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**HOUSE OF
REPRESENTATIVES**

STANDING COMMITTEE ON CLIMATE CHANGE, WATER,
ENVIRONMENT AND THE ARTS

Reference: Climate change and environmental impacts on coastal communities

THURSDAY, 27 AUGUST 2009

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**HOUSE OF REPRESENTATIVES STANDING COMMITTEE
ON CLIMATE CHANGE, WATER, ENVIRONMENT AND THE ARTS**

Thursday, 27 August 2009

Members: Ms George (*Chair*), Dr Washer (*Deputy Chair*), Mr Cobb, Mr Dreyfus, Mrs Irwin, Ms Livermore, Ms Marino, Mr Murphy, Mr Scott and Mr Zappia

Members in attendance: Mr Dreyfus, Ms George, Mr Murphy, Dr Washer and Mr Zappia

Terms of reference for the inquiry:

To inquire into and report on:

Climate change and environmental impacts on coastal communities. The committee will inquire into and report on issues related to climate change and environmental pressures experienced by Australian coastal areas, particularly in the context of coastal population growth. The inquiry will have particular regard to:

- existing policies and programs related to coastal zone management, taking in the catchment-coast-ocean continuum
- the environmental impacts of coastal population growth and mechanisms to promote sustainable use of coastal resources
- the impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise
- mechanisms to promote sustainable coastal communities
- governance and institutional arrangements for the coastal zone.

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Committee met at 9.59 am**LOWE, Ms Patricia Anne, Board Member, Environs Kimberley****PRITCHARD, Mr Martin, Executive Director, Environs Kimberley****WILLIAMS, Ms Louise, West Kimberley Nature Project Coordinator, Environs Kimberley**

CHAIR (Ms George)—I declare open this public hearing of the House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts. I welcome the representatives from Environs Kimberley this morning. As you would be aware, the Minister for the Environment, Heritage and the Arts and the Minister for Climate Change and Water have asked our committee to examine the environmental impacts of coastal population growth as well as the impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise. The committee has also been asked to look at existing policies and programs related to coastal zone management, mechanisms to promote sustainable coastal communities and governance arrangements for the coastal zone.

Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. In that regard, the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. I now invite you to make a brief opening statement if you so wish before we proceed to questions and discussion.

Ms Lowe—Environs Kimberley is an independent community organisation which has been going for 13 years. It was founded in 1996 to protect the Fitzroy River from a dam and large-scale agricultural development in the West Kimberley. Since then we have been working on other projects, with the aim of protecting the whole of the Kimberley. Our current work includes policy development, advocacy and the West Kimberley nature project, which is a very big project that Louise is managing. We cooperate with other organisations in joint projects and so on.

CHAIR—Louise, would you like to tell us a little about the project you are managing.

Ms Williams—I will tell you a bit about the West Kimberley nature project. It is in the consultation phase at the moment and will start in October. It is focused within the Dampierland bioregion, which is from the top of the Dampier Peninsula down to the bottom of Eighty Mile Beach. It looks at working with Indigenous ranger groups throughout that region to manage key monsoonal vine thickets, which are a threatened ecological community, and also freshwater soaks and wetlands. The Eighty Mile Beach wetland and the Mandurah marshes are Ramsar listed, so the project is going to look at managing threats like fire, feral animals and weeds. I will go into some of those issues further down the track. For the moment it is a two-year project and it builds on a lot of the work we have done over the last two years, a Kimberley-wide community weed project which was building the capacity of different groups throughout the Kimberley to identify and manage weeds in natural ecosystems.

Mr Pritchard—We work in partnership with a lot of groups across the Kimberley, notably the Kimberley NRM group, the Roebuck Bay Working Group and the Kimberley Land Council. I would like to provide a little bit of background on the values of the Kimberley and coastal areas, to set a bit of context in terms of what is coming with climate change. Northern Australia, of which the Kimberley is a third, is now recognised by scientists as one of the few large natural areas on earth and it is compared to the Amazon rainforests, the boreal conifer forests of Alaska and Canada and the polar wilderness of Antarctica. We have ecosystems like mangroves, fringing coral reefs, monsoon rainforests, wetlands, heath lands and mound springs. We have the largest remaining relatively intact savanna woodland on the planet. The rivers are mostly free flowing. Their condition is excellent and they are globally significant in terms of fresh water conservation. Our estuaries are near pristine, which is the highest category that they can be in. The Kimberley has a coral reef prominence that is likely to be of global significance. It is extremely under-researched, so we know very little about it, but we do know that its biodiversity is probably comparable to the Great Barrier Reef. The Kimberley is also the home to the humpback whales. They breed and calve on the Kimberley coast and they prepare their young for the annual migration down to Antarctica and back every year.

The North Kimberley is also recognised by the Commonwealth as a national biodiversity hotspot. It is one of the few areas in Australia that still have the same animals that occurred here prior to European settlement. Then we have Roebuck Bay and Eighty Mile Beach. There are up to 800,000 migratory birds that migrate here annually, from their nesting grounds up in Siberia through China, the Yellow Sea and down to here. Given all those incredible values we are really concerned that less than six per cent of terrestrial areas are conservation reserves and less than one per cent of the marine areas are protected areas. That is a significant concern, given what is coming with climate change. You will see where the relevance of that sits as we go through what the current threats. Louise might like to start on that.

Ms Williams—Some of our main threats are feral animals. That can be anything from what we have already—donkeys, camels and feral cattle—but also the impending threat of cane toads coming across.

Ms Lowe—Cats and foxes.

Ms Williams—Cats and foxes—and dogs. One of the other concerns, in addition to the impact that those feral animals have, whether it be eating out ecosystems, degrading vegetation and spreading weeds, is that they are working as well to change the ecosystems and increase the prevalence of fire, whether it be the frequency of fire, the intensity of fire or both. One of the impacts we have seen on the Dampier Peninsula in the last two years is a caterpillar from the *lymantria* species group. It has recently infested a large area of woodland—manawan tree woodland and bloodwood tree woodland. Even though the cause for that is unknown at the moment, it has not been found this far south before and it is a species that is known to cause fast destruction of forests. Papua New Guinea has had significant damage. This particular species has a national task force set up for it, and they have not seen it in this place before. Possible reasons for why it is there include climate change—climatic zone shift—but also the increase in the incidence and intensity of fire, working in tandem with climate change, may have knocked out a key predator and allowed this species to continue to eat out the woodlands. For two years running the trees have been defoliated, and this year's fires pose a significant risk of destroying those woodlands full stop.

