested in your submission where you talk about your storage, where basically you get to 75,000 megalitres. You commented that this provides capacity to 2046 but that future legislative changes may adversely impact your options. What are your concerns? You have this infrastructure that you think will pretty much give you the security you need at least until 2046. Where do you see the threats to that in relation to legislation?

Mr MASHIAH: The dam was designed with the foundations capable of extending it from the current 30,000 to 70,000 megalitres but that will significantly increase the surface area and therefore areas that are not currently inundated would be inundated. Changes to legislation about vegetation or potential listing of additional species could also impact on whether we could undertake the raising of the dam. Because infrastructure is approved under part 5 of the Environmental Planning and Assessment Act not part 4, there is no line drawn in the sand about the legislative requirement if new species are listed. If a species happens to be listed partway through the design process, even though you have planning approval for it under the current legislation, the project can be stopped because a new species has been discovered.

The danger is that when you are planning long-term infrastructure you do not have that certainty because, to start with, at the moment we do not have approval to raise the dam; that would have to be through holding an approvals process. For the original approval for Shannon Creek Dam there was a commission of inquiry and subsequently an environment impact statement [EIS] came out of that commission of inquiry. We would probably have to go through the same process in the future but if we did go through the same process in the future we have got no guarantee of the same parameters being used so there is always a danger, as I said before, of changing requirements, which are something that we just cannot control.

So we wanted to bring to the Committee's attention the danger of that approval structure planning because under DPI Water there are practice guidelines for sewer and water which are released under the Local Government Act and under section 60 to section 64 of the Local Government Act as a water utility we are

supposed to have robust forward planning. The biggest risk to robust forward planning for a water utility, as a former Secretary of State for the United States said the other night on Channel 9, can be parliament introducing new legislation that completely throws your planning out because there are different requirements.

The Hon. GREG PEARCE: So effectively you have to go through the process of building a new dam?

Mr MASHIAH: Yes, the planning approval would be similar to building a new dam.

The CHAIR: So if that target is looking to be reached by 2046, with a project like that, when would you need to start actually planning—10 years before, 20 years before?

Mr MASHIAH: I would say based on our previous projects it takes about 15 years to go through the project. So we would be looking at the water consumption and projecting when we would need to start that.

The CHAIR: You would be looking at 2030, see how you were tracking and then make the decision?

Mr MASHIAH: Yes.

The CHAIR: You believe it could take up to 15 years then?

Mr MASHIAH: Yes, our experience on Shannon Creek Dam and also on a few of our sewer augmentation projects is that it has taken 15 years from the start of the planning process to completing the construction.

The CHAIR: Do you have a rough idea of what the inundated area plan area would be going from the current capacity to 75,000 megalitres?

Mr MASHIAH: We would have to take that question on notice.

The CHAIR: Has some initial work been done?

Mr MASHIAH: Yes.

The CHAIR: That question will be taken on notice. We will ask the council to provide us with any work that has been done.

The Hon. GREG PEARCE: Has the council already acquired the land?

Mr MASHIAH: Yes, council owns most of the catchment—Shannon Creek. Shannon Creek is an off-creek storage which we formed from the Nymboida River. I think that about 70 or 80 per cent of the area is actually owned by council. The reason we purchased the majority of catchment area is mainly for water quality protection.

The CHAIR: So it is the Shannon Creek Dam we are talking about that would have its height increased, is it?

Mr MASHIAH: Yes.

The Hon. GREG PEARCE: Are your dams designed in any way or do they operate in any way as flood mitigation tools or are they only for water collection and supply?

Mr MASHIAH: No, Shannon Creek Dam is our only water storage and it is only for water storage. In fact, the licence on the dam requires it to effectively be transparent to the natural catchment, which means that we have to try to let out the water at the same rate that it is coming in, so during a significant rainfall event we can actually let up to 34 cubic metres a second out of the dam. That is before it goes to the spillway. That is sort of the maximum flow. Once it is going out of the spillway we are matching the flows but it is actually a licence condition for them to be effectively transparent.

The Hon. GREG PEARCE: We heard this morning from some of the other councils about regulatory reform, particularly with how various agencies are involved in the water industry. Do you have any comments on that from your experience?

Mr MASHIAH: There is a lot of confusion between the different agencies as to their exact roles, I think it is fair to say—the different agencies that are variously involved in water management; DPI Water, Health has a role—

The CHAIR: The Environment Protection Authority [EPA]?

Mr MASHIAH: The EPA definitely has a role, although the EPA is more in sewerage than in water. In terms of Shannon Creek, because of the environmental side of it and because we have a voluntary

conservation area, the National Parks and Wildlife Service is involved. As we are trying to undertake a lot of catchment restoration works within the catchment to improve the water quality, Local Land Services also has a role. One of the things that was undertaken with the Shannon Creek Dam project was they formed an interagency review committee so that all the agencies were working together to try to have a common understanding of where they were coming from as there is a danger because of the different foci of the agencies that you can sometimes have almost contradictory requirements or contradictory conditions.

One condition I mentioned with the licence for Shannon Creek was that the dam be transparent and one of the things we have had to discuss with the EPA is whether the water we release from the dam should be clean water or it should be dirty water because the incoming water is turbid. The EPA has now come to an understanding and agreement with us that we can release water that matches the quality of the water that is coming in but at one stage it was trying to suggest to us that we should be only releasing clean water from the dam in flood events because we were then polluting the environment.

The CHAIR: At the risk of sounding incredulous I have to say, "You are kidding me", aren't you?

Mr MASHIAH: We did get a please explain letter as to why we were releasing dirty water during the 2013 flood event.

The CHAIR: So a natural flooding of the dam would not create dirty water?

Mr MASHIAH: Yes.

The CHAIR: Some of these EPA people ought to come and have a look at a few floods, shouldn't they? Without being flippant any further, could I ask then: do you see that particular short-term project-based cooperation as having worked? Did it actually work for you?

Mr MASHIAH: We believe it worked very well because the interagency review committee, by meeting regularly, was able to come up with a common set of requirements so we were able to effectively satisfy those requirements. Where there was disagreement between agencies, rather than us having to referee beforehand and trying to meet two separate disagreeing requirements, they were able to come to us with what they had agreed with. That worked very well in terms of the project delivery. I understand the Water Directorate has made some submissions at various times to various government reviews, the Water Directorate being the association of local government water utilities in New South Wales. Looking at the information that was tabled previously and taken on notice for this Committee I have seen that you have received some information on the Water Directorate. It is something that we have been looking at as the Water Directorate in terms of better ways to get all agencies giving you common understanding of their requirements rather than contradictory understanding. One of the largest challenges for water utilities is trying to address the different requirements between different agencies where they are sometimes almost contradictory.

The CHAIR: Is that work and the outcomes of the work on Shannon Creek Dam available publicly on a website somewhere or in a report?

Mr MASHIAH: I would have to take that question on notice. I believe there was a little bit about it but I will have to go back through the agencies because we were the recipient; we were not actually participating in it.

The CHAIR: Was there a lead agency? How was it managed at the top? Who convened all these agencies?

Mr MASHIAH: My understanding is that the lead agency was what is now the Department of Primary Industries—Water. I think it was DLWC when it was first formed, but that was probably seven or eight years ago.

The CHAIR: The Committee would appreciate any information you can supply on notice. The Committee might also go back to the Department of Primary Industries—Water now that we know about it and ask. Please provide anything you can.

The Hon. GREG PEARCE: Was NSW Health part of that?

Mr MASHIAH: I cannot recall. I am sorry, it was more than 10 years ago. I think NSW Health would have had a fairly limited role in terms of the dam construction. But it obviously now has a very large role in terms of the water supply.

The Hon. PAUL GREEN: I refer to floods lifting houses. I understand there was a program. Is that working out for Grafton?

Mr ANDERSON: It has previously. There is provision through the Office of Environment and Heritage on a two-to-one funding basis. Council did provide funding until the 2016-17 budget, but it has now ceased. As one of our approaches to bringing our operating result back in for the Fit for the Future program, we could no longer afford to provide that funding. That has subsequently been cut from the budget and is no longer available.

The Hon. PAUL GREEN: You would like help with that?

Mr ANDERSON: If it were 100 per cent funding, yes, we would welcome that.

The Hon. PAUL GREEN: How does it work?

Mr ANDERSON: It is on a two-to-one funding basis. The property owner comes forward with a proposal, which must meet a set of criteria. One of the criteria in the area is that their floor level is being lifted to a tolerable level above the nominated flood level. They proceed to having plans drawn and to getting certification and the work is undertaken for the house to be raised. The Office of Environment and Heritage will then provide council with the funding.

The Hon. PAUL GREEN: What is the average cost of doing that?

Mr ANDERSON: It depends on the location of the house. There is no set floor pattern in regard to that. Council's funding per house would be a maximum of \$55,000.

Mr MASHIAH: We discovered one challenge with a house raising program in one of our villages, Brushgrove; that is, not all houses are suitable to be raised. From memory, of the Brushgrove houses identified as being below the flood planning level, only a very low percentage—about 20 per cent to 25 per cent—could be raised. The challenge there was what happened with the other 80 per cent. In that instance, there was a rural village where the people wanted greater levee protection, but the cost did not stack up because we were talking about spending many millions of dollars to protect a village of about 250 people. The cost-benefit analysis did not stack up. Options like house raising were on the table there, but we would address only a very small percentage of the houses.

The Hon. PAUL GREEN: Where was that?

Mr MASHIAH: At the village of Brushgrove, which is on the floodplain halfway between Grafton and—

The Hon. PAUL GREEN: I understand that many of those residents wanted to provide a levee bank themselves. Is that correct?

Mr ANDERSON: There were suggestions, yes.

The Hon. PAUL GREEN: Of course, the impact down the river would be immense.

Mr ANDERSON: Yes.

The Hon. PENNY SHARPE: Did I hear that council does not do that program at all any more? Is that correct?

Mr ANDERSON: Yes, that is correct.

The Hon. PENNY SHARPE: And you withdrew that funding as part of your cost-cutting associated with the Fit for the Future process?

Mr ANDERSON: That is correct.

The CHAIR: The Committee will want to ask further questions because you raised some issues that members would like to explore. Thank for travelling to appear before the Committee today. We appreciate your evidence. The secretariat will forward questions to you, and we would appreciate a reply within 21 days of your receiving them. If answering them requires substantive work—if information and files need to be gathered—that time frame would not apply.

Mr ANDERSON: I would like to clarify something. Will those questions be sent to the council?

The CHAIR: They will be sent to you in writing, and you do not have to do anything until you get them.

Mr ANDERSON: If we receive questions that require further work, do we simply respond saying that we need to gather that information?

The CHAIR: If the Committee asks a question that the council cannot answer in 21 days, you simply advise the secretariat. The Committee needs input and data to be able to make recommendations. The more opinion, particularly expert opinion, we get the better.

(The witnesses withdrew)

MARIO PUGLISI, Chairman, Ballina Fishermen's Co-Op Limited, sworn and examined

PHILLIP HILLIARD, Chief Executive Officer, Ballina Fishermen's Co-Op Limited, affirmed and examined

The CHAIR: Thank you for appearing before the Committee today. The Committee has received submission No. 115 from the Ballina Fishermen's Co-Op Limited. Before we commence with questions, would either or both of you like to make an opening statement?

Mr HILLIARD: No, thank you.

The Hon. MICK VEITCH: Thank you for your submission, which refers to the human impacts on the river system, our fish stocks and the ecosystem. What are some of the issues having a negative impact on your industry?

Mr PUGLISI: In the Richmond area?

The Hon. MICK VEITCH: Yes.

Mr PUGLISI: Very poor water quality. It has increased over the years due to things out of our control. We always seem to be the recipients of the last port of call, if you like. Everything ends up in the Richmond River. What falls off the land runs through the drains and eventually ends up in the Richmond River. It is potentially a huge problem. Prior to us, people have been knocking on doors and trying to open doors to get things done. It seems to be a bit of a buck-passing exercise.

As far as mitigation is concerned, I understand that the floodgates are meant to be free-flowing and to open and close with the tide. I think they are meant to close during floods. Probably 80 per cent or 90 per cent of the floodgates on the Richmond River do not work, which means water banks up behind them. During a flood the water sits in the low-lying areas and when it is over it stays there. If you get warm days and so on, it sucks out the oxygen and it ends up in the Richmond River. It is like black tar.

Mr HILLIARD: The problem is that poor water quality kills everything. It suffocates the smallest embryo.

The Hon. MICK VEITCH: You are talking about deoxygenation of the—

The CHAIR: Blackwater.

Mr HILLIARD: Yes. There are many things that create it—deoxygenation, sorry acidisation, the pH level in the water, lack of oxygen, too much vegetable matter. They all contribute to killing the living thing that is in there, which eventually turns out to be a fish, oyster or prawn. As you go down the river we get more and more getting added because it comes off a wider floodplain. So as we get down to the mouth of the river it seems to congregate there. We know that there are fish up here but the same fish are not down at Wardell or Broadwater because of the different composition of the water. It is because of where it has come from—acid sulphate soils are coming off the bog areas, the old bog areas that people have either drained or allowed to dry out. As soon as they get wet they dump whatever they have got there back into the river. If they stay wet, we have a system where the problem we have seen is—we have lost our wetlands or our swamps as they used to call them.