Other ecosystems that are at serious threat of inappropriate fire regimes and an increase in fire regimes are monsoonal vine thickets. They are a key threatened ecological community in the Dampier Peninsula, but monsoonal vine thicket variations are also found throughout the North Kimberley, in a lot of the cracks and crevices of the cliffs and near water areas. This ecosystem has already been reduced in range due to the drying out of the continent over time. The way they describe that ecosystem is that it operates as a network ecosystem, so it relies on each patch to be viable and the migration of frugivores between each patch to be maintained. I will pass the issue of rivers over to Martin.

Mr Pritchard—Some of the other threats that the Kimberley as a whole and coastal areas are facing are things like the damming of rivers, broad-scale clearing and industrial development. I guess all of this is painting a picture of where we are at now in terms of looking forward towards climate change. There is also a known decline in mammals occurring at the moment. There is a decline in birds that depend on grass seeds. And, as Louise mentioned, there is rainforest affected by fire, weeds, pigs and stock.

Ms Williams—With the rainforest patches and the wetland patches, a lot of the weeds that are becoming an issue were introduced for pastoral purposes at some point in time. The way that they act upon those ecosystems is that they often smother them and dry them out and then create a massive fuel load for fire to get into those ecosystems and compromise them further. Many of those weeds are not declared by the state or recognised under any weeds of national significance lists or threat lists.

Ms Lowe—Because they are not agricultural weeds.

Ms Williams—Yes.

Mr Pritchard—What we see coming with climate change is that we are going to have increased CO₂ and possibly increased rainfall leading to higher growth of vegetation, which means effectively higher fuel loads. That would mean more frequent, more intense fires with an increased extent, which is really bad for biodiversity. What we are trying to say is that we have got all these pressures happening now that are causing significant decline of species already in the Kimberley and along the coast, and the impact of climate change on top could be catastrophic for many ecosystems. We are just going to talk a little bit more about the effects of climate change on biodiversity.

Ms Williams—I will bring up the example of gamba grass. Numerous reports have come out that have said that, in a climate change regime, there is a high potential for this grass to spread across the north and create an increased fuel load and increased intensity and frequency of fires. There are also a number of other annual exotic grasses that have crept into the Kimberley, such as grader grass and various buffel grasses. They dry out a lot more quickly and create an opportunity for late dry season fires.

There are various changes that could happen—and who knows where they are going to happen. It is very possible that changes in climatic zones in various ecosystems could push to the side things that are already vulnerable. I am talking mostly about rainforest patches, which are highly separated already, but also the water availability. A lot of the area particularly in the West Kimberley has significant groundwater basins. If the water is changed in any way, whether it be

at the outlet where the water bubbles up to the surface or the inlet at the top, it is going to have a significant impact on the things that use those wetlands. That includes people, birds—all the different species that rely on water availability.

The other things that we have highlighted include that changes in temperatures can affect the sex of offspring of crocodiles and turtles. Obviously turtles are already under significant threat themselves for a whole variety of reasons—I will not go into them—so it could affect their species viability. For example, on the Kimberley coast last year people found the first olive ridley turtle in Western Australia hatching up on the top of the Dampier Peninsula. It is unknown what areas that olive ridley species uses in the Kimberley, because no-one has ever done that type of research. There are also green turtles, flatback turtles and reports of loggerhead turtles. I was listening to someone the other day saying that they occur on Eighty Mile Beach.

Mr Pritchard—With changes in temperature and changes in rainfall it also could provide a competitive advantage to weeds and other feral species as well as infectious diseases which could affect not only people but animals and plants. Do you want to just go back to the turtle issue, in terms of sea level rise?

Ms Williams—Obviously the nesting beaches are really important for turtles, so, if there is a change the nesting beaches—if the sea level rises and causes increased erosion in the dune system, for example—it is significant. When Cyclone Rosita came in it took out a big section of the sand at Riddell Beach. When I first came to the Kimberley, people said that turtles did not nest there but may have nested there in the past. Now some of the sand has returned and there are turtles beginning to nest back there, but they have to climb over big areas of rock. If there is an increase in sea level rise and in cyclone frequency on the Kimberley coast, there could be significant changes to turtle nesting areas and therefore a significant impact on a variety of turtle species.

The other thing is that, if there are changes to current and marine ecotones, there are other significant species throughout the Kimberley coast that could be affected. Anywhere you can pop off the side of the coastline, you are very likely to see green turtles, flatback turtles, dugongs, dolphins, snubfin dolphins. One of the other key species that often get very little attention is the freshwater sawfish. Even though it is called the freshwater sawfish, it spends a lot of its time in the salt water and in marine estuaries. There was a freshwater sawfish tagged in the Fitzroy River—I am not sure how many years ago—that recently turned up in Coral Bay. So that gives you an example of the breadth of the range for that species. There is very little known about the biology of the green sawfish. It is often found in a lot of small creek lines. So we do not know what the impact of currents, changes in sea level and salinity—all that kind of stuff—will be on that species. The large freshwater sawfish is an EPBC listed species.

Mr Pritchard—Rising sea level is also a big concern in some coral reefs and seagrass beds, as is saltwater intrusion. For example, in the Fitzroy it has been noted by traditional owners that the mangrove systems are slowly moving up the Fitzroy. We believe that that is due to the effects of sea level rise.

Ms Williams—There are also stories that relate to the distribution of saltwater fishes in the Fitzroy. People are saying that they never caught these fish in this area before. So there are more saltwater fish coming further up the Fitzroy.

Mr Pritchard—In terms of sea level rise, at Roebuck Bay, as I mentioned earlier, there are up to 300,000 migratory birds that visit annually. It is one of the most important wetland areas on the planet.

Ms Williams—It is 800,000.

Mr Pritchard—No, it is 800,000 for Eighty Mile Beach as well. One concern is that if there is sea level rise then you will see a retreat of the mangrove ecosystems. One thing that we see as being really important is that there is room for them to do that. It is really important that there are significant areas for conservation surrounding places like Roebuck Bay so that we can mitigate the effect of increased sea level rises.

Ms Lowe—Yes, because those migratory birds are so highly specialised. They have bills of the right length to get whatever food they are after. They are highly specialised and they need those mudflats. If they lose the mudflats and there is just rock—so that they can roost but they cannot feed—that is the end of them.

Mr Pritchard—We are possibly looking at increased rainfall. With increased rainfall, comes increased run-off. We already have concerns about Roebuck Bay in terms of the amounts of nutrients going in there causing algal blooms. There is a particular algal bloom called lyngbya. It is starting to take off, and increased rainfall may have a significant effect on that.

What we are seeing in terms of migratory birds is that there are extreme pressures occurring on all the fly-ways. The Yellow Sea is currently being significantly impacted on by development. The nesting grounds up in Siberia are subject to temperature and climate changes. They are a bit of a keystone species. Our concern with regard to Roebuck Bay and climate change is that we need to keep Roebuck Bay in as good a condition as possible so that, despite the impacts in different parts of the world, the birds get the best chance at Roebuck Bay, because that is where they feed and get fat before they fly back to Siberia.

Basically what we are saying is that we need to tackle existing pressures. We are concerned that there are not enough resources going into tackling existing pressures. We acknowledge that the government has funded the West Kimberley nature project through the Caring for our Country process, but we could have 10 people like Louise—which is actually a scary thought!—but even that would not be enough. So we have significant concerns about what is happening now and significant concerns that climate change is going to have a significant impact on top of that.

In terms of a bit of a broader picture, we see outside threats of climate change in particular with regard to coastal areas of Kimberley in general. The failure of agriculture in the south would effectively increase pressure on the north, particular the Kimberley, for broad scale clearing for agriculture, which would fragment the ecosystems. We are concerned that there is a lack of acknowledgment from government of the issues that we are facing in the north. As I mentioned, there is a lack of resources to provide for sustainable communities and employment in the conservation sector. It is also extremely under researched. There is a lack of information. We really need modelling of climate change, especially of sea level rise. The modelling that has been done already is at a fairly coarse scale. We really want to see that modelling occur as soon as possible. We can now move on to the strategic assessment or to questions.

Ms Williams—One of the things that I forgot to mention on sea level rise was that the monsoonal vine thickets that occur on the Dampier Peninsula are a groundwater dependent ecosystem. That means that they exist just behind the sand dunes on shallow aquifers. They only occur in those spots. Some of the species only occur in certain patches along that area, so it is quite significant. If there is a sea level rise that compromises those shallow groundwater aquifers, that could potentially wipe out that entire ecosystem, which, as well as having a significant environmental status, is also culturally significant for many of the groups throughout the Dampier Peninsula. It is a haven for bush tucker, bush medicine and many important sites. That is something that needs to be highlighted as a very serious threat.

Mr Pritchard—We have recently nominated the monsoon vine thickets under the federal government's EPBC Act, so Minister Garrett will be making a decision possibly later in the year as to whether to list that as a threatened ecological community under national environmental legislation.

CHAIR—Thank you very much for your most informative presentation. It does your organisation great credit to have people of your capacity working in this very important area. How many people work for Environs Kimberley full time?

Mr Pritchard—We have another contractor working on sea grass monitoring in Roebuck Bay. We have periodic employment for other people. We have just organised National Science Week here in Broome. We had two people working on that. It is obviously difficult in these economic times, but we have applied for several grants to employ more people in natural resource management and to advocate on behalf of the environment. We are looking to put more people on. If you can tell us of any sources of funding, we would be very happy to know about them.

Ms Williams—We also have another position opening up in October, which will be an Indigenous traineeship—either one full-time or two part-time traineeships—within the West Kimberley Nature Project. That is yet to be advertised and formalised, but it is happening.

CHAIR—You very succinctly identified the existing and potential threats from climate change. One of the briefs that the committee has is to examine what role, if any, a federal government should play in this space. Do you have any firm views about the kinds of practical interventions that a federal government could make on the issues that you have identified? What more could we and should we be doing to assist people on the ground in dealing with and adapting to climate change?

Mr Pritchard—From the outset, it would help if we would stop putting greenhouse emissions into the atmosphere.

CHAIR—We are trying to tackle that, as you know.

Mr Pritchard—We are very concerned that it is going to be too little, too late. We are essentially facing a planetary crisis and Australia has the opportunity to lead the way. Obviously all the politics surrounding that will determine whether or not we are going to do that. In terms of what the federal government can do, we need lots more research into what is currently happening, particularly to threatened species, which the federal government has a responsibility

over, given that those threatened species are listed under federal law. We need to know where threatened species are at, how future impacts are going to affect them and what we can do about it. Ecosystems are so complex that in lots of cases we have no idea what is going to happen. We need to get the experts up here.

Ms Williams—In addition to bringing the experts here, I think there needs to be significant consultation with local people with on-the-ground knowledge—people with traditional ecological knowledge and also people that have been here and noticed changes. People have not necessarily been counting what has been happening over time, but that information is very valuable. We do not have a lot of baseline data sets so we need to invest in looking at what has happened and what people think is happening.

On the threatened species, it was quite a disappointment that they were not listed as a target within the Caring for our Country business plan. That meant that key species such as Gouldian finches, freshwater sawfish and humpback whales did not necessarily have projects focused on them. Because the Kimberley region does not have any federally listed EPBC areas, it was very difficult for us to resource projects to maintain resilient ecosystems in the face of climate change, which seemed to be the whole objective of the business plan.

Mr DREYFUS—There must be threatened species listed, though, that are Kimberley species.

Ms Williams—Yes, but because there was no direct threatened species target under the business plan it was very difficult to resource a project aimed at protecting those species.

CHAIR—In the guidelines for the funding?

Ms Williams—Yes.

Mr Pritchard—That is a concern in that some of the principles behind conservation of biodiversity is to protect the best bits that you have first, and the Kimberley is in such a position that, if we tackle everything that we can now, it is going to be much more resilient in the face of climate change. The federal government could also list the West Kimberley on the National Heritage listing. That is a process that Minister Garrett is going through at the moment, but we would like to see significant protection of the Kimberley under the National Heritage list with, hopefully, World Heritage listing to come after that. That is another significant thing we would like to see the government doing.

CHAIR—In terms of the management of the wetlands area, in our observations in different site visits that we have made during the inquiry we have been concerned about what at times appear to be very lax management regimes for the protection of the wetlands. Is that a major issue here for you as well?

Ms Williams—For example, I went out to a wetland freshwater soak two weeks ago called Enjundanna. This soak always used to be full of water, so people could fish and swim there. The management regime that it has been under has meant that there is significant cattle damage. That has completely removed the understorey vegetation underneath the dragon flower trees, bogged up the entire wetland and exposed it to increased evaporation. It is now just a muddy bog instead of a beautiful big lake. The bird distribution had declined significantly from what people

remember. Supposedly there used to be hundreds of ducks, brolgas and this and that—well, I saw two ducks and 14 brolgas. That is one example. There must be lots of different wetlands throughout the region that are not recorded as wetlands or that are known about locally but are not necessarily on any map that are being degraded by lots of impacts such as grazing, fire, weeds, ferals and the rest of it.

Ms Lowe—And the desert wetlands are affected by camels quite a bit.

Mr Pritchard—For Roebuck Bay there is not currently a management plan even though it is a Ramsar listed wetland so it is obviously internationally significant. A management plan is being worked on, but one of the concerns that we have is that, when that management plan is finalised, there will not be enough resources to carry through on any of the actions that are recognised in there. That is another thing that we would be looking to the federal government to put resources into.

Dr WASHER—Pat, Louise mentioned the problems with feral pests, weeds, animals et cetera. That is a heck of a problem. You mentioned camels. I thought there were programs now to try and destroy some of the feral camels.