They are the lungs of the river. They are the things that actually filter the river. We have had landholders come along and say, "That would be good for growing cows." So we drain them and it ends up that we have got a great cow but we have really got no fish. That is the impact on fishing families. We would have had about 50 working fishermen or working families living off the river 20 years ago. I would say that we have got 10 now, if that. They cannot make a living out of the river. The fishermen who actually fish the river also dig the beaches so that they are getting worms and pipis now. So they have had to supplement their income from the river by going elsewhere and that has probably taken away from another type of fisherman. So we go through this multi-endorsed fishing thing that you are probably aware of, that Fisheries are trying to get rid of. So the river is having a problem sustaining the number of people who are trying to live off it.

Mr PUGLISI: Once upon a time it used to be able to. It was quite affluent.

Mr HILLIARD: From the Co-ops perspective we used to have probably 96 fishermen that I have counted come into the Co-op with their catch; I would say it is now 16. So in 15 years it has come from 96 to 16 because of environmental and other factors as well. The environment is the biggest problem we have and we are trying to pin not responsibility but to get somebody who will take ownership of the problem to help us fix it.

We are happy to go along and help them try and sort it out but you cannot get anybody to stick up their hand and say, "Oh, that is my problem."

The Hon. MICK VEITCH: One of the really great things about this inquiry coming to Lismore is being able to hear your testimony and another is that this Committee gets to make recommendations for the Government to consider. If you were sitting on my side of the table what recommendations would you like this Committee to make to address exactly the issues you have raised?

Mr HILLIARD: I think the biggest issue is getting somebody to be the person in charge. We need somebody to go to. Going back three years, we used to be able to pick up the phone and ring Rous Water here because they had the Richmond River County Council as part of it. We could ring somebody and they would say, "So and so does that job because it is at the Richmond River County Council" or "That is a Ballina council matter, ring this guy." You would ring them and they would say, "No. That is next door's problem: Lismore council." But at least there was somebody that you could go to and say, "This is the problem. Who do we go to?" Now we have got no-one. Rous Water had a restructure so there is no-one to talk to. Now we are based in Ballina so we go to Ballina council and they go, "That is not our problem" and that is it. They do not know whose problem it is. We have got no-one to go to. We deal with Fisheries. So we will go to Fisheries and say, "There is a problem in the water." They go, "It came off the land so it is Land Services." When you ring Land Services they say, "It happened in the river so ring Fisheries."

The Hon. MICK VEITCH: Essentially you want to fix the water quality and have someone to go to?

Mr HILLIARD: Fixing the water quality is going to take 30 or 40 years and billions of dollars. We need to engage all the stakeholders, which are many agriculture industries, and say, "You need to get a best practice and you need to make sure that it is being enforced." We have a great issue with the macadamia industry because until recently they had nothing about what happened to the water when it came off their land. We have been getting massive amounts of their topsoil in the river because they had this policy of nothing underneath the trees. There was no groundcover, no grasses growing. So when the water hit the ground it just took the topsoil and dumped it into the river—through a number of processes but it ended up in the river. Whatever they sprayed on the trees ended up on the ground and then in the river. Most of it was pesticides so it killed the seagrass—it kills grass on the ground and did the same thing in the river—but the prawns live in seagrass. We have to get all the stakeholders to go, "Okay, this is best practice" and get the scientists to tick it off. We then need to say, "If you want to be in this industry you have got to do this because the consequences down stream are horrendous." The fishing industry does not want to dictate to the other industries and say, "You have to do this because you are destroying our livelihood" because that will just get their back up. We need to get them all in the same room and go, "This is what we want to do."

The Hon. MICK VEITCH: But you want to be more involved in the management of the estuary?

Mr HILLIARD: We would like to be. We are doing a lot of things and we just do not have the time. We have just gone through a massive restructure where I have lost half my staff. Fewer of us are doing the same jobs; we cannot be everywhere.

Mr PUGLISI: As far as the sea mullet season, there is a fund where they take 10¢ per kilogram of our product to help rehabilitate as far up as the fishway in Casino—

Mr HILLIARD: It is basically an environmental fund that we donate to different organisations to do work but we take it off the fishermen, much to their disgust. We say, "Okay, this is like a tax" so that we can put back into the river. Just recently we spent \$6,000 on doing some oyster studies. They all failed. We know that all the oysters died but we had to do the study so that we could prove that what is in the water is the thing that is killing the oysters. It is not an environmental thing; it is coming out of the water. We found that through the rain events that the death rate increased when we got a flush coming down from the river. We do that sort of thing. The industry I am sure would like to be more involved but the industry cannot afford to do it themselves. They need to employ somebody to do it.

The CHAIR: You talked about the reduction of the number of your operators between 1996 and now. What about the tonnage going through the Ballina Co-op? Has that come down as well from 1996?

Mr HILLIARD: It is logic that if you have got 10 guys out there catching three tonne of fish, you have got as much as if you have only got five guys out there catching three tonne of fish.

The CHAIR: So the tonnage has gone down by the same percentage?

Mr HILLIARD: Fishermen work from sun-up to sundown, they are not going to catch more fish because there are less fishermen there.

The CHAIR: Earlier this morning the Committee heard evidence from the Clarence Valley Council. That council believes its river management, as a result of its management of the agricultural and shire water management, is pretty good—and there are some people sitting at the back of this room that might comment on that later. Is there much difference between the catchment on the Richmond River and the Clarence? In other words do you think that yours is worse and if so what is the reason? Is there more cane or different types of agriculture?

Mr HILLIARD: That is the issue. Clarence have got cattle, fishing and cane.

The CHAIR: You have got?

Mr HILLIARD: We have got macadamia nuts, tea-tree, cane, blueberries, avocados.

The CHAIR: The land use issues are different?

Mr HILLIARD: Yes.

The CHAIR: And probably worse for the river?

Mr PUGLISI: Ten times.

Mr HILLIARD: They are all using different types of chemicals to spray. Then the other thing that we have got is we have a beautiful environment that people want to live here. The first thing they do is they come and find a flat bit of land and they put a house on it and we go, you know in five years time that is going to be underwater. They go, "Oh no, we will deal with that when it happens."

The CHAIR: We will get the Government to build another levee.

Mr HILLIARD: And that is the thing. I know Ballina council have just dealt with somebody saying oh well, we could build them all on poles. You might be able to do that but it will not be there after one of the floods, a flood will pick it up and take it away. We have to manage the number of people that come here and I would think local government would know better but we constantly see them putting houses on places that traditionally flood.

The CHAIR: Does the cooperative have any regular discussions with local government about issues like that? Have you talked to them about development?

Mr HILLIARD: Not in terms of development. We used to have a stakeholder group across the whole floodplain.

The CHAIR: How long ago?

Mr HILLIARD: Richmond is different because there are four councils. To get them all in a room and all talking on one subject is a pretty hard thing.

The CHAIR: But you used to have it, did you?

Mr HILLIARD: We used to have it and they cancelled it three years ago.

The CHAIR: Would one of your recommendations to us that we could then put to the Government be that that should be reinstated?

Mr HILLIARD: Certainly.

The Hon. PENNY SHARPE: I was very interested in Clarence Valley Council's discussion about their flood in 2013 where they talked about the fact that they did not have any blackwater incidents. They seemed quite pleased with the work they had done with landholders and the use and operation of the floodgates seemed to have made a big difference. I have to say it was pretty compelling. I am interested in your opening comments, given that you said that most of the floodgates are broken.

Mr PUGLISI: None of them work.

Mr HILLIARD: We have got 360 floodgates. We have got 12 of them that are managed and of those 12 there are probably five that work.

Mr PUGLISI: I would like to swap rivers with the Clarence because they seem different, separate, they seem to be able to get things done down there, whether it is due to the number of fishers they have, which is a hell of a lot more than what we have got. They seem to be able to knock on doors and get things done. Whereas us up here, you can knock on as many doors as you like, you just keep knocking on doors.

The CHAIR: You have got four local government areas to deal with, have you?

Mr HILLIARD: The difference between the Clarence and here is our fishermen are full-time. A lot of the fishermen down there are cane growers. They do their fishing when it is not cane season. So they are aware of the impact of what they do on their land to the river.

The CHAIR: Is it a similar mix of product for both cooperatives?

Mr HILLIARD: Yes, similar. They have more trawled fish, which we do not do. But the same thing happens in the Tweed where there is one council and the fishermen work in the farms or on the cane fields. They have got an understanding of what happens and most probably a better will than what we have got here. Our problem is more the diverse range of agricultural activities. They cannot all agree and they have got different practices on the land management side of it. But having that get-together where we all talk about our problems, that they become aware of what our problem is and suggest solutions to it.

The CHAIR: Do you believe that when that roundtable was operating the outcomes were better for you, for your industry?

Mr HILLIARD: They appeared to be. Everything came down to money. If there was no money, nothing happened. We could come up with all the best solutions but if no-one was willing to fund it things fell by the wayside. A lot of research papers are sitting on the shelves with the actions not taken.

The CHAIR: There obviously must be some difference between the management of the privately owned flood management infrastructure, the gates, in the Clarence area to your council areas.

Mr HILLIARD: Yes.

The CHAIR: What other initiatives would you like to see come out of this? You have said one, you need to get the consultation process back again. How do you view the compliance or the regulations on the operation of those infrastructures? Do you feel that could be strengthened?

Mr HILLIARD: Yes.

The Hon. PENNY SHARPE: Can I understand this; you said there were 365 gates?

Mr HILLIARD: Yes.

The Hon. PENNY SHARPE: When you say managed and unmanaged, what is the difference between the two?

Mr HILLIARD: A managed gate is where somebody has set out a code of practice for that particular gate; when it should be opened, when it should be closed and who is responsible for what.

The CHAIR: Who sets that plan of management?

Mr HILLIARD: It is usually the creek that flows or the watercourse that flows across the different properties.

The CHAIR: It is a catchment group sort of thing?

Mr HILLIARD: Yes. All the farmers that are putting water into that creek get together with the Richmond County Council. They would sit down and say okay, this is what we want to do. The council would say okay, it has to open when the level of water is so high. And how they did that, they either did it by manual activation or there was some mechanical trigger with a computer or something like that. But that became a practice. Somebody would have to check it and make sure it was working every three months. The unmanaged gates are just put in. We have got photos of gates which have got logs jammed up on either side of them so they would never open. We have got photos of gates sitting in the middle of nowhere and they are overgrown with weeds. The water comes down the land side of it, banks up behind it and the gate will never open and it just evaporates or goes through the soil.

The CHAIR: Or in the case of a major flood those inoperable gates could be exacerbating the flood.

Mr HILLIARD: They definitely are. We know that. There are some classics where we have got the gate at a higher point than the water behind the gate, so the water is never going to run out. They put in a gate because somebody said there had to be a gate there.

The Hon. PENNY SHARPE: Who says that they need to put in a gate? I am fascinated with the idea that there are 365 gates in but only 12 have a management plan. Who decides when a gate goes in?

Mr HILLIARD: It is like any development; the farmers decide. The farmers decide that they need a gate because they want to pretty much stop salt water going on to their land. So they say okay, we need to stop

that, but we want the water to run off. So we need to put a gate there so that the gate opens when the pressure behind it is sufficient for the gate to open.

The Hon. PENNY SHARPE: From our point of view we do need to look at what local government does in relation to the operation.

The Hon. PAUL GREEN: The Catchment Management Authority used to look after our gates.

The Hon. PENNY SHARPE: They do not have them any more. I was trying to get to something that would be helpful to you.

Mr HILLIARD: Before that there was the drain service organisation. They were a cooperative, they formed, they built it, they used their own money and they managed it. Over time governments came in and funded most of it. To me that is the trigger for government to look after them. The Government has put them there, they need to make sure they work. But that does not happen. They put them there and they hope that the landholder looks after them, in the days when they were basically trying to drain the land, not manage the land.

The Hon. MICK VEITCH: Your submission also talks about rehabilitation funding and the fact that there is not a lot of that available. My question goes to an earlier question—you would like to have just one person or one agency to go to talk about these issues. Would that person or organisation be the best to administer the rehabilitation funding?

Mr HILLIARD: I would think so. We have a number of different community organisations trying to do rehabilitation along the river banks. They are all looking for funding. They are all saying, "We will fix this kilometre of the river on either side." But just up the road there is a problem. Their work is destroyed because the people next door have not done anything. There is no organisation linking them all together.

The Hon. MICK VEITCH: So the overall coordination is lacking.

Mr HILLIARD: Yes. There has to be an organisation that sits down and asks, "What do we need to do?" We need to repair the riparian zones but how do we do that? How do we keep the cattle out of those areas? How do we stop them destroying banks? How do we remove some of the trees that should not be there, which create the destruction of banks? How do we remove the carp, which are a big factor in the river? One organisation needs to come in and take control of that.

I do not get to see the whole river. I get to hear stories about the whole river and I can say, "I know that that is in Kyogle," or "That one is in Lismore." Who do we go and talk to? You do not have the time to get that information. We need one person who knows the lot and has people who can go out and do that. Then they say, "If we have a community group that wants to fix that we will give them X amount of money, this year, and then we will watch what happens. We will make sure that it does not fall over." A lot of the projects to date have had big funding to go in and do the work but when the group moves on it all just falls to pieces and then we start again.

The Hon. PAUL GREEN: Does council's natural resources unit pay for that; or does it have grants for their local land management?

Mr HILLIARD: I wish I could pin any council on sticking their hands up to do that sort of work.

The Hon. PAUL GREEN: We certainly used to on the Shoalhaven. It was part of the overall strategy to have clean waters. We worked with the catchment management authority [CMA] on a regional basis, because the CMA had grants. We hoped to value add to that, and that the property owners would value add. Then we would use the Green Corps to build the fences to keep the cattle out. We would deal with the waterways with the CMA in terms of the telemetry of the computer gates, so that they could be monitored for salinity and things like that.

Mr HILLIARD: Richmond County Council did all that, and coordinated all that. I know that Ballina Council budgeted for an amount to go to Richmond County Council to do whatever they had to deal with. They did some of that work. The CMA were involved in that. I was invited to their field days but I never saw what they were doing with their money. We donated money to match their funding for things that happen in the river—build fishways, take out old fishways and that sort of stuff—but I have never seen the big picture.

The Hon. PAUL GREEN: We had some volunteer Rivercare groups—like Landcare on land. They planted all sorts of helpful things along the river bank to stabilise it.

Mr HILLIARD: We have those groups. We have put money into those groups too. You give them \$1,000 to go and plant some trees, then three years later a group comes in and says that it is planting trees. We say, "We planted trees there before, what happened to them?" Somebody has run over them with a mower.

Okay, that happens. Somebody needs to be there. Rather than just having these small community groups, who do great stuff, somebody needs to direct it on the ground.

The Hon. PAUL GREEN: That is where the councils come in. I know our council people from natural resources would supervise those opportunities and engage opportunities to get grants alongside that. Together, as you said, they can be very powerful.

Mr PUGLISI: Last year our council did a survey on the river. They gave it a classification of D. Now, all of a sudden, everybody is jumping up and down and saying that the river is terrible. The river has been terrible for the last 15 years. Because they have done that I think we made the local paper the other day. They are trying to do bits and pieces, but as Bill says, it comes back to money. If there is no money, nothing gets done.

The CHAIR: Mr Hilliard, you mentioned earlier that you have taken a lot of these problems to Richmond County Council. That is now part of Rous Water, is it not?

Mr HILLIARD: It was always with Rous Water, but it was two separate councils. I believe it is still there. There is a clerk. They look after the weeds. They do the weed eradication processes.

The CHAIR: In riparian zones?

Mr HILLIARD: Right across the catchment. We have monitoring stations in the river that monitor the pH levels and the temperatures.

The CHAIR: Who monitors those? Is it the Department of Fisheries?

Mr HILLIARD: Rous Water.

The CHAIR: Rous Water does that work too. In the questions on notice that we put to Rous Water we might ask them about that.

Mr HILLIARD: Going back four years ago, we used to employ a fisherman to go out and do that. He took out a machine—a Horiba. He would take the readings at all the spots. Then somebody came along and said, "You don't have a degree so you can't do that." He had been doing it for about 10 years and he was told he did not have the qualifications to do it so his data was useless.

The CHAIR: Was that someone from Rous Water?

Mr HILLIARD: They came from Fisheries. He gave me all the data on a stick. He said, "Here, put this where it fits." I said, "It was not us that said you were not qualified." They took the machine from him. So we do not have the data for the last three years but we have a lot of it prior to that.

The CHAIR: We are out of time. Thank you very much for your submission, and thank you for agreeing to appear today. There may be some questions on notice that the Committee would like to put—probably to Mr Hilliard as the Chief Executive Officer. If you receive questions on notice we would like a response within 21 days, if possible. Is that satisfactory to you?

Mr HILLIARD: Yes.

The CHAIR: Thank you very much for coming in

(The witnesses withdrew)

PATRICIA BEATTY, Executive Officer, NSW Professional Fishermen's Association, sworn and examined
SIMON ROWE, Project Manager, OceanWatch Australia, sworn and examined

The CHAIR: Just so that everybody is clear, this is a water inquiry, not a fisheries inquiry. We do not have a submission from either organisation so you may wish to make an opening statement—to put something on the record—or make a detailed verbal submission.

Ms BEATTY: I am speaking on behalf of Mr Rowe too. The Professional Fishermen's Association [PFA] is a representative body for over 240 New South Wales licensed commercial fishers from the Tweed River to Eden. We have been established since 2009. Oceanwatch Australia, represented here by Simon Rowe, the environmental program manager, is the nationally recognised marine NRM organisation and works with the seafood industry and the community to ensure Australia's marine environment is healthy, productive, valued and used in a responsible way.

The CHAIR: What is an NRM?

Ms BEATTY: Natural resource management. It is federally recognised as the marine natural resource management organisation. The PFA and Oceanwatch work together in partnership to address many of the marine and aquatic threats to our fisheries' habitat and seafood supported ecosystems and work on strategic priorities to best address those threats and issues. Research shows that over 75 per cent of the species contributing to Australia's commercial fish catch and an estimated 90 per cent of all recreational catch spend part of their lifecycle within estuaries and intertidal wetlands.

In 2012, 22 species, populations and ecological communities of native freshwater fish and invertebrates were listed as threatened under the provisions of the Fisheries Management Act 1994. To date, extensive research has shown that the construction and management of water storages has severe and long-lasting impacts upon river health and fisheries productivity. The primary impact research has fallen into three main categories: the negative impact on the river flow events; cold water pollution from the lease of waters from impoundments; and physically obstructing fish movement along the river channel and access to habitats upstream of the dam wall.

There seems to be a general misconception in discussions that we have had with some stakeholders that rainwater flowing out to the sea is considered lost or useless. The PFA and Oceanwatch wish to stress that it is anything but useless or lost. The river flushes from such events are crucial to waterway health, bringing essential nutrients to commercial fish species and natural flushing of river systems. Over the decades our members have expressed frustration that previous water management agreements, such as those for the floodgates and dam releases for some locations, have had questionable compliance by landholders, with limited enforcement powers of the New South Wales Government. Revitalising Australian estuaries will increase fisheries' productivity in all aspects of the coastal ecosystem biodiversities.

The recommendations from the PFA and Oceanwatch are that a smarter water reuse is invested into rather than the old-style dams and diversions. The productivity of the fishing industry, both recreational and commercial, relies on the management of our waterways, catchments and maintaining access to habitat and ecological connectivity. We need a greater focus on the integrated management of water storage use and release around the needs of fish, not just irrigators' needs. We recommend that resources are devoted to either Oceanwatch in its role as the marine NRM organisation or a realignment of the focus of the LLS to undertake this role.

The CHAIR: Would you like to add something, Mr Rowe?

Mr ROWE: Both of us have worked on that together, so not at this stage.

The CHAIR: Being an association that represents commercial fishers from one border to the other border would you be able to comment on which estuary systems in the whole of that coastline are the best and worst? Is it identifiable? We have just heard from some commercial fishers on the Richmond and it appeared to us that statements made by the previous witness, being the Clarence Valley Council, would indicate that water conditions in the Clarence are better than the Richmond and there were some explanations given as to the types of land use that apply to both. Do you have data within your organisation that would grade rivers, from an environmental point of view?

Ms BEATTY: There was an independent assessment of the Northern Rivers system by EcoHealth. They conducted a report card for the Northern Rivers systems.

The CHAIR: Who is EcoHealth?

Ms BEATTY: EcoHealth, I understand, were funded from a university grant to go and undertake over a series of time different sections of the Clarence River and Richmond to give it health checks.

The CHAIR: Do you know if that information is publicly available?

Ms BEATTY: I would commit to send you the links to EcoHealth.

The CHAIR: Thank you. We will take that on notice.

Ms BEATTY: These guys came along and did an assessment. So we were aware that yes, if you had to grade Richmond against Clarence, Richmond is in a worse condition, but there are sections of the Clarence as well that are in poor condition and are deemed as poor by the attendance. When you look across New South Wales itself, however, is there anything that compares? That is really where the DPI Fisheries Conservation Habitat Unit would have that information for comparison. We have been working with the DPI Fisheries conservation unit, Oceanwatch and a number of stakeholders, including NSW Farmers, to identify strategic priorities for fisheries improvement and fisheries habitat improvement. A strategic plan was released several months ago. In addition, Oceanwatch put out their strategic plan on where priorities for fisheries habitat were as well. So some pretty good information has been compiled together to go to where are the strategic priorities for addressing fisheries habitat needs and therefore improving fisheries productivity.

The CHAIR: I think one of the witnesses in their submission—it might have been the Ballina people—pretty much made the comment that natural flood regimes, I think you might have said the same thing, are essential. To what level? If you get four one-in-100 floods is that good for the river system ecologically or is it bad? What I am trying to get to here is that if you take that argument to the extreme there should be no flood mitigation and yet the coastal area of New South Wales, which is where all those estuaries are, which is where most of the fishers fish—forgetting inland—is going to be the highest growth corridor probably in the whole of this nation over the next 30 to 40 years. How do you reconcile the two?

Ms BEATTY: There is a lot of documented evidence that shows that a good healthy flush is needed for a river system and its dependent species. There are things such as sediment depositing, nutrients coming through, flushing out to push through snags, to push through build-ups of sand, this type of thing, and our ecosystems have adapted to that natural flushing. Many of the species that I mentioned earlier that are on the threatened species list the causes have often been put down to the fact that they are not able to access above those floodgates and those weirs—they need that cycle for their lifecycle.

The CHAIR: What I am trying to get at here is that we have heard from some of these groups of councils and individual councils about the cost to the community of megafloods and that unless you stop the development and wind it back, unless you strip out a lot of the flood mitigation infrastructure that has been put in over the last 50 or 60 years, you are not going to get back to ideal conditions for the habitat or for the ecosystems. What is your group's recommendation as to what should be done in the near to medium future to try and address the issues that are there now? We just talked about the Richmond River not being as good as the Clarence River, so what can you do?

Ms BEATTY: Retrospectively looking at the Clarence, the Clarence has a partnership formed called the Clarence Valley and floodplain stakeholder partnership; it was formed before my time.

The CHAIR: Is it still in vogue?

Ms BEATTY: The last meeting that I saw was about a year ago, so it is still officially alive but it is not meeting as regularly as it used to.

The CHAIR: Whereas the Richmond River stakeholder group has not met for four or five years?

Ms BEATTY: A lot of good things were achieved by that floodplain partnership. What could be voluntarily done working in collaboration with the landholders, the fishers and the canegrowers was done. What areas, floodplains, wetlands that could be identified for restoration, reclamation, repairing zones or rehabilitation was done.

Mr ROWE: There was a lot of hanging fruit.

Ms BEATTY: A lot of hanging fruit was achieved and it did some great stuff for us. It got to a point where there was nothing else that could be achieved because with all of the other identified strategic priority areas for improvement the landholders were not willing to enter into anything voluntarily. So it got to a point where it achieved some great stuff but it could not go any further. Also, some good things happened over the early years because the floodgates had licences but the licences required maintaining and stuff like that. There

was just no compliance. Originally maybe the people complied and then over time it fell away and you have some shocking looking floodgates on the Clarence River, so I would not call the Clarence ideal.

The CHAIR: I am not trying to put words in your mouth but I want to get some idea of what you think should be done. So perhaps a recommendation could be that all those structures should be relicensed and we start again to make sure that they are operating?

Ms BEATTY: Yes. Certainly if they can be relicensed that would be a great thing but it is also putting some power into the licensing agency, that if there is no compliance, what can they do about it because at the moment my understanding is when we have complained to DPI about certain floodgates just hanging on rusty hooks they have said, "There's nothing we can do about it. It's under licence to the stakeholder and they are under no obligation to maintain."

The CHAIR: The Ballina witnesses said there are something like 360 floodgates of which only 12 are under management. That would seem to be a bit of a failure, would it not?

Ms BEATTY: Yes. The impression I have got in the last five years of working this area is that DPI has been working with the stakeholders voluntarily and has been trying not to force them into any situation. If they get their back up, they just back off. So they have no compliance, or if they do have compliance powers, it is not being pushed. They would rather work hand-in-hand with the stakeholders if they are not maintaining them.

The CHAIR: What are you suggesting?

Ms BEATTY: There just needs to be some more strength or willingness to uphold the strength in making them compliant.

The CHAIR: More compliance?

Ms BEATTY: Requirements to be compliant with the licence conditions. Even on the Clarence River we have floodgates that are not being used, that are blocked, and we know that even though the agreements are there that they should be open upon certain levels, they are just not going to be. We know that one floodgate cannot be opened, even though it threatens licence conditions. The lock is broken; it has been broken for years. Will the guy do anything about it? No. There is a bit of a lax attitude in regards to the management and compliance of those floodgates. Obviously there needs to be fish weirs on those to allow FishSmart passages on the gates to allow passage of the species through to maintain their lifecycles and also some adherence to the agreements to open those gates in certain conditions.

The CHAIR: Just to clarify that, are you saying you want fish passage during flood conditions or high tidal conditions back onto the areas contained?

Ms BEATTY: Yes.

Mr ROWE: DPI has a certain design for a floodgate that allows fish to get from one side to the other. They have the flow mechanisms as well but they are designed to facilitate fish passage. It is not just about the actual floodgate; it is also about other structures. There might be many hundreds of floodgates but we are also talking about all the other impediments to opening up the habitat; it might be a box culvert, a drain, a crossing, et cetera; all these things that are in the habitat and in the estuarine health.

The Hon. GREG PEARCE: What do you think is the purpose of these so-called floodgates?

Mr ROWE: Floodgates were put in traditionally to hold back water; they basically manage water.

The CHAIR: To hold back saline water from the production land rather than hold back floodwater from the river?

Mr ROWE: That is right, and what happens is they might get a bit throughout the day or are not managed and that water gets held back or cannot get through that gate quick enough—a combination of factors—the vegetation dies behind that and then you get a blackwater event when it seeps out, so low oxygen; fish kill. It is fairly common up this way.