Ms Lowe—Yes, I think a program is beginning now. They have built up in numbers so much over the last 20 to 30 years. At one time, at a claypan that I am familiar with, you never saw a camel track, and now these animals come and drink at this claypan when it has water in it. They are certainly building up greatly in numbers.

Ms Williams—When I was in the Great Sandy Desert, there were lots of camel tracks in a lot of the areas surrounding water places. Whenever there were camel tracks, they were always followed by weeds. It is a cyclical threat process. Introduced weeds increase the fire regime and destroy the local habitat, especially for bilbies and a lot of seed-eating animals and Gouldian finches and other types of birds. It keeps going round and round. There are camel programs, apparently, but there are still camels.

Dr WASHER—Louise, you mentioned a couple of jobs coming up for Indigenous people, and you talked about rangers and people already doing this. What engagement is happening with the local communities to encourage people to participate in identifying feral invasions of species and things like that?

Ms Williams—The Kimberley Land Council has been very innovative in developing a series of Indigenous ranger groups from the community which undertake works according to managing country and their work plans and funding agreements. Organisations such as ours and the WWF have put themselves out there to increase the capacity for those groups. The engagement of the wider community is sometimes difficult, because you build the capacity of one particular group and then they go out and build the capacity of other people; it has a flow-on effect. But there are small programs that would be wonderful to resource. For example, I was in Djarindjin community last week, where a group of women had decided, despite the fact that they would get no funding or wages, to give up every single day to join the male rangers on their works programs. They were out there every day pulling out weeds and doing this and that. We were able to offer them a training opportunity on the weekend—to do seagrass monitoring with a Queensland seagrass expert. So the will and the enthusiasm are there, but I am not sure how long

that will last if there are no resources or wages. I think engagement could be done in a much better way.

Mr MURPHY—Firstly, I would like to join with the chair and applaud the work of Environs Kimberley and congratulate you on your presentation here this morning, particularly, shall I say, the exhaustive list of environmental threats that you have brought to our attention today. That leads me to ask you the question: what do you consider are the most serious potential impacts of climate change on the Kimberley coastline?

Mr Pritchard—I guess one of the most significant ones is the effect of fire, with, as I said earlier, the increase in CO₂ and probable increase in rainfall meaning there are going to be much higher fuel loads. Fire is currently very poorly controlled in the Kimberley. Part of Louise's project will be to work on fire with Indigenous rangers, and perhaps Louise would like to fill us in a bit more about that.

Ms Williams—In the problem of fire lies an opportunity for us to get it right and to also look forward into entering into a carbon abatement program and a carbon market. There are vast areas of country that, by being managed poorly through fire, are being significantly degraded and contributing to climate change and contributing to species decline. If we can turn that on its head and look at real programs that manage the country properly—look at storing carbon and being part of an employment and conservation program—then everybody wins.

Also it would be really nice to see some monitoring of what is happening now. I know there was a climate change observatory launched in the mid-west this week. We have lots of country where there could be measurements being taken within programs to see what impacts are already happening and getting a lot of that data on groundwater systems, fire regime intensity, species loss and all the rest of it. That could be part of a bigger database to provide this information for looking at what management is needed, what the problems are, what the ideal conservation reserves are and what reserve types would be beneficial.

Mr Pritchard—We would like to see a climate change observatory at Roebuck Bay given its international significance and also given that the migratory birds there are a good sentinel of climate change—even climate change that is occurring in Siberia. So that is something that we would particularly like to see, and also so that all the work that is being conducted in the Kimberley can be brought together into one spot. I think that would be ideal. We would like to have our officers there as well.

CHAIR—We will see what we can do.

Mr DREYFUS—If you do not ask, you do not receive. I would like to join with the other members of the committee in thanking you for the list of possible impacts of climate change in the Kimberley. It is likely to enrich the report. We hear a lot in the south-east about the impacts on the Great Barrier Reef and to some extent about the impacts on Kakadu, which has been a favoured example of the disappearance of wetlands and other effects that are likely to occur there, but it is good to hear about these other lesser-known—not lesser-known here in the Kimberley but lesser-known from the point of view of other Australians—possible effects being identified. So thank you very much.

I want to ask you about something that has engaged the committee everywhere in Australia. Like everywhere else in Australia, the Kimberley is governed by three levels of government—varyingly, I suppose you could say, because local government has coverage of the Kimberley but, depending on where you are, might have very little impact; and perhaps the same could be said of state and federal government. Do any of the three of you have any observations about interactions between state, local and federal governments in the coastal management area?

Mr Pritchard—I have only been here since December but I do notice that people are very fed up with people based in Perth or based in Canberra making decisions about the Kimberley with very little experience of what is actually going on at the ground level here.

Ms Lowe—Also, decisions being made here before environmental decisions have been made—the Gorgon project is a great example of that, with China being signed on to receive the gas before Garrett has put his moniker on it. That is happening with the LNG as well. This is where it is going to happen, and there do not seem to be any killer clauses. For example, there should be some things that are too precious to risk and that come before development, but that is never the case; it is always mitigating the problems rather than saying, ‘No, we’ll have to sacrifice the gas here because of the nature.’ It never happens. There is an eternal erosion of the natural environment that goes on.

Mr Pritchard—Unfortunately, there appears to be a frontier ethic that still exists around the north, so we see decision makers in Canberra and Perth looking towards how we can have an economically viable future for the north and for us in the Kimberley, for example. What tends to happen is that what are put forward are massive industrial projects that will possibly last for 30 or 40 years and then will go and leave us all in disarray. What we would like to see would be more community development of what is actually happening here now. There is a vibrant arts scene here. The traditional owners’ art is absolutely incredible in the Kimberley. There is music that is happening here. There does not seem to be any development that is based around what is happening here already and what is sustainable.

We would like to see more employment in the conservation sector, more employment in the eco and cultural tourism sector and more consolidation of the different options for tourism. Ninety or 95 per cent of tourists who come to Australia want an Indigenous experience, and there does not seem to be anywhere that you can point your finger to to go, ‘If I am going to the Kimberley, what are all the options for Aboriginal tourism?’ The Dampier Peninsula is a classic example of cultural tourism being set up and run by Indigenous people. Many of the businesses on the Dampier Peninsula are becoming very successful. They need continuing support just to get them to that stage where they are going to be completely viable. These are people who can only have tourists there for seven months of the year, and yet they are running viable tourism operations. I know that Louise often goes to the Dampier Peninsula and probably has more experience of what is happening in terms of cultural tours and the rangers up there.

Ms Williams—They are pretty great; I recommend that you go!

Ms Lowe—But, also, the sorts of projects that Indigenous people benefit from are those small-scale things that they are doing themselves. And then you get the LNG project being presented to them as their saviour that is going to solve all their problems. We know from experience that that never happens, and it is not going to solve their employment problem either.