The CHAIR: If a private landholder is responsible for managing a gate—forget about whether it is licensed or not, or whether they are complying or not—why would they give any consideration to putting in a device that allowed saline water back onto their pasture, as they see it?

Mr ROWE: It is all about when it opens at tidal cycles; it gives you a bit more precise control. Some of them are automated and some of them are automatic.

Ms BEATTY: We do know that DPI was spending a fair bit of money there a few years ago in replacing floodgates with floodgates that would allow fish passages. I think the funding ran out and also it was identifying floodgates that had persons willing to modify. There are some of these on the Clarence River.

The Hon. MICK VEITCH: How much maintenance do the fish traps or fish access points require once they are implemented?

Mr ROWE: I do not think a great deal. It is not really my area of expertise. Scott Nichols at NSW Fisheries would be the guy to talk to. There is a whole section that deals with habitat and rehabilitation.

Ms BEATTY: Headed up by Craig Copeland, Fisheries habitat conservation unit. We work closely with them in discussing any event, whether it is a blackwater event on the rivers, fish kills or anything like that. The Fisheries habitat conservation unit is the first phone call we make.

The Hon. MICK VEITCH: As part of the terms of reference the Committee will be looking at structures along waterways and the capacity to either enhance and augment the existing structures or put in new structures for water to maximise water use. What are your views about the capacity of our rivers in this part of the State to do that? What would be the impact on fish stock?

Mr ROWE: It is really outside my expertise, to be honest, but generally speaking the concept is you try to mimic and put close to what it used to be like beforehand to get the best environmental outcome. The more impediments to those storages, the more it has to be managed. Quite often they are not managed for fish or the environment; they are managed to hold that water for the irrigator, the farmer or the council. It is multiple management.

Ms BEATTY: At the moment we are advocating for a smarter use of water, a smarter recycling of water. We do not want to see farmers in a tough situation. I am actually a farmer. I commercially harvest kiwifruit on the Karangi but it is smarter use of your water. We see irrigators watering at midday with massive big spray machines where half the water is lost to evaporation. That is not a smart use of the water. There are smarter ways to use the water so you are not taking as much from the water system; you allow it to flow back through, which is what we require for our fish productivity.

The Hon. MICK VEITCH: You raised cold water pollution. How often does that occur?

Mr ROWE: It depends on the dam but I have read that for some of these dams, particularly on the Murray-Darling, it can be up to 300 kilometres from where the water is being released, depending on whether it is going over the spillway or underneath—that is one of those considerations that need to be taken into account. Most of them do not look at it but the fish species that favour the warmer conditions are not present within that zone anymore.

The CHAIR: Or do not breed?

Mr ROWE: Yes, you get that exclusion.

The Hon. MICK VEITCH: I lived on one of those waterways so I have a fair idea.

Mr ROWE: May I add something else? I work in the sphere of natural resource management. I have worked in that space for about 12 years with Oceanwatch. We sort of work along the lines of best practice. You encourage irrigators, land managers and councils to do the best thing that will be environmental, triple bottom line, economically and socially in their best interests. I guess where the frustrations arise is where you get to the low-hanging fruit but you can still have the odd person who does not give a damn about whatever is going down. There are the ones who are letting down the system. Yes, you can say you need more compliance but it is the accountability behind having more of an open mind to public entity and not private gain. I did not say that too eloquently.

The CHAIR: No, I understand.

Ms BEATTY: We are frustrated about that because as a fishing industry we take out a resource that is common property, we are required to meet community expectations that we are sustainable, that we are fish friendly and that we have minimal impact. We do that; we install by-fish production devices and total exclusion devices, and we limit our efficiencies so that we have less impact on the environment. We then read in the local newspapers that the farmers' representatives are saying that they will do it, but only if the Government pays them to do so and under strict conditions. We are required to do it because we are taking a resource from the community and we are having an impact on that resource, but other stakeholders refuse to do it unless they are paid. It is frustrating because it is impacting on us. They are upstream and they are impacting on our fishery's productivity.

The CHAIR: The submission from the Clarence Valley Council reiterated that the council has six times voted on a policy position of no diversion of the Clarence River. When we say "diversion", we are talking about the Bradfield scheme, which is designed to take some of these northern rivers westward. I asked the council about diversion of floodwaters and I was told that we need the floodwaters for the fish. I then asked whether that was required for the fish in the 2017 flood or the 2013 flood. In other words, to keep the estuary in perfect condition we come back to the question of what we do about the socioeconomic aspects of hundreds of thousands of people wanting to live along the coastline who require water, sewerage, food, and council services. The fishing industry is probably in the worst place it could be because that is probably not going to stop. What sort of short-term recommendations could you make? You said that there is not enough inter-stakeholder conversation let alone consultation, and that all of these pre-existing bodies should be reinstated. The Richmond Valley had a group and the Clarence Valley has a group. What else should be done? You have talked about compliance, and I assume you are talking about compliance with regard to agriculture.

Ms BEATTY: Yes.

The CHAIR: What else?

Ms BEATTY: Investing in smarter re-use. Our fishers had their homes and businesses impacted by the flood.

The CHAIR: Of course they did.

Ms BEATTY: A very clear message came from the Federal Government that it would reduce its grants for natural disasters, and that it wanted all of us to invest in mitigation measures and to start looking at ways to reduce the impact of floods. Immediately we approached the Fisheries Research and Development Corporation. [FRDC], which is looking at projects to provide our fishers with advice about how to mitigate losses due to flooding events. We are coming back with smart ways to deal with them. Riparian zones are our barrier between us and river flows. Many techniques are being examined around the world to mitigate the damage and negative impact of floods without stopping them.

The floodplains in many developing countries need that soup coming along; they do not want to stop floods. However, they must ensure that the community is impacted as little as possible by flood events. There has been investment in research both overseas and here, but we have not really taken up the research findings. People keep building in flood-prone areas and as soon as a disaster happens they put their hand up for money. They have not looked at how to mitigate that loss to their businesses and homes. The recommendation is to look at physical mitigation techniques to reduce the negative impact of floods on people's homes and businesses without preventing the flow coming through.

Mr ROWE: We had a project called Tide to Table that ran for about nine years. Our role was to get grant funding.

The CHAIR: That was Tide to Table?

Mr ROWE: Yes, Tide to Table. It was designed to get connectivity between people in the catchment and the health of the oceans. We had competitive grant funding and our role was to get people together to discuss this. We would get the farmer, the fisher, and the shooter together in one room to discuss these topics. There would then be some seed funding to get some of the initiatives working. It worked really well; we rolled out about \$9 million in cash and kind.

The Hon. PAUL GREEN: Which agency provided that funding?

Mr ROWE: It was Oceanwatch Australia. Our funding came from devolved sources, including the national Landcare program at the federal level, which was one of the major contributors.

The Hon. PAUL GREEN: You need that seed funding from the Federal Government?

Ms BEATTY: Yes.

Mr ROWE: Yes. Oceanwatch is funded through the Federal Government. It provides a small amount to keep it ticking over.

Ms BEATTY: And the national Landcare program.

Mr ROWE: Yes. The commercial fishers kick in through the Sydney Fish Markets. We have a levy on all boxes going through the Sydney Fish Markets that is diverted to Oceanwatch to help it do the variety of environmental works we have needed. About 10 years ago, these guys had what we called SeaNet extension officers in the field. They were installing fish-friendly devices with our industry and also lots of fisheries habitat works. There were photos in the newspaper of these guys doing mangrove works and stuff like that. Then the

funding went there and there, and then it dried up. Oceanwatch still exists and we still utilise it, but it is working on the smell of an oily rag. It has been disappointing. We keep on advocating that these are the guys who are nationally recognised. As pointed out by Ballina Fishermen's Co-Op Limited, we do not have the time, the Professional Fishermen's Association does not have the time, and the other co-ops and fishermen do not necessarily have the time to do this stuff. That is why we diverted funding to these guys to do the work. It is just that their funding sources are drying up but the work is expanding.

The CHAIR: From a fisheries ecology point of view, it is about limiting the size of floods, and at other times having what is called a transparent flow. One witness explained that their dam licence requires transparent flow; in other words, whatever goes in must come out and they can catch only the middle bit. If someone were to propose putting in a series of transparent flow weirs on the upper catchments to slow floodwaters, would you see that as being counter to your aims of maintaining biodiversity in the estuaries?

Mr ROWE: If it is blocking further habitat?

The CHAIR: Is it okay if flows can come down and fish can go up?

Mr ROWE: If there is consideration of the requirements of fish, yes.

The CHAIR: That is what I am saying.

Mr ROWE: That would be fantastic.

The CHAIR: Flows would come down and fish would go up.

Mr ROWE: Fish could access that area.

The CHAIR: What you do not accept is large, permanent storage facilities that prevent fish going up.

Mr ROWE: Large permanent storages need to have consideration for fish. There could be fish ladders.

The CHAIR: I understand.

Mr ROWE: I believe at the moment that only the Tallowa Dam on the Shoalhaven River has that type of infrastructure in New South Wales. Some of the smaller empowerments have fish ladders and that type of thing.

The CHAIR: Warragamba Dam has a wet wall. I have seen eels going up the dam wall. It is amazing.

The Hon. PAUL GREEN: They climb Tallowa Dam.

Ms BEATTY: Someone put a collection device on one of the irrigation pipes coming from a river and collected all the fish that were sucked in. I think about 10,000 different baby fish were sucked in in one hour.

Mr ROWE: That is by irrigators.

The CHAIR: That is going through pumps.

Ms BEATTY: Yes. They will have them sitting on the river sucking them in. Those devices also have a negative impact on fish populations.

The CHAIR: What do you think about the proposition—it is almost policy position—put by governments generally that New South Wales will have to increase its agricultural production by 70 per cent by 2030?

Ms BEATTY: As a farmer, I think it can be done. We simply need to be smarter. I see a lot of "unsmart" practices.

The CHAIR: You do not necessarily see that as meaning there will be a 70 per cent impact on the environment if it were done properly?

Ms BEATTY: Exactly. Just because your agricultural production increases does not necessarily mean your ecological footprint should also increase by that amount exponentially. As a farmer, I do not think we have been very smart in regard to our ecological footprint. I am a member of Landcare. We have Rivercare. My farm has tributaries of the Upper Orara going through it so I have had Rivercare come through. It is a great program but there is so much more that can be done. Rivercare focuses on the riparian zone but actually coming and talking to farmers about smart use of water during the day such as the example I gave before of seeing the sprinklers sitting above the bananas at one o'clock in the afternoon on a summer's day. There is nothing getting to the ground and I do not know why they are bothering to do that. There needs to be a review of smarter use of the water.

The CHAIR: As a farmer who has production facilities adjacent to a river and a riparian zone, you mentioned earlier that you felt there should be greater compliance with agriculture insofar as its impact on the river. Water extraction or water use are obvious areas as well as the use of chemicals or poisons—

Ms BEATTY: Big time.

The CHAIR: What other things can be done?

Ms BEATTY: The intake pipes coming out of the water need to have some sort of device that sits on them so it is not just the filters—

Mr ROWE: To exclude the fish.

Ms BEATTY: —to exclude the fish and have less impact on the fish.

The Hon. PENNY SHARPE: Do these devices exist?

Ms BEATTY: Yes. Daily I see a lot of fellow farmers have their cattle walking through the creeks and stuff like that. They need to fence off—

The CHAIR: So exclusion from riparian zones?

Ms BEATTY: Yes, exclusion from the riparian zones and work on those riparian zones to improve their habitats. In the Orara area we do not have the gates and stuff like that there but certainly when I have been on the Clarence having the fish passages and that type of thing is necessary. Even if you do not have a river going through your property there are smarter ways to use your water and it is not being—I do not know whether any Department of Livestock Services [DLS] extension officers are going out there and talking to farmers about better use of water but there certainly needs to be some kind of discussion and engagement in that regard. We have got to be smarter with our water usage.

The CHAIR: The commodity that has had the single greatest reduction in its use of water, believe it or not, is cotton.

Ms BEATTY: Because they were attacked so much they needed to go up to Darwin and Darwin had major water concerns.

The CHAIR: Thank you both for appearing before the Committee today. You have placed some important information on the table and we will try to turn some of that into recommendations.

(The witnesses withdrew)

(Short adjournment)

GREGORY JAMES McNAMARA, Chairman, Norco, sworn and examined

WILLIAM JAMES FULKERSON, Field Adviser, Norco, sworn and examined

IAN CHARLES McBEAN, General Manager, Sunshine Sugar, sworn and examined

ROSS ANDREW FARLOW, President, New South Wales Cane Growers Association, sworn and examined, and

PATRICK MICHAEL BATTERSBY, Executive Officer, New South Wales Cane Growers Association, sworn and examined:

The CHAIR: Your organisations have not made a submission to the Committee. Would a representative of each organisation like to make an opening statement or to place something on the record?

Mr FARLOW: Thank you for the opportunity to appear before the Committee today. My name is Ross Farlow, I am the Chairman of the New South Wales Cane Growers Association. Accompanying me are Pat Battersby, the manager of the New South Wales Cane Growers Association, and Ian McBean, the general manager Sunshine Sugar. Together we are representing the 600 cane farmers and 400 employees who depend directly on the sugar industry in New South Wales for their livelihood. Overall we support about 2,000 families across the region. It is fair to say that when we first received the invitation to participate in this review we were unsure as to how this applied to us and our industry. The definition of "augmentation" is the action or process of making or becoming greater in size and amount. Our issue is flooding. What we need is less water on our cane farms, not more. On closer reading of the terms of reference, however, we do believe they cater for our main concern—the impact that flooding has on our industry. The sugar industry was established on the three major floodplains of the Northern Rivers in the late 1800s. It is fair to say that flooding has been part of our lives since then and that we have learned to manage those impacts ably assisted by an extremely resilient crop.