I can give you reasons and so on for that, but I will not go on too long. They have not had their native title for long. They have not had any recognition as landowners for long. Now they are beginning to come up with these enterprises, and it appears to me that that is all being ridden roughshod over—or there are big enterprises that do not suit them at all.

Mr Pritchard—We do have some comments to make about the strategic assessment and the LNG issue. Would you be interested in that?

CHAIR—I will just ask Tony if he has any questions.

Mr ZAPPIA—Thank you all for your presentations. In fact, that was probably going to be one of my questions, although not necessarily specifically the LNG project. You have referred to some of your concerns about the impact on the environment of climate change generally. My question is: do you have any specific concerns about the way the local community is perhaps developing this region and then, in particular, things such as the LNG plant, which also add to your concerns about damage to the local environment?

Mr Pritchard—I think, as far as we are concerned, all development that is being proposed, including the Broome North development, which is a development for 10,000 people—

Mr DREYFUS—The council told us about that yesterday.

Mr Pritchard—As far as we are concerned, none of those proposed developments appear to be taking climate change into account in any way whatsoever. Strictly speaking, we should not be having massive industrial development on the coast when we know that there is going to be a significant increase in cyclone intensity and also sea level rise. So, yes, we would like to see climate change and sea level rise put into the mix when it comes to these kinds of issues, particularly development issues.

One of the concerns about Broome North that we have is that you are going to have the clearing of 600 hectares in an area that is adjacent to Roebuck Bay. Our concern is that you are going to get significant run-off of the soil and the nutrients from gardens into the bay, causing algal bloom problems. That kind of issue has not really been brought up in the context of Broome North thus far.

Ms Williams—Also, the energy that it will take to power up another 10,000 people is going to be quite significant, and I am not sure that the developments are really looking at having low-energy-using houses and at the amount of sealed services and the amount of extra water run-off that will occur and therefore the erosion, the nutrients and the algal blooms.

But the other thing is the oil spill this week. It is quite scary—the thought that there is potential coastal development that involves oil and gas right on our coast, with increased cyclonic activity and increased risk of obliterating our marine life with one serious accident.

Mr ZAPPIA—What kind of vegetation is on the 600 hectares that is being cleared?

Mr Pritchard—It is pindan woodland.

Mr ZAPPIA—I am not an expert at this by any stretch of the imagination. What significant environmental purpose does that add to the environment?

Ms Williams—Because the Kimberley is so vast, most of the ecosystems are reliant on adjacent ecosystems for viability. For example, the monsoonal vine thickets rely on the integrity of the vegetation between them to maintain their own viability. I know Pat has written a book about pindan woodland, so I should let her talk about it!

Ms Lowe—I actually once spoke to a former federal environmental minister, who will be nameless, who said, ‘Well, there’s not much there, is there?’ There is an awful lot there. When they have a vision of big trees, mountains and so on, people can regard the pindan woodlands as being a dull ecosystem, but that is because they do not go into it; they do not learn about it. When you are just driving along the road, you see a lot of dead wattles and you think, ‘Oh, there’s nothing much in there, and if I went into it I’d get lost because it’s so flat,’ but Aboriginal people do not get lost in it, and also they can live off it. There is a lot in there: mammals, reptiles, plants of all descriptions and birds of all descriptions. It is a very rich ecosystem, actually.

Mr ZAPPIA—Thank you.

Ms Williams—Because of the location of this particular pindan woodland, maintaining the integrity of that woodland is really important because, if it does become a sealed flat surface with lots of people, instead of that area acting as a filtration mechanism for water run-off et cetera into the bay, it is going to be quite huge. Its role in that area, in that location, is significant.

Mr ZAPPIA—Thank you.

CHAIR—Martin, just in relation to the proposed LNG development, it is not the role of this committee to look at the detail of that or to make recommendations. However, the committee have been asked to make recommendations about future governance arrangements, and obviously one area we are looking at is how well the EPBC Act works at the moment. Reviews are currently underway into the operations of the EPBC Act, but what is interesting about this region is that it is probably—in the minister’s words and the department’s words—the best example of the use of the proactive strategy that is made possible under the EPBC Act. So, in a sense, if we are going to make recommendations about how the act might be strengthened in the future, if that is one area that we want to pursue, it would be good to know how it is operating in practice. To that extent the strategic assessment interest, from our committee’s point of view, is really about the process. How is the process working on the ground? Are the different views of stakeholders being heard? Are people being engaged? Do you have some comments in general terms rather than on the specifics of the LNG plant?

Mr Pritchard—Sure. You are familiar with the proposal as it stands and where it has come from?

CHAIR—Yes, reasonably.

Mr Pritchard—In terms of a strategic assessment, we do not really see it being strategic. One of the reasons for that is that it has not included a thorough appraisal of potential sites outside the

Kimberley. As far as we are concerned, there has been no proper comparison of environmental and social impacts in sites in the Kimberley versus sites outside the Kimberley. We do not believe that has been a thorough process at all. We are very concerned that the minister does not have that information in front of him to make a decision. In terms of the social impact assessment, we are very concerned at the lack of public involvement. As you would be aware, there is a social impact assessment being conducted by the Department of State Development currently. We have made several requests to the Department of State Development to have open public meetings, where they explain to the community the potential of this and where the community has an opportunity to provide feedback. So far we have had no luck in having any commitment to doing that. So we are very concerned in terms of community consultation.

Mr DREYFUS—I thought there was an event occurring here on 17 and 18 September.

Mr Pritchard—That event is an opportunity for individuals to go to the Department of State Development's office and talk to individual officers about their concerns or about what is happening. We do not see that as a high enough level of consultation, essentially. We are going to continue to ask for open public meetings where the whole community has an opportunity to come along. You can imagine how some people would find it very uncomfortable to go to senior bureaucrats and ask questions. It is a quite intimidating experience. We do not think that the 17 September meeting is adequate in terms of consultation.

Mr DREYFUS—Thank you, Mr Pritchard. I had not quite appreciated the extent of what was proposed for the two days of meetings that are going to take place in Broome. Your concern is that there will not be as full and open a consultation meeting as would be desirable?

Mr Pritchard—Yes. There will actually be three days. On 17 September the Department of State Development is opening its offices for people to go there and talk to people about the project. 18 and 19 September will have a shire initiated forum where the different stakeholders can go along, have a stall and possibly a debate on the issue. That is what is occurring at the moment. In terms of involvement in environmental issues, there is what is called a scoping document. That essentially lays out all the reports that are required and all of the issues that need to be addressed in terms of the environment, the potential impacts and also the social impacts. The way we see it at the moment is that this process is almost being made up on the run.