Like many agricultural industries our success is strongly linked to throughput. Prior to the 1960s that was limited by the availability of suitable land primarily as a result of flood risk. Flood mitigation infrastructure was developed in the 1960s, which allowed the industry to expand to its peak of 37,000 hectares by the year 2000. Since then we have seen a steady decline as a result of a number of factors, one of those being the impact of flooding associated with the infrastructure not being adequately maintained, no longer being fit for purpose and excessively complex regulation which results in paralysis. Effective water management is critical to our success. However, unlike most of the sugar industry in Queensland, our imperative is to get water off the land—not put it on. That applies equally in times of flood, as we have seen over recent years, and also in times of normal rainfall. Sadly, this is getting more and more difficult and needs to be addressed as a matter of priority. If one considers the complex maze of legislation that needs to be navigated to complete in essence what is a routine part of farming on a floodplain, the question must be posed, "Is this what was intended by government when the legislation was developed?" I believe not, but that is where we are and the process must be streamlined and a sensible approach adopted.

Our industry accepts that the key to improving flood resilience is to take a multifaceted approach, which includes efforts to improve flood response, preparedness and recovery. Our view is that efforts to mitigate flood damage by improving the maintenance and therefore effectiveness of drainage systems already in place will greatly improve flood resilience. The industry accepts well-maintained drains will not reduce rainfall but if we ensure drains are fully and properly maintained we can remove water as fast as possible. As I mentioned earlier, flooding is one of our greatest risks as we have seen earlier this year and over the past 10 years or so. We understand that risk and have developed our farming systems and strategies to mitigate and manage those risks. An example is the Flood Ready Cane Farming Strategic Plan for the North Coast Region of New South Wales, which was developed in cooperation with the New South Wales Department of Primary Industries and finalised in December 2014. The plan is intended to improve our industry's flood resilience. However, even the best plans in the world are of little use if they cannot readily be implemented to achieve the desired outcome. That is what we need the Committee's help with.

The CHAIR: Mr McNamara, would you like to put anything on the record for Norco?

Mr McNAMARA: I thank the Committee for coming to Lismore and for giving us the opportunity to present. Norco represents around 220 farms, we employ around 809 people and our annual revenue this year will be just shy of \$600 million. One of the things that we thought was important for the group to understand was that in producing product in a subtropical environment where you have dry and wet weather, as we heard our sugar friends say earlier, the issue of floods are major issues and so is dry weather. One of the problems in

the Northern Rivers particularly is that we do not have a consistent supply of rainfall, therefore when our dairy farmers are irrigating to produce a regular quality product for our consumers—because we know that consumers drink milk on a regular basis—it requires effectively environmental management of our water. What we wanted to do was to make sure that the New South Wales Government or the plan was not just about the Murray-Darling Basin but also considered the east coast of Australia issues and the subtropical environment, especially the Northern Rivers from our perspective.

In my view we have a lack of planning. One only has to look at the issues that Lismore, through Rous Water, developed a number of years ago where they actually chose to take water out of the Wilsons River versus actually building a new dam. That has a significant impact upon the farming community because the farmers upstream who take water from the river in dry periods are asked to cease that arrangement earlier because the town community actually needs it, which we understand. Building a dam on a longer term basis would have been a far more effective tool to ensure water security. We would also encourage the group to think about this is not just about farmers using water or using it more effectively. As you said earlier, to produce 70 per cent more food in 2030 requires a whole-systems approach, not just about use of water but about the use of our land, also about the community understanding that to produce a regular supply of product you have to have a regular supply of water or rainfall.

The bigger issue in this part of the world is that in dry weather with unregulated streams, as we do not have predominantly storages, we do not get that available to irrigate in dry periods because we actually self-manage our streams. Therefore, we choose to leave an environmental flow, which we are prepared to do. An understanding that these issues if you are wanting to create more food need to be brought through in a timely manner. So planning, effectively. There has been a lot of work done on the Murray-Darling Basin but not a lot of work on the catchments on the east coast of Australia around how they could be a greater supplier of food product in Australia into the future. I might let Dr Fulkerson talk about the flood impact that he wanted to raise.

Dr FULKERSON: Most people know of the recent floods that we have had. They cost our suppliers on the North Coast \$3.74 million. I do not think that the Government can do much about flooding in terms of physical assistance or anything like that. One of the issues that worries us is that one of the aspects of climate change is actually increase in extremities of weather events and frequency and intensity of weather events, which will really impact on our farming systems. That leads into the other bit where it is pretty obvious that if you go back to the early 2000s there was a very dry period here where the community virtually ran out of water. Really nothing has been done since then to address that and we expect, obviously, an increase in population over the next years in this area, so it will just get worse. What we are saying is that in the longer term the population in the urban areas is going to win in terms of competition for water, which will be taken from us.

I think one of the things that we possibly could raise is that if we could get off-river storage on farms. That was done a while ago but it was stopped. If we can get off-river storage on farms or farm accessibility and it was based on catching water that was in a semi flow or a flood, had fairly strict criteria. If you look for instance at the last flood we had—I have no data—but there must have been 50 times more water than would ever be needed for the environment to clean the rivers, et cetera. If we can capture that under strict conditions, that would not only take farmers off the river during dry times, because they would have their own water, but also would alleviate to some extent the flood issue, take some of the floodwater away when it comes up.

I would like to go back to the floods. We are always going to have floods. The issue with our farmers, when they have floods they undergo a fair bit of trauma, certainly that last flood. I think there is a need for the industry to realise that the response to helping farmers or helping the community has to be very quick, very expedient after the flood event and it has also got to be fair, also very clearly coordinated. I think those three things were highlighted in the last flood event and were not quite perfect.

The CHAIR: The comment you just made regarding the post flood events or consultation has been raised. The Hon. Mick Veitch asked a question of other witnesses about that. We have had varying replies from witnesses as to how they saw the response from either the community and/or government, or both, post-floods and it seems to have been variable. I address my question to Norco; across how many river valleys do your growers spread?

Mr McNAMARA: From Gympie through to Dungog, Singleton. I have not actually added them all up.

The CHAIR: Certainly across all of the Northern Rivers catchments?

Mr McNAMARA: Yes.

The CHAIR: And canegrowers?

Mr BATTERSBY: Tweed, Richmond, Clarence, basically the border down to Grafton.

The CHAIR: We have heard evidence from witnesses who are responsible for either water or local government in most of these areas; Tweed Shire Council, Byron Shire Council, Richmond Valley Council and Clarence Valley. Perhaps I might ask the question of Norco first: Do you believe that your local governments are sufficiently engaged in the processes that Dr Fulkerson spoke about? In other words, post-flood are you satisfied that your industry was part of the consultation process, was involved in the debrief, if you like, of what happened with the floods in 2013 and April 2017?

Mr McNAMARA: Do you want the honest answer?

The CHAIR: The honest answer.

Mr McNAMARA: I say no.

The CHAIR: What about the cane industry? What do you think?

Mr BATTERSBY: Probably not. I think that as an agricultural industry we tend to work more with DPI after the event. They tend to coordinate what is happening out in the rural sector more than what the local government is. Local government has a big task with attending to urban matters. But having said that, down our way we have our two major centres that are leveed and have not experienced flooding, in Grafton's case, since 1967, and in Maclean's case, since 1974.

The CHAIR: Urban flooding you are talking about?

Mr BATTERSBY: Urban flooding.

The CHAIR: Whereas the production lands have been impacted.

Mr BATTERSBY: We get impacted upon basically every time there is a moderate to major flood.

The CHAIR: I will go to the canegrowers first. You are probably aware of the tension between the fishing industry and the agriculture industry in terms of one impacting or affecting the other. In the canegrowing industry your problem is getting rid of water. The only place that water can end up is in the rivers and then out to sea.

Mr FARLOW: Yes.

The CHAIR: Do you feel that your industry has advanced or is handling the situation of getting rid of the water off your farms in the best possible manner?

Mr FARLOW: I will defer that question to Mr McBean. I can answer a little piece just prior to that. I believe that we would have a stronger relationship with the professional fishermen than we have ever had. We endeavour to ensure that relationship is ongoing. The fishing game is seasonal and we have many fishermen work in the harvesting sector of the cane industry and we have gone to school with those fishermen, they are friends of ours, they are part of the community and we are very proud of our social standing in the community as well. We take all steps to ensure that our relationship with the fishermen is being maintained in the highest standard that we can.

The CHAIR: Would you see that applying to both the Clarence and the Richmond? We heard evidence earlier when the Richmond fishermen raised exactly that point. The agriculture mix is different in the two river valleys and a lot of the fishing in the Clarence was part-time with canegrowers using it as a second industry.

Mr FARLOW: I think that is fair to say, yes.

The CHAIR: The view was expressed to us that in the Richmond the stakeholder group had not met for four or five years, whereas in the Clarence, perhaps they had not met in 12 months, but it was still there and still operating. Would you agree with that?

Mr FARLOW: Certainly on the Clarence we meet and see people, not only in a structured meeting situation but certainly socially as well, and we take every level that we can to enhance that relationship.

The CHAIR: In the structured meetings do any of the government departments take a place at the table in those consultations?

Mr FARLOW: Generally DPI was the last one that we were at together in Grafton.

The CHAIR: On those same subjects, would Norco like to comment about its relationships with other stakeholders in its catchments?

Mr McNAMARA: I think it is a good point that you raise. There has to be a whole-system approach. We recognise that you cannot just blame the cows for being in the river and deal with those issues. I live in the upper catchment area and understand the issues of farmers in the lower catchment. You cannot talk about one area in isolation. I think that part of the problem is that regional communities on the east coast of Australia predominantly depend on agriculture. Whether it is fishing, cane, dairy or horticulture, we all need water. You continually hear that we should fence the rivers but people forget that if you go to the upper catchment the single biggest issue is the erosion caused by camphor laurels, which silt the river. You only have to visit the stream that I live on. It was horrendous after the last flood. What dirtied it? Where did all the sediment end up? It ended up in the river, affecting the fish life.

The cane industry cannot blame the upper catchment and the upper catchment cannot say, "We are not going to fix the issues." We need to understand that we all have an impact. You cannot solve the issue once it has happened. That is where the Government needs to have a greater impact. The industry used to have resources available through the old Department of Agriculture, where we had consultative services that were working in those fields—not only in cane, but also the dairy and the beef. Those resources were taken away and to some degree the agriculture sector now misses those services because they are not drawing the connections, if that makes sense.

The CHAIR: It does.

The Hon. MICK VEITCH: Are these the former extension services?

Mr McNAMARA: Yes. I am not saying that we should rush back to it, but I do not think that you can solve the issues of the cane, the fish or the dairy in a singular circumstance. There needs to be broad-brush planning. If you talk to the local councils they say that the Green movement has some great ideas but they all focus on the cow. The cow is just one issue. We need a whole-system approach, and someone to think very clearly around how that is going to work. We all know that building weirs in rivers is never going to happen again. In this part of the world the weirs were taken out for very good reasons.

What we now need is to stop and think about how we build our regional communities to meet this growing demand in New South Wales. How do we go about it? I heard someone say earlier that meeting 70 per cent demand for food production by 2030 was easy—we could do it. I would challenge her. I would challenge anyone to say how we are going to do it.

The Hon. PAUL GREEN: You are not going to do it with water?

The CHAIR: You are not going to do it without water.

Mr McNAMARA: Absolutely. You need more water to do it.

The Hon. PAUL GREEN: I am saying that we are not going to do it with water if we keep going the way we are going. If we do not plan differently we are going to end up with no food bowls.

Mr McNAMARA: What is happening, other than you guys coming and having a bit of a chat to us about it, and putting some work in behind it—I think that is great, but this is a 50-year project.

The CHAIR: Can I ask you to comment on the success of the way that we do our planning. It seems to me—this is a personal view—that planning is done in election cycles, or maybe two or three elections cycles. Do you think that there needs to be a mechanism by which planning is done over a much longer period of time? The answer to that is probably, "That is a dumb question; of course, everybody thinks that." How would you suggest that could be achieved with respect to agriculture on the eastern seaboard?

There are so many conflicting interests. You talked about the difference between you and those west of the stone curtain. Here you have the added problem of having a booming population over the next 50 years—people competing with cane, dairy and fish and everything. Your situation is a little bit different from someone else's so you cannot have one solution for everybody, can you?

Mr McNAMARA: One of the problems of society today is that we tend to make the easier political decision because we are too afraid to stand up and say, "No, that is bad decision," or "That's a good decision." We take the easy way out. I do not believe that anyone has come up with a plan which looks at how the Northern Rivers is going to provide water to its agriculture sector and provide water to its town systems by 2030. There has been some work to extract water out of the Wilson River, here, but that is a temporary solution. No-one has been brave enough to look at what we need if we want to tackle water security for the local town and to create a agriculture sector that is ongoing, viable and can sustain itself through floods and droughts. That thought process does not even exist. There is no-one even thinking about it in a holistic approach.