Initially the scoping document was not going to be made available to stakeholders. We requested that it be made available and that we be allowed to comment on it prior to it going out to public tender. At a lesser level of environmental assessment, in terms of state processes, an environmental review and management program allows for a 14-day comment period on scoping documents. The strategic assessment is a higher level of assessment. That was not built into that process. There were a lot of requests made. Eventually we were given a copy of a 293-page document with an 80-page appendix and were given 14 days to comment.

In the scoping document for strategic assessment, page 180, which refers to community consultation, states that the audience is traditional owners, NGOs, industry and the general public and that the methods of consultation would be meetings and presentations, it would be on the website and the document would be distributed. I have already brought it to the attention of the Department of State Development that this document was not made available to the general public. It was not put on the Department of State Development website. There were no public

meetings or presentations as to what this might include so that the general public could comment on it and the document was only distributed to specific stakeholders, so there has been no opportunity for the public to be involved. Yet you can see that reference on page 180 and we are very concerned that that process was not followed.

Another concern we have is that the strategic assessment report that has been slated for release in December this year has 69 associated reports and 60 different policy documents, guidance statements and international agreements that we are going to have to read, analyse and write a response to. We have 28 days to comment and we have absolutely no additional resources from either the state government or the federal government to undertake that process.

Mr DREYFUS—I am looking at the flowchart for the strategic assessment process. Are you saying that, where it refers to the draft environmental report being available for public comment for 28 days, that is going to be a simply vast set of paper?

Mr Pritchard—Is that the one for December 2008?

Mr DREYFUS—Yes.

Mr Pritchard—Yes.

Mr DREYFUS—I am looking at the flowchart of the strategic assessment process for the Browse Basin common-user LNG gas hub precinct. To some extent it conceals the real process if everybody is going to be getting thousands upon thousands of pages of documents and have only 28 days to comment.

Mr Pritchard—Yes.

Mr DREYFUS—It is a familiar problem. At the other end of the continent we had not one but two environmental effects inquiries for the dredging in Port Phillip Bay. They had a public inquiry and something went wrong procedurally with the inquiry and they did the whole process again. The second time around there were 15,000 pages of environmental reports available to the public. Happily, they were available for a bit longer than 28 days, but it does present huge logistic problems for anyone who is perhaps not professionally employed or is simply an interested person with a deep commitment to the environment to get their head around 15,000 pages. I do not have any immediate answer, though, because if the information is not made available there are complaints that it was not made available.

Ms Lowe—We need a longer time to look at it.

Mr DREYFUS—That is a point worth making. If there is to be that scale of material, you would suggest—I think with a lot of justification—that 28 days is not enough.

Ms Williams—At least one day per report. That would be nice!

Mr Pritchard—So we will be seeking extra time to comment and we will be requesting resources to be able to do that down the track. Another issue we have is that the upstream

impacts appear to be separated into a different process. By upstream impacts I mean the rig and the well that are going to be proposed to be put on top of Scott Reef.

CHAIR—I am not aware of that. Would you describe it.

Mr Pritchard—To get the gas out, you need a rig and a pipe into the ground. At the moment the main source of gas is directly beneath Scott Reef. Woodside have yet to decide whether they are going to go right on top of the reef and drill straight down or go alongside the reef and go sideways. That is the less than technical way I have of explaining it. There is a separate process. There is a referral in the EPBC Act for that process, which is separate to the strategic assessment. I guess what we see is that they both go hand in hand and that should have been included in the strategic assessment as well.

The other issue is that the environmental impact statement for the upstream process on outer Scott Reef is not going to be made publicly available for us to comment on until June. So, theoretically, Minister Garrett could have made a decision on allowing the hub to go ahead prior to making a decision on whether they can have a rig on top of a reef 400 kilometres offshore. That is another issue that we have.

Also, the strategic assessment does not include effects or potential effects on Roebuck Bay of the significant increase in shipping at the port that is likely to occur if this proposal goes ahead. We see that, if this does go ahead at James Price Point, there would be a significant increase in shipping, particularly servicing the Browse, and what are those impacts on Roebuck Bay going to be? The port is essentially at the mouth of Roebuck Bay, so you have threats of marine invasive species, threats of oil being discharged and issues like that that have not been included in the strategic assessment.

CHAIR—It is interesting that you make that observation, because one of the strong arguments in favour of the strategic assessment approach that has been put to us is that it allows consideration of cumulative impacts, whereas in most cases the operations of the EPBC Act do not make that possible. So why is the wider impact on Roebuck Bay not part of the assessment? Is it limited by the terms of reference, or by the geographical area that the investigation is focused on?

Mr Pritchard—That is a question that we have put to the minister. We have not had a response yet. In terms of cumulative impacts, one of the other concerns that we have is that in 2005 the Western Australian Department of Industry and Resources put out a report called the West Kimberley resources report. That was essentially looking at different scenarios for the Kimberley, and all the scenarios were based around a significant source of energy coming ashore, and it was mentioned as being either near Broome or near Derby. It said that if we have this significant amount of energy coming ashore then these are other things that could occur in the Kimberley. Those things included the potential for bauxite mining on the Mitchell Plateau, the potential for an alumina smelter, the potential for a lead smelter and the potential for a very large zinc mine to go ahead here. It also discusses the possibility of lead exports through Broome.

So we are very concerned that this source of energy would possibly facilitate these extra projects which we believe are additional cumulative impacts that have not been looked at. There

is also a significant source of coal in the Fitzroy Valley. It is a massive deposit that could potentially go ahead. There are also a significant amount of uranium deposits in the Kimberley. So one of our concerns is that, if this gas comes ashore and there is a source of energy there, it is going to have all these extra cumulative impacts on the rest of the Kimberley, and that has not been included in the strategic assessment at all.

CHAIR—There being no further questions, thank you very much for your informative overview of the significant issues facing the region. We wish you well in your future endeavours and I am sure that some of the points you have made today will be incorporated in our final report, which we hope to have tendered in parliament at the end of October. Thank you for assisting us in our deliberations.

Mr Pritchard—Thank you very much for taking the time to come up and see us up here in remote Northern Australia, and please come back soon.

[11.06 am]

VERSTEGEN, Mr Piers John, Director, Conservation Council of Western Australia

CHAIR—I welcome Mr Piers Verstegen from the Conservation Council of WA to our public hearing. As you would be aware the Minister for the Environment, Heritage and the Arts and the Minister for Climate Change and Water have asked our committee to examine the environmental impacts of coastal population growth, as well as the impact of climate change on coastal areas, and strategies to deal with climate change adaptation, particularly in response to projected sea level rise. Our committee has also been asked to look at existing policies and programs related to coastal zone management, mechanisms to promote sustainable coastal communities and governance arrangements for the coastal zone.