The CHAIR: What does the cane industry say about that? You have exactly the same problems. You are in an agricultural zone that is also very desirable for human development. Long after all of us are horizontal—in the next 50 or 60 years—is there going to be a cane industry on the coast? If so, what sort of ideas would you put on the table for how we start the process of trying to make sure that we have sustainable industries on the North Coast in 50 years time?

Mr McBEAN: Can I just go back a step. In support of what Greg is saying, one of the things that we need is a holistic and consistent approach. There is no doubt about that.

The CHAIR: Over a long period of time?

Mr McBEAN: Even in the short term. Think about the question you asked earlier about geographically where our industry is located. There are some pertinent examples I can raise. We operate out of the Tweed, the Richmond and the Clarence. In dealing with those three catchments and the authorities that are involved in those catchments we have three completely different approaches—both from the local government and the State Government.

I come back to the case that you have raised in relation to drainage management. In our case on the Tweed we have a system that is based on the old drainage board model. That works very well. On the Richmond there is a county council model.

The CHAIR: The Rous council?

Mr McBEAN: Yes. On the Clarence it all just falls under the Clarence council. So there are a few different approaches there. The other part of it comes back to strategic planning. I have been involved with the Tweed Shire Council looking at their strategic plan for agricultural land. That is just about to get published. It is probably fair to say that we have not seen anything similar to that coming out of the other councils. It is probably on their agendas. Even then, those strategic plans generally have a fairly short horizon. They are not looking 50 or 60 years ahead.

The CHAIR: So what is the horizon on the Tweed plan?

Mr McBEAN: It is about 15 years.

The CHAIR: It is a start, isn't it?

Mr McBEAN: It is a start. I come back to your point, which is a fundamental question from our perspective. From an agricultural perspective we need access to land and we need access to water. It has been said recently that the good quality agricultural land is a finite resource. Our industry is suffering a death by a thousand cuts because we have encroachment into our canegrowing areas and urban expansion. We have lifestyle and tree-changers moving in. A lot of things work against us in that regard.

With respect to our discussions here today we operate on a floodplain. It is called that for a reason. We have to put up with floods. So the challenge that will occur going forward is that as urban settlement encroaches onto this agricultural land how are those residents going to deal with floods? That is going to be one of the major challenges. We saw that in Lismore only a few months ago. Down the floodplain it is going to get worse. All of those things need to be thought through, but from our perspective, protection of the good quality agricultural land—not just for cane or dairy purposes but for feeding our State and our nation in the future—has to be high priority.

The CHAIR: In the Northern Rivers area water is a problem. But water is not necessarily the biggest problem. The biggest problem is that you are going to lose productive land over the long term. West of the ranges you will probably not lose productive land. You cannot have productive land if you do not have water. So their problem is completely different from yours.

Mr McBEAN: Correct.

The Hon. MICK VEITCH: I just want to explore this a bit further. As my colleagues will appreciate and understand, you were talking about coordinated planning for the entire catchment, which is something I have been talking about for a long time—

The CHAIR: Three catchments.

The Hon. MICK VEITCH: Yes, but which of those individual catchments? You mentioned the Murray-Darling Basin process. Mr McNamara, what attributes of the Murray-Darling Basin process did you like that you could see being used as a sort of model for coordinated planning for the catchments here?

Mr McNAMARA: Until recently I thought the Murray-Darling process of developing that plan, I think it was over a five- or seven-year period—it is quite a lengthy plan, the consultation process was quite large—

The CHAIR: It included at least one book burning.

Mr McNAMARA: I thought it was all really good. But I thought that process was really good because it was a bigger systems approach, and I think that needs to be considered in not just the Northern Rivers because I think there is some commonality on the east coast of Australia that the further you go down the coast—yes, we are the Northern Rivers but I think there is some commonality between them and I would suggest that we think about the Murray-Darling Basin style of consultation for the east coast of Australia. I agree with Mr McBean, there are two key ingredients that we need to think about for the future of agriculture: available fertile land and water.

We talk a lot about floods but we also do have a dry period. We are a sub-tropical environment, so we have three or four months of floods, and one of the issues that we have for the dairy sector is that we need consistency of supply. We know that the average consumer drinks around 102 litres of milk a year and they drink the same amount every day. So therefore we need to supply the retail chains in Australia the same amount of milk. That means that we need to encourage our farmers to have production systems that produce the same amount of milk every day, which means if they have not got rainfall they need to supplement the shortage of rainfall with irrigation water, and that means if we want to encourage and grow our sector and at the same time a population expands, there is a competition for this water in agriculture that at the moment I do not think we have a solution to.

The Hon. MICK VEITCH: And also, to be fair, there is a lot of criticism about the Murray-Darling process as well and in our travels west of the Dividing Range we have heard lots of pros and cons. I am keen to explore your comments around the consultation mechanisms. Is it because of the time it took to develop the plan—the consultation was a long period of time—or was it the way they went about the consultation that impressed you?

Mr McNAMARA: I would say it was both, but you cannot do these things in six months. If you want to do true consultation there are a number of phases of the consultation process. I do not necessarily know who did the consultation but it was well thought through that it would take a number of years to bring these together to determine what the outcomes were, because everyone knew that there was a lack of water, they just did not know how they were going to reshape that to hit the environmental concerns and also the needs of the community, knowing full well that there is going to have to be some give and take. I think that takes a while for people to be educated around, how that is going to work.

The Hon. MICK VEITCH: A bit earlier on, Mr Battersby, in response to a question from the Chair—I have been asking people as we have been travelling around about the post-flood consultation mechanisms and how well they work or otherwise—you mentioned that your growers have been working mainly with DPI. What has that consultation been like with DPI post the flood?

Mr BATTERSBY: There is a committee that has been set up through DPI out at Wollongbar, which is basically a natural disaster response group, and it consists of representatives from all the rural industries on the far North Coast within this region and they are very quick to get together after an event and so forth, things like disaster relief, collating facts and figures and losses and all that sort of stuff so the case can be presented to government for relief to get these people back up and running, and that is working reasonably well. It is up to each industry to get the information, feed it through DPI, who then can go back to the authorities and try and get things happening. We sort of appreciate that it is a little bit difficult for local government to really get fully involved in that one because of the logistics and so forth. The model works reasonably well.

Mr McBEAN: Could I add something? After this last flood we formed a Primary Industries subcommittee—and I sat on that committee; I thought it worked pretty well—to compare the response and the reaction to this flood compared to the 2013 flood that the Chairman referred to earlier. I personally believe that there was a significant improvement in the approach. So that process worked really well and I think, like in all situations, as Mr Battersby has alluded to, the needs and wants of the various groups are different, the structures and the capacity of each of the groups are different, and so, in my view, very quickly the priorities shifted and we got to the point where we were dealing with what at the end of the day were really quite minor issues but they were important issues to certain groups. I think the other part of it of course is that each flood is different, and certainly this flood for us from a cane industry perspective was quite different to the previous one we had to deal with.

The Hon. PENNY SHARPE: How was it different?

Mr McBEAN: On the Tweed in particular it was a quick flood. The water came up very quickly and it went down very quickly. To be quite honest with you, from a sugar industry perspective we were quite surprised when the water went down at the lack of impact compared to what we experienced before.

The Hon. PENNY SHARPE: Is that simply because it was so rapid it did not—

Mr McBEAN: Because it came up so quickly, and there were a couple of things that worked in our favour: one was that when the wind came through, the cane was actually underwater, so we had four or five metres over the cane and that protected it from the wind. So it was a perverse outcome in some respects. But when the flood went back down, surprisingly enough the cane was still mostly standing, and whilst it had a lot of sediment and stuff in it, the thing that kills cane really is protracted inundation and water temperature. So we did not experience that this time compared to the 2013 flood when that was the case: the water came up slowly, stayed there for a long time and that is when we had a lot of effect.

To come back to my point, my involvement has been across the three rivers from a whole-of-industry perspective through the subcommittee, and whilst there were criticisms of certain aspects I thought it went a lot better than previously—there is always room for improvement, obviously. One of the criticisms that was raised, and I am sure you would have heard it before today, was in relation to the early warning. That seems to be an ongoing issue, particularly on the Tweed again and this situation, simply because it is probably fair to say people do not believe their eyes, because the numbers that were coming up on the recording information were so significant that they thought there was something wrong with the equipment. But, at the same time, I think you are never going to be perfect, but we are working towards making it better.

The Hon. MICK VEITCH: Mr McNamara, I think your response was no to the Chair's initial question about the post-flood consultation and if it had been effective. Do you want to elaborate on that?

Mr McNAMARA: Yes.

The Hon. MICK VEITCH: You were very succinct.

Mr McNAMARA: I think for the Lismore region—and I will speak for Lismore particularly—I will give you a scenario. My border is 12 hours earlier from Lismore, so I saw the flood at 6 o'clock in the afternoon, Lismore saw it the next morning almost. I rang people and said, "This is the biggest flood we have ever seen. It's the fastest we have ever seen. It's come up a metre in an hour. It's entering houses", and people said, "We've got a levee." Yet I knew it was the biggest flood my mother had ever seen and she is 84 years of age. But people ignored that warning. I think it gets back to Mr McBean's point that we have moved to an electronic age but there almost needs to be this balance of human factor around when electronics do not work or we do not believe it. I would suggest that is one of the biggest reasons that people had significant loss at Lismore; they believed they had a levee to protect them and by the time they got the warning it was too late and it was horrendous.

The Hon. MICK VEITCH: So what was the impact on dairy farmers? We have heard the impact on canegrowers. I had a dairy farmer ring my office and say that he had lost all his silage.

Mr McNAMARA: It will vary from area to area. I would suggest farmers who have been long term on particular farms and potentially people in this part of the world have a longstanding association with their farms so they have learnt to manage their issues, but it was the severity of this flood where someone may have actually stacked there silage up in an area that was above the normal flood predictions, then that had an impact. But I would suggest agriculturists in a flood zone are learning better to actually use it. I think with the weather forecasts—we knew there was going to be a large thump of rain so people moved their cattle. Those sorts of things were managed but it was actually the severity because people thought it was going to be a 200 or 300 millimetre event when it turned into a 450 millimetre event. I do not think anyone could ever predict those sorts of things but what I would suggest is that somehow we need to find that mix of technology versus historical data or people interaction that would actually give us some balance around that.

The Hon. GREG PEARCE: Mr Farlow, thank you for your presentation. I think you said something to the effect that there was significant flood mitigation infrastructure built in the sixties?

Mr FARLOW: Yes.

The Hon. GREG PEARCE: Was that drainage primarily or what sort of infrastructure are we talking about?

Mr FARLOW: Flood mitigation works were carried out at the start of the very end of the 1950s and was carried through until probably the early 1970s. There were many hundreds of kilometres of drainage works carried out with outlets then into the river, which opened up marginal land, very good quality land that would normally have been inundated for substantial periods of time. It allows for a major expansion not only in the

cane industry but certainly the beef industry was able to access pastures. The landscape has changed from when the infrastructure was built in the 1960s. Water inundates an area from a river; it goes over a road because all the roads are built on the natural river levees and then you may have an outlet that may have been two pipes that were two metres each engineered and assessed to take that water back out in a timely fashion.

Since then roads have been top-dressed and they may be now 30 to 40 centimetres higher than what they were. There is more urban run-off, and I make the point that an awful amount of urban run-off goes through agricultural land and the agricultural caretakers, custodians, maintain those drainage systems as best they can for the benefit of all of the community but when it gets to the plug, which is the drain outlet into the river, that is where we run into trouble with legislation.

There is conflicting legislation between Fisheries, coastal management plans, local environmental plans [LEPs], State environmental planning policy [SEPPs]—the maze of legislation that we have to jump through is very, very difficult and frustrating. It is time consuming and you could argue cynically that maybe it is designed to not have anything done. All the will in the world and all the money that you spend on the inside of the drain is only as good as the plug on the outside. We are very proactive in getting rid of that water as fast as we can. The sooner we can get rid of it, the fewer blackwater events will occur, with fewer things like mosquito problems—all the stuff that goes with that—and local roads open sooner so that the community can function as well.

The Hon. GREG PEARCE: In order to get that regulatory regime sorted out what do we need to do? Do we need an independent expert inquiry or a government working group?

Mr FARLOW: I will defer to Mr McBean, but in saying that, we did submissions to government and spent two years. We got to the Minister and finally we were advised by DPI that we were at the wrong Minister and we had spent two years working there, with assistance from some senators who were very valuable at the time. Throughout those two years nobody in government, be it local government or State Government, tipped us off that we were heading up the wrong path.

The Hon. GREG PEARCE: They would not have tipped off the Minister.

Mr FARLOW: I will just pass over to Mr McBean to answer that?

The CHAIR: They did not tell me either. If I had known six months in, we could have done something about it.

Mr FARLOW: Yes, that is right, Mr Chairman.

The Hon. GREG PEARCE: It sounds like it has already started again?

Mr FARLOW: Yes.

Mr McBEAN: We have brought with us today one of my favourite slides, which outlines the legislation that sits around the simple function of a farmer cleaning a drain.

The Hon. GREG PEARCE: Would you like to table that for the Committee?

Mr McBEAN: Yes, and I might table as well a copy of a presentation we made to DPI in 2016.

Documents tabled.

Mr McBEAN: Surely we can find a way through this because, as Mr Farlow said in his opening comments, surely that was not the intent. Surely the intent was to understand the risks, manage those risks and achieve an outcome, but it seems to have got to a point where the legislative maze is almost impossible to make your way through. As a result you have frustration, inefficiency, costs, loss of production, et cetera. We strongly believe that this is something that needs to be addressed and there needs to be some effort put into it.

The Hon. GREG PEARCE: Does the presentation made to DPI contain recommendations?

Mr McBEAN: Yes, I think it does actually. Despite our best efforts and two years of hard work, it ended up in the too-hard basket and that is where it is at the moment.

The Hon. GREG PEARCE: Is there a significant sugar cane industry in Queensland?

Mr McBEAN: Yes, there is.

The Hon. GREG PEARCE: Do they have a different regime?

Mr McBEAN: There are probably two major issues. The Queensland industry is very significant. We only make up 5 per cent of the Australian industry. As Mr Farlow said in his opening statement, the issues in

Queensland are probably more aligned with the dairy industry. They are mainly dependent on irrigation primarily, except in the far north. Our situation here is that we are on a floodplain; we generally have very little irrigation, if any, and our issue is all about drainage.

The Hon. GREG PEARCE: Dr Fulkerson, you spoke about giving farmers on-farm storage capacity essentially. I used to call that dams. What are the impediments now to farms having dams on farms?

Dr FULKERSON: There are not any impediments but it is illegal at the moment.

The CHAIR: That is the impediment, isn't it?

The Hon. GREG PEARCE: Yes, that is the impediment.

Dr FULKERSON: Okay. They did start to do it a couple of years ago and the average farmer could probably make a reasonable sized dam, say to hold 80 megalitres, and that would do the whole year for a fairly big dairy herd. It would take the water away when it was critical massive overflows and it would actually remove his ability to pump out the river to use that in a dry period.

The CHAIR: Point of clarification: 80 megalitres would grow how much milk?

Dr FULKERSON: I do not know about how much milk but it would grow about 25 to 30 hectares—about three cows a hectare; that would be the milking area.

The CHAIR: So for your cooperative how many megalitres would you need to store on farm?

Dr FULKERSON: In totality?

The Hon. GREG PEARCE: You can take that question on notice if you like.

The CHAIR: It is okay to say 80 megalitres per farm but we would like to get a perspective of what that means, talking as you were earlier about a holistic approach. What sort of off-stream storage would the dairy industry require?

Dr FULKERSON: There are probably only about 60 or 70 farmers who have access to the river. The others are on dry land. You would multiply that by 70.

The CHAIR: If you put storage on farm, would it not therefore give the capacity for all of those dairy farmers to become irrigated farmers?

Dr FULKERSON: No, because a lot of them just do not have access to the river to pump into the dam.

The CHAIR: To get the water in the first place?

Dr FULKERSON: Yes.

The Hon. GREG PEARCE: So you are saying they rely on rain to fill them?

Dr FULKERSON: Yes. Can I just raise another three issues which the Government can have some influence on?

The CHAIR: Yes.

Dr FULKERSON: Previously the cane people said the system post-floods was a lot better than previous floods but I think it is still not expedient enough. For instance, in Queensland they got their grants and support two to three weeks earlier than we did. One of the issues is that it is all related to local government areas. We have five local government areas here. I put in a damage report for those areas, and two of them got funding three weeks behind Queensland. That was the first lot. That was because a lot of farms in there were affected. Three did not get anything. Two or three of our farmers were massively impacted, but they got nothing. You can see what I am getting at.

The CHAIR: There is inconsistency.

Dr FULKERSON: It is not sensible to restrict it to local government areas. The second issue is that we talk about not having enough water. If you look at the Murray Goulburn scheme, one of the big positives, or the win-win situation, is providing funding to improve irrigation efficiency on farms. The opposite has happened here. Ten years ago there were three irrigation officers with the Department of Primary Industries. They are all gone now. If I want an irrigation or drainage model for a whole farm, I have to go to Tamworth and I use a private consultant. If the Government wanted to do something to promote efficiency on our farms, that would be good.

The CHAIR: Would you say the same applies to your industry, Mr Farlow? Are there extension services?

Mr FARLOW: I refer that question to Mr McBean with regard to our service capabilities.

The CHAIR: Do you still do your own pest control?

Mr FARLOW: Absolutely.

Mr McBEAN: Our industry is structured slightly differently. We have what we call an agricultural services department, which is equally co-funded by the growers and the miller—Sunshine Sugar. As part of that process, we deliver extension biosecurity services to the sugar industry.

The CHAIR: So the industry pays for it itself?

Mr McBEAN: That is correct; it is completely self sufficient. We have very little input from the Department of Primary Industries on a day-to-day basis, other than our involvement, for example, in emergency responses.

The CHAIR: Deregulation screwed over the dairy industry so much that there is no fat left to do that sort of thing. Am I right or am I wrong?

Mr McNAMARA: I think you are wrong in the sense that we have moved on from the deregulation phase to a new phase of redevelopment. Over the past two years, 13 new farms have been established. As Mr McBean said, we have moved into developing our own research.

The CHAIR: Are you selling directly into China or is that someone else?

Mr McNAMARA: Yes, that is us. You should ask us how much profit we make out of it.

The Hon. GREG PEARCE: But you will not tell us.

Mr McNAMARA: No, because there is none. This is where the agricultural sector needs to get it right. We are entering a new phase. We know that agriculture is incredibly important to the future of the export industry, and that Asian communities want a piece of our agricultural sector, whether it be land or food. We need to be ahead of the pack in the sense of research and development. If we want to grow the additional product to supply the market, we need to find innovative ways to do that. Whether it is through irrigation, or agricultural services, we need to find the answers. We need to create that internally. We are almost following the sugar industry model now in that we are doing some of that work ourselves.

The CHAIR: As far as this water inquiry is concerned, the key issues are on-farm storage and the ability to streamline the red tape tangle with regard to drains.

Mr FARLOW: Yes.

The Hon. MICK VEITCH: And coordinated planning for the catchment.

Mr BATTERSBY: I would like to make a comment on what has happened with our mitigation systems over the past 20-odd years. There has been a lack of funding, government red tape and urbanisation. Over the past six or seven years, we have had four major floods out on the plains. We have areas where water would drain off farms and run into the rivers in days. It is now taking weeks.

The CHAIR: Because?

Mr HILLIARD: Because of the lack of maintenance of the infrastructure, the lack of funding, and the amount of red tape we have to get through to keep that infrastructure up to speed. It needs a major injection of capital. We need to have the will to do it, and eradicating the red tape would help.

The CHAIR: Mr Farlow, do you have a comment?

Mr FARLOW: Further to that, if a local landholder has his own excavator and the will, and if his fellow landholders and even some of the council staff agree it needs to be done, he is still not game to help himself, the environment or the situation for fear of prosecution.

The CHAIR: By any number of a dozen or so—

Mr FARLOW: Absolutely, they would just line up. We cannot even help ourselves.

The Hon. GREG PEARCE: Dr Fulkerson, in your opinion, what is the logic for not permitting dams?

The CHAIR: What is the argument against it?

Dr FULKERSON: They would say that they were taking water away from the catchments; they would be harvesting it. If they cannot harvest it until it gets to a critical level—

The Hon. PAUL GREEN: When there are high flows?

Dr FULKERSON: Exactly. It is a win-win situation. The farmer gets the water at the higher level and uses it during dry periods when normally he would be pumping from the river.

The CHAIR: That is the way it is done west of the stone curtain. When there are high flows they pump, and when there are low flows they cannot.

Dr FULKERSON: It is done in Tasmania, and most dairy farmers have on-farm storage.

The Hon. GREG PEARCE: You are saying that there is no logic to it.

Dr FULKERSON: No.

The Hon. PAUL GREEN: There is too much frustration with red tape and green tape to produce a decent yield.

Mr BATTERSBY: I have one other comment. Over the past 20 or 30 years we have had massive urbanisation on the floodplain. The bulk of our agricultural land is on the lower floodplain of these river systems, where we experience huge inundation. We now have little clusters of villages cropping up everywhere on the floodplain. That has happened because people have found loopholes in legislation and so forth. We need to confine our legislation to the major centres that have flood-proofing or to put them up off the floodplain. It creates a lot of social issues. The bulk of the people living there are new to the area. They are lifestylers who have moved from the city. All of a sudden, there is a major flood and they do not know what to do, and they cry for help.

The CHAIR: That is a zoning issue.

Mr McNAMARA: It is a planning issue.

Mr BATTERSBY: It is a planning issue, and supposedly there is State legislation that prevents that. However, there is always a loophole. You get a smart solicitor and the next thing three or four blocks are excised from a prime piece of agricultural land on the floodplain.

The CHAIR: Gentlemen, thank you for appearing before the Committee today. You have presented an interesting mix of ideas, but all operating within the same catchment. You must work together.

(The witnesses withdrew)

FREDERICK JOHN EDWARDS, Honorary Secretary, Clarence Environment Centre, affirmed and examined
JAMES ALEXANDER MORRISON, Member, Clarence Environment Centre, affirmed and examined:

The CHAIR: The Committee has received a submission from the Clarence Environment Centre and we thank you for that. Would either of you like to make an opening statement before we proceed to questions?

Mr EDWARDS: I would like to make a short statement. To start with I would like to explain that I am not an hydrologist; I am a conservationist. I represent the Clarence Environment Centre. Our major concerns are for water quality and catchment health, biodiversity and that type of thing. There are three major issues with water that we continue with on a regular basis, starting with the 10-yearly plan, as we call them, to divert the Clarence inland. Then there is mining, which is in two parts. Firstly, there is the exploration for the toxic heavy metals on the Dorrigo Plateau and gold—gold is not toxic but the processes are and too many are bad news. I would like to point out that the Dorrigo Plateau is a high rainfall area so any spillage is highly likely ultimately and it also supplies drinking water to the entire human population east of the Great Dividing Range—from Iluka in the north right the way down beyond Kempsey. It should be off limits, and that is my point on that to mining. The other side of mining, of course, which is on the back burner a bit on the Northern Rivers here is—

The CHAIR: What sort of mining?

Mr EDWARDS: It is actually coal seam gas or continental gas where hydraulic fracturing has the potential, we believe, to have catastrophic consequences for underground and even surface water. The third issue is an emerging one—it is been on for the last 10 years or so—and that is intensive horticulture, specifically blueberries in the Northern Rivers region. The problem there is that there appears to be very little if any controls in place or regulations in place. None of the agencies have any idea of how many blueberry farms there are. It is highly water dependent. The agencies do not know how many more are planned, how much water is required, where they are getting the water from or even if there is water there. It is just open slather. I am happy to take questions on any of those and I will answer to the best of my ability. That is about all I have got to say. Thank you.

The CHAIR: In relation to blueberries, is your issue that nobody knows how much water is going to be required or is it other issues like pollution and spraying?

Mr EDWARDS: There is a whole range of problems associated with the industry at the present time.

The CHAIR: It is not just the water?

Mr EDWARDS: No. This is a water inquiry so we are trying to stick to water.

The Hon. PENNY SHARPE: Thank you both for your submission and for appearing before the Committee today. I want to expand on the blueberry issue because it appears to be an emerging issue that no-one knows much about. Correct me if I am wrong, but blueberries are grown hydroponically, are they not?

Mr EDWARDS: Essentially hydroponics is grown in water. These are mostly grown in the soil and they are fertilised with quite a lot of the insecticides, and pesticides are fed through the water system as I understand it.

The Hon. PENNY SHARPE: Your concern is particularly around the amount of water they use?

Mr EDWARDS: No.

The Hon. PENNY SHARPE: The licences they are buying?

Mr EDWARDS: No, the concern is that—we know how much water they use because the Department of Primary Industries puts out a fact sheet that says they require between two and three megalitres per hectare per year. The problem is that nobody is looking at it. They do not have to put in a DA to council. They do not have to present a water management plan to WaterNSW. I will give you an instance. We have one big operation starting up just out on the Orara River, south of Grafton. They announced in the newspaper that they were going to be—this is an international consortium—the biggest blueberry grower in the Southern Hemisphere, 850 hectares. They have purchased a water licence from the Orara River for 66 megalitres a year and their harvestable rights for that particular property is around 90 megalitres a year. So that is enough for, in total, 75 hectares of blueberries. Now nobody is asking where the rest of the water is going to come from. The total water in the Orara River available for irrigation under licence is about 740 megalitres a year. If they took the whole of

the Orara River allocation they would still be short. They will turn around and say, "Look we cannot grow more blueberries than we have got water for."

We have blueberry operations on the lower Orara section, which is from Glenreagh to the mouth of the Orara on the Clarence River, we have blueberry operations starting up at Glenreagh, Halfway Creek, Lanitza, Kremnos, Waterview Heights and there are a few other areas all the way down. Every month there is another one clearing bush, transforming bushland into plastic igloos. There is no need for a DA. There is no need for an application. They can build a dam—contrary to what the earlier group said, you can build dams without permission. You cannot do it on a major stream, but you can do it on smaller tributaries. You can build a dam big enough to hold your harvestable rights. So the first thing that happens when a blueberry farmer comes in is that he builds a dam. Nobody can tell you what the capacity of that dam is—it is a pretty high scientific job to be able to measure what that dam is going to hold and it is almost impossible to tell how much water is in there if it is full.

Under the rules they can take 10 per cent of the runoff of their property per year. They can store their 10 per cent, they can build that dam without approval and they can clear vegetation without approval to build that dam. They can then pump out of that dam, irrigate with it and fill it as many times as the water coming in will allow them during the year. So they are actually taking out a lot more than their 10 per cent anyway most of the time and this is a drought. So this is just the start and, as I said, there is no plan in place, no strategic plan. The Government has recognised that there is a problem. They have set-up an interdepartmental committee, blueberry and greenhouse horticulture committee. In the last minutes that I saw, which came from February, it was an absolute horror story. There were people clearing forests illegally and they were happy to pay the fines as a cost of business.