Although the committee does not require you to give evidence under oath, I advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. In that regard the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. We would now like to invite you to make a brief opening statement before we proceed to questions and discussion.

Mr Verstegen—Thank you. Can I first acknowledge the committee and the critical nature of this particular examination that you are undertaking. I think it is an extremely important issue and an issue that has not been looked into particularly well in relation to the responses of our coastal communities that are characterised as ‘adaptation’. In saying that, I caution against categorising something as purely adaptation. One of the things I would like to highlight is the critical nexus between adaptation work, and adaptation policies, and mitigation or pollution reduction activities that we need to undertake.

The Conservation Council of Western Australia is the state’s peak environmental advocacy group. We represent 95 community based affiliated groups. One of those is Environs Kimberley, whom you have just heard from. Thank you for taking the opportunity to have some input from the Conservation Council. Our focus is solutions based advocacy. We work in partnership with governments and industries to come up with solutions to environmental issues. That is very much the spirit in which we make this presentation.

I also have some comments, I suppose in addition to the core nature of your work, about the strategic assessment process that has been undertaken under the EPBC Act and the experience that we have gone through so far in Western Australia with what is actually the first use of the strategic assessment powers under the EPBC Act. So I would like to address that separately.

On the specific terms of reference of your inquiry, I have identified five key areas for Western Australia that I would draw your attention to in terms of critically important areas for coastal communities and for the adaptation of coastal communities in relation to climate change impacts.

Before going into that I will briefly build on what you heard from Environs Kimberley from a state-wide perspective and acknowledge that our ecological systems in Western Australia and

Australia wide are highly vulnerable to climate change. One of the reasons for that is the enormous degree of biological endemism and speciation. What that means is that a lot of our ecological communities, both marine and terrestrial, inhabit unique and very small ecological niches and have had circumstances very specific to their evolution over a very long period of history in specific locations. What that means is that they are vulnerable to climatic impacts. They are very well adapted to very specific climatic conditions and other conditions in their environment, and that makes them vulnerable to climatic impacts such as the shifting of climatic zones.

I have just come from the mid-west of the state, where there is a unique phenomenon that illustrates this point. There is a range of banded ironstone formation hills in that area, which is now subject to a lot of interest from the iron ore mining industry. Those hills are separated in the landscape by only a number of kilometres, but sitting on top of each of them is a plant community that is unique because it has been separated for so long in geological time. You can imagine the impact of climate change on some of those plant communities. On some of those hills exist plants that exist nowhere else on earth. You can imagine the impact of a shifting climatic regime on those sorts of ecological communities. They are highly vulnerable to climate change, and I think it is important to recognise that.

There are five key areas that we have identified in terms of the role of the Commonwealth government in helping communities to respond and adapt to climate change. The first priority from our perspective is for Australia to take an ambitious international leadership role in reducing our greenhouse gas emissions. Because we are highly vulnerable to climate change and because the impact of climate change on our economy, our coastal infrastructure and our ecosystems is going to be so great, it is in Australia's national interest to take a leadership role. Unfortunately the targets are being put forward at the moment in relation to the Carbon Pollution Reduction Scheme will not line up with the massive reduction in greenhouse gas emissions in the atmosphere that we already need. Just yesterday the head of the International Panel on Climate Change scientific advisory committee articulated that it was his view that we would need to stabilise greenhouse gas emissions in the atmosphere at 350 parts per million or less. At this point, even stabilising at 450 parts per million is going to be a very difficult task in terms of the political environment that we are working in. That just shows that there is an opportunity for Australia to play a significant leadership role in relation to that. It is disappointing to see that our current greenhouse gas targets do not even line up with the 450 parts per million scenario in terms of stabilising our climate.

At the lower end, our target range would contribute to the types of impacts that we are starting to see coming through from some of the science. We are talking about a 1.5 metre rise in sea level by 2050 if the rest of the developed world takes on the same level of ambition that Australia is talking about. That is the first priority. I do not want to dwell on that, but I do want to talk about the areas of adaptation.

The second area I want to focus on is our marine environment. I want to focus on this for two reasons. Firstly, our marine environments are particularly poorly represented in terms of the conservation reserve system. As you have heard, less than one per cent of Kimberley marine waters are fully protected. The figure is about the same wherever you go on the Western Australian coastline. So our marine environments are particularly poorly represented. Our marine environments are going to be subject to a number of impacts from carbon pollution other

than just an increase in temperature. For example, ocean acidification is going to have a major impact on marine environments.

The best way we can control for those impacts at this point is by increasing the resilience of those marine environments and reducing the other threats to marine ecosystems. The scientific consensus around the world is that the best way to do that is by establishing marine sanctuary zones that prevent extractive industries from entering certain areas of high biological diversity. The international consensus from the scientific community is that we need to have at least 30 per cent of our marine environments represented in such sanctuary zones.

The other reason why I have focused on the marine environment is that there is a significant opportunity for the Commonwealth government. You would be aware that a marine planning exercise is underway for the south coast and the south-west marine bio-region in Commonwealth waters. Shortly following that, a marine planning exercise will be undertaken for the north-west waters. As a conservation group, we will be engaging directly in those marine planning exercises. It is a good process to go through. It provides for a rigorous scientific assessment of that eco-region and a consultative exercise that engages with the community and with all of the users of that particular resource to come up a way of protecting and allocating that resource in the most efficient and sustainable way for the future. That is a very important process that the Commonwealth government is currently engaged in.

I just wanted to bring that to your attention as a key area in which I think your committee could make some important recommendations in terms of the contribution of marine protected areas to climate resilience and, therefore, to the resilience of our communities to the impact of climate change. In many cases I am talking about communities that rely on fishing and other industries that revolve around our marine environment. The evidence we are seeing from other areas around the world is that, when you establish marine protected areas, it has direct benefit for the fisheries immediately and in the long term. In the face of climate change, that is going to be extremely important—

CHAIR—Can I interrupt you there. In my state, marine protected areas are usually declared by the state government. Is that the case in Western Australia?

Mr Verstegen—I did want to draw your attention to the state government marine planning process, because we believe it is currently subject to some serious policy failure. The state government marine planning process is only looking at state waters. That is just a very narrow band around the coast but it is where a lot of our biological diversity is. We do not believe the Western Australian government is taking marine protection seriously at all. I say that in relation to the present government and also the previous government. I think there has been a legacy of poor planning in relation to our marine environment. We are advocating that the state government take on a similar exercise to what the Commonwealth government is doing at the moment, which is a broad scientifically based marine planning exercise to look at how state waters and Commonwealth waters can be protected. I acknowledge that the Commonwealth area is looking at a very large area by comparison.

CHAIR—But in this part of the country are there state protected marine areas?

Mr Verstegen—There is extremely little.

Mr DREYFUS—Are there presently any marine sanctuaries?

Mr Verstegen—I think there is one proposed, but certainly it is less than one per cent of state waters. Of course, there are no marine protected areas in Commonwealth waters. One per cent is critically inadequate, particularly when there are pressures coming on line with the oil and gas industry and with fishing. We know that global fish stocks are under serious pressure and, as Martin outlined, we have the migration of whales and other species. So these are critically important habitats and it is really important that we engage in a proper process to protect those areas. Climate change just makes that all the more important.

Dr WASHER—I think the federal surveys for the south-west area are almost complete.

Mr Verstegen—Yes.

Dr WASHER—Norman Moore and the Western Australian Premier, Colin Barnett, have not been too receptive to what the Commonwealth government has proposed in terms of marine parks. I know a little bit about that. A presentation will be made in Canberra, so the committee will find out about that later. We will have a chat about that and some of these issues.

Mr Verstegen—It is not surprising that there is a divergence of views along political lines in relation to this. The potential impact on the fishing industry is an area that needs to be looked at in terms of compensation packages and the like. There is important dialogue that needs to be had with the state government, and maybe that is an area we can focus more attention on.

Another area relates to the actual management of those marine protected areas when they are established. There could be a role for state government there. I think that the sooner a dialogue with the state government can be opened up on those issues it would potentially lead to a much better outcome. It could prevent that political reaction, with the state government seeing this as a Commonwealth ‘sea grab’, as some headlines have shown. We have tried to downplay that. I think there is a need for some collaboration between the state and Commonwealth governments. If you are going to go through this exercise in Commonwealth waters there is opportunity for a flow-on effect in state waters. You really want to look at the opportunities to build on those marine sanctuary zones in Commonwealth waters and add further value to them by doing a proper planning exercise in relation to state waters.

The third area I want to highlight as a priority relates to coastal industrial infrastructure, as opposed to housing developments and those sorts of things. Certainly the north-west, as was recognised previously, is an area that will be subject to increasing cyclones, storm activity and storm surges. The types of developments proposed for this area include very large increases in shipping movements and the sort of high-risk infrastructure that has led to the oil spill that we now have off the coast. There is a critical need to reconsider the viability of this sort of coastal infrastructure in this sort of environment. We have been saying for a long time now that, particularly for gas reserves, there are alternative areas where that can be developed and processed. There are existing industrial infrastructure areas further south in the Pilbara that could potentially be utilised, if they were examined rigorously.

In relation to the types of impacts we will see from cyclones et cetera, there is a critical need for contingency planning. The more we can locate these facilities in areas where that

contingency planning can be done in such a way as to allow critical mass if there is a pollution response required, or whatever the response to a particular incident or impact is, the better. The more that can be consolidated and the impact minimised, the better. So putting industrial facilities up and down the coast of the Kimberley just is not a viable exercise in a future where these impacts are likely to cause these sorts of accidents much more frequently. We simply will not be able to respond to them, given both the remoteness of the area and the extreme nature of the environmental impacts they are likely to have.

The fourth area relates primarily to housing development but also to infrastructure development in coastal areas. It goes to the interrelationship between the state, local and Commonwealth governments and to a question that was raised earlier with Environs Kimberley in relation to the state government's planning policies. At the moment the state government has in place a coastal zone planning policy that is extremely outdated from the perspective that it deals with the types of planning issues that you would need to respond to in the face of sea level rise and climate change impacts on coastlines. The type of things that policy prescribes is the setback from the coastline for building and infrastructure.

Unfortunately, this planning policy is very outdated. It needs to be updated to recognise the latest science on sea level rise. This is supposed to be a planning policy that provides guidance for local governments when making their planning decisions, but the impact is that local governments are becoming exposed in the planning decisions they are making because they do not have any proper guidance statement. So there are coastal developments going in all over the place where local governments are endorsing these things. They are potentially exposing themselves both in legal terms and in the actual impacts on infrastructure that they have allowed and endorsed as part of their planning processes, because there is no broader policy providing a decent level of guidance in relation to that. I do not know if that is a similar scenario occurring in other states.

CHAIR—Absolutely.

Mr Verstegan—Certainly in Western Australia it is a critical area that we need to pay some attention to. In the metropolitan area, for example, canal estates are being developed that simply will be unviable in the face of rises in sea level.

CHAIR—We saw some classic examples in Dr Washer's territory down in the south-west of the state.

Mr Verstegan—I will not labour that point other than to simply say—

CHAIR—It is an important point.

Mr Verstegan—that there is certainly a role for updated state government planning policies.

Mr DREYFUS—While it is fresh in our minds, the state government of Victoria has introduced planning schemes, relevantly for the 12 municipalities that have coasts in Victoria because, unlike Western Australia, there has been a serious amalgamation process at the local government level. Victoria moved from 211 councils to 70 in the late nineties, which has produced the outcome that, in an organisational sense, the coast is a little bit more coherent.

There are fewer councils. The state government has provided guidance for all of them in the form of, effectively, a direction that, for planning purposes, they are to work on the basis that there will be a sea-level rise of 0.8 of a metre by 2100. Is there anything similar in Western Australian planning schemes or development plans?

Mr Verstegen—The opportunity to provide that guidance and the planning policy that should provide that guidance is the so-called ‘State planning policy 2.6.’ That is a planning policy statement that should provide that guidance. Unfortunately, as I say, it is completely out of date. So our local governments are scrambling to undertake vulnerability assessments at their own cost of their local areas to understand how they can properly plan for this. That is definitely a failing on behalf of state government to provide some guidance.

Mr DREYFUS—So there is no state-led vulnerability assessment?

Mr Verstegen—That is right. There is no state-led vulnerability assessment that is currently being undertaken from any sort of strategic point of view, and the existing planning policy, as I say, is out of date. So that planning policy still stands today, but it allows development under that planning policy in areas where local governments themselves are saying, ‘Well, if we were to endorse this, we would be exposed in the future to legal liability because it is simply not taking into account the types of impacts that we are going to see.’

Dr WASHER—You are right. They have not made any decisions on that but they are about to complete their LIDAR surveys that run from Two Rocks in the north, as you know, right around Cape Leeuwin. I think they are about completed. So you would hope that they would make some decisions after they are finished.

Mr Verstegen—I sincerely hope that that flows through very quickly in terms of informing an update of that planning policy. I think the LIDAR assessment is important, but has the science of sea-level rise impacts been taken into account? The fifth area I want to raise—and I think, to some extent, this has also been raised by Environs Kimberley—is the need for much better and more comprehensive science on the impacts of climate change, particularly on our ecological communities. The Conservation Council has some expertise in this area and we have done a global analysis of where there is good science and good datasets that go back in time. I think 30 years is about the least amount of time in terms of a snapshot that you need for scientific monitoring to properly