The Hon. PENNY SHARPE: It must be lucrative enough that people feel they can do it. You do not get a plethora of this industry moving in if there is not money to be made.

Mr EDWARDS: There does not appear to be any consequences. They talk about the water and the regulation of water. Going back to this lower Orara, for example, we had over this very hot summer just past, we were tipped off that water was going from the river.

The Hon. PENNY SHARPE: Is the Orara River a regulated river or an unregulated river?

Mr EDWARDS: It is regulated. I will pass these around. These are real-time images of graphs of the flows day by day. They are one-monthly graphs. It looks like a saw-tooth because somebody is taking out something like 8 megalitres a night out of that river.

The Hon. PENNY SHARPE: You do not know who?

Mr EDWARDS: We reckon that over that three-month period in summer the entire allocation for that river system was taken. We do not know what was taken for the rest of the year, we have not followed that up and it is very hard to tell when there is rainfall. You can only see the zig zag thing when there is no rainfall.

The Hon. PENNY SHARPE: Is it your view that people are extracting illegally on top of the allocations that they have from the river?

Mr EDWARDS: I have no idea. I know that there were some dams that were built in the drought there that mysteriously got filled. I did actually write to WaterNSW. It had not got to a low flow or cease-to-pump level. It was quite legal to pump out of there if you had a licence. I asked WaterNSW if this water extraction was licensed and they said they were not aware of the pumping, even though it is their website, and that if anybody has reported illegal pumping they would investigate. I would not know if it was illegal pumping. If it was my neighbour pumping out, I would not know unless I went and asked him. Then I would have to take his word for the fact that he was not taking more than he was supposed to.

Just to have checks and balances. We really need some sort of regulation. We are not opposed to extensive horticulture. It is good for the economy. I was going to say it is good for employment. It is mostly backpackers and people having to sleep on the beach in Coffs Harbour or in the park or on the street because there is no accommodation.

The Hon. PENNY SHARPE: That is a whole other issue. Can we talk about the river diversion issue? We have been all over the State and people have very strong views, particularly west of the divide, that there is a whole lot of water in this part of the world and it should be able to be captured and pumped over the range. I know this has been looked at. I think you referred to it as every 10 years someone decides to have another look at it. I think someone did. You have obviously previously done a lot of work in relation to this. Your submission refers to Malcolm Turnbull's attempt to have a look at it. Take us through it.

Mr EDWARDS: That was the Snowy Rivers Engineering Corporation. They put together that desktop plan and they came up with this thing. There were two proposals at that time. One was Malcolm Turnbull suggesting building a dam on the upper Clarence and taking water to south-east Queensland and then the Burke, Brewarrina councils got involved and they wanted 20 per cent.

The Hon. PENNY SHARPE: Griffith has very high aspirations.

Mr EDWARDS: The figure that they came up with was, it is very common, it is five million is going to waste out to sea every year, on average. We looked at this and we looked at what we call the Lilydale gauge, which is on the Clarence River just above the tidal pool, so it measures the entire flow of the Clarence River and all the southern and northern tributaries. The average of that is only three million. So we are wondering where this 5 million megalitres a year came from. I did a little snooping and sleuthing on it and went back a series of proposals for about 50 years, and each one referenced the previous one until I got to the end and there was no reference at all to where that five million came from. What is going into that, out to sea through the Clarence is on average around about three million a year.

Average is something that we are really concerned about. It is a nice, easy thing to say. But when you get a flood down the Clarence river, in 2001, 1.1 million megalitres went down in one day. You cannot build a dam that is going to control that. That is just the one day, and it went on for two or three days. Where do we go from there? You cannot calculate that in the average, is what I am trying to say.

The Hon. PENNY SHARPE: You are arguing that there is less water than people think?

Mr EDWARDS: Absolutely, yes.

The Hon. PENNY SHARPE: Or are you arguing that is just the water going out?

The CHAIR: It is highly periodical.

The Hon. PENNY SHARPE: That is right, and the proposal that is being put to us is when there is 1.15 megalitres going down that you are able to capture that. Do you have particular views about that?

Mr EDWARDS: I am appalled at the idea of having an empty hole in the ground waiting maybe for 10 years for a flood to come down. If it is full it is not going to stop any water, it has to be half full or have the capacity to store at least a million megalitres of water. It is a huge back-up of water. It is an enormous catchment. It is not something even like the Brisbane one, they had the problems a few years ago. That catchment is nothing like as big as the Clarence.

The Hon. PENNY SHARPE: Do you want to comment generally on dams? Do you want to talk to us about where the Clarence Environment Centre sees dams in the context of what we are trying to measure and the changing climate that we are dealing with in relation to water?

Mr EDWARDS: As I said earlier, I am not a hydrologist. I did dig out some information that was put together, I think by the New South Wales Department of Water Resources, this is going back 30 years now. Reduced visible amenity, is one. More prominent mud bank and riverbank slippage resulting in the reduction of the health of the riverbank, vegetation and an increase in weeds. If you can bear with me for five minutes while I read all this, but it is quite a lengthy thing.

The Hon. PENNY SHARPE: We would be happy if you wanted to provide that to us.

The CHAIR: On notice, that would be the best thing. It looks like it is fairly extensive.

The Hon. PENNY SHARPE: We can read it if we can take it. I am interested in your view. As I said, there are a lot of differing views and here is your chance to give us those. Mr Morrison, do you want to comment on any of these issues?

Mr MORRISON: I live in the northern part of the Clarence catchment, the actual area I think is the largest. There is the Dorrigo Plateau, then there is the upper Clarence. The upper Clarence is a much drier part of the catchment. There have been proposals to have dams in the upper Clarence before and usually it comes with a quote about how many Sydney harbours flow under the Grafton bridge to justify this dam. The fact is most of those Sydney harbours come off the Dorrigo Plateau, not off the other arm where I live. So the whole push for dams is—obviously often the figures are very distorted to confuse the public. In other words, if they were to put a dam on the upper Clarence it has only got a third of the water that they are saying actually runs down under the bridge at Grafton. So there is a lot of misinformation about dams. The other thing about dams is that they cannot be both a flood mitigation device as well as provide water for irrigation, because to mitigate floods they have got to be kept empty, and to provide water for irrigation needs optimally they should be kept full.

There was a bit spoken about planning in the last session. I was actually on the Upper North Coast Catchment Management Board. We came up with a catchment blueprint. I do not think that was ever implemented. The catchment management board was dissolved. Prior to the catchment management board, there was a catchment management committee that also had a catchment management plan. The catchment management board came next. It was dissolved. Then we had the catchment management authority, which also came up with another plan. So we have been planned to death. People know what the issues are. They know how to address them—

The Hon. PENNY SHARPE: The rewards are there. We just need to pick them up.

Mr MORRISON: They deliberately do not address the difficult issues. Some of the issues about water quality and stock access to creeks have been ongoing for 30 or 40 years up here. You mentioned the water. If you put "fence" and "cattle" in the one sentence and you can watch half the people in the community go off their nuts about it: "You can't deny me the right for my cattle to water". So there are water quality issues.

You asked about the blueberries, where they are going in my part of the upper catchment. Once again, I said it is very dry, marginal soils. They cut trenches on the contours, line them with plastic, and put their own growing medium in them. They have a big dam at the bottom of the hill and they trickle the water through the blueberries, plus chemicals, and it all ends up in the dam at the bottom, which is adjacent to the river which leaches into the river. There is no doubt about it. It is on gravelly soil. So there are some pretty serious pollution issues. The industry is only just starting up our way. I have got major concerns that the industry is actually lobbying to be able to dam third-order streams at the moment.

The Hon. PENNY SHARPE: I am sorry?

Mr MORRISON: Currently you can dam a second-order stream. The industry is lobbying the Government to be able to dam third-order streams. Currently you are only allowed to collect 10 per cent of your run-off. The industry is lobbying the Government to be able to collect 50 per cent of the run-off. People who live in those upper catchment streams, if they have got a blueberry enterprise above them, are likely to have zero stream flow. They put a dam across that stream and they catch what is coming down and pump it on their crops. People downstream are going to see serious decline in water flow. A lot of those upper catchments are home to giant barred frog, a nationally endangered species. That does not mean much to the blueberry growers but it means a lot to conservationists.

That is on the blueberry issue. It is a fly-by-night industry. We have seen them come and go and I don't think it will be around forever. They are getting good dollars at the moment, but there are some issues about fungus that they are not acknowledging. They cannot export to a lot of countries if they have got a certain fungus on the blueberries. I am aware that two years ago in the Upper Clarence the leading hands at this big blueberry enterprise were told if they were asked by anybody from the Government if they saw any fungus on the crop they were to say, "No". So there are a whole lot of issues with blueberries.

I might just change the subject slightly. The canegrowers, were talking about cane drains and the red tape associated with that. The reason the red tape is associated with cane drains is we have a thing called acid sulphate soils on those floodplains. When they are aerated they release very strong acid, as in battery acid strength and we get massive fish kills. Those acid sulphate soils are stable under anaerobic conditions. When you open up a drain, they oxidise and acid flows into the river. That is why we have the red tape. A lot of these canegrowers are actually growing below the mean high tide mark on the river, and it is just ridiculous. In other words, high tide is here, their cane land is here. That is what the barrages are for. There should be no agriculture below the mean high tide mark.

The Hon. MICK VEITCH: Thank you for your submission and attendance. We have been asking lots of people about managed aquifer recharge. Do you gentlemen know anything about managed aquifer recharge?

Mr EDWARDS: This is a way of getting rid of your polluted water, is it?

The Hon. MICK VEITCH: No.

The CHAIR: It is putting fresh water underground.

The Hon. PENNY SHARPE: No, it is about storage underground.

Mr EDWARDS: No, I don't know.

The Hon. MICK VEITCH: I was just testing. Some people do know about it and some people don't. I am trying to get my head around it.

Mr MORRISON: I do know there are some small areas of basalt soil, particularly in this place in the Upper Clarence, Pretty Gully, where they are growing avocados because it is an area of good soil and they are all tapping into the groundwater up there. No-one has any idea of the recharge rate of that aquifer resource. I think it is similar to up here on the Alstonville Plateau. They have been giving out licences for groundwater when they don't know—

The Hon. MICK VEITCH: I want to go back to the coordinated planning for the catchment. Your comment was that there has been a lot of that done. I think you were here for the previous evidence. It would appear from the evidence that the current arrangements in these catchments do not appear to be working. I appreciate your comments about how there have been previous attempts. What is the way forward?

Mr MORRISON: The way forward is to reinstate a lot of the staff that were actually tasked to do the work. That is the way forward. We have got the plans. I can see we could have a change of government and some bright spark will get up and say, "We need a plan." We have got plans. The plans go back and back and back and they are quite good plans. There is a difficulty implementing the plans because it is going to hurt some lobby group that is sensitive to politicians.

The Hon. MICK VEITCH: Who is in the best position to be responsible for compliance around those plans? I take up your point about people extracting from waterways.

Mr MORRISON: I do not think there is any will for compliance in this day and age from the current Government. I thought the EPA would have been strong in compliance when they were given the task to do compliance with forestry activities, but they have been very weak. So I don't think there is any appetite for compliance activities from the present Government.

The CHAIR: I was interested in your comment that you cannot have a flood mitigation dam that can be used for irrigation. We saw something in Orange about two months ago that would say that that is not correct. The Orange City Council put in a stormwater management system where they let all the stormwater into a creek system and they have a dam across it and the dam has holes in the bottom of it. So under low flow conditions or non-flood conditions, it just runs down the creek. The minute it starts to get too much run-off off the roofs and it comes up, there is a weir there and between there and there they pump it into their freshwater storage for their town water. Whilst the creek is in flood, they are pumping. When the creek is not in flood, it is just a creek.

Mr MORRISON: I can't imagine it working on a scale big enough for agriculture though.

The CHAIR: The problem is, of course, not about what is applicable today in 2017. We were talking earlier about the Australian Government, I think, and probably the New South Wales Government concurs. Australia's production target for agriculture is going to have to increase by 70 per cent by the year 2030. I do not think that that is viable, but that is what they are talking about planning for. East of the Great Dividing Range we do not have the land, as the canegrowers and the dairy farmers were saying before. West we do have the land, but we do not have any water west of the Great Dividing Range—certainly not enough to increase capacity by 70 per cent. So somewhere along the line in the next 50 to 100 years there probably will be a whole pile of dams along the top of that ridge somewhere, and the technology will have to be found or developed so that they can do that without screwing up the Clarence and the Richmond and the Tweed and all these other rivers.

Mr MORRISON: Let's hope so.

The CHAIR: I do not think you or I will be around.

Mr MORRISON: I think evaporation is the big enemy out that way.

The CHAIR: Then we talk about pumping it underground, like the Israelis do.

Mr MORRISON: That is one way of getting around it.

Mr EDWARDS: Certainly it would be better than open drains.

The CHAIR: Yes, we all agree. Thank you, gentlemen, for your submission and taking the time to talk to us. You have some interesting points of view, and that is what we need. In these committee hearings we need people to express their views, especially if they can back them up with facts. As to the documents you mentioned, the secretariat will write to you and ask you formally to provide the documents to the Committee.

(The witnesses withdrew)

(The Committee adjourned at 16:00.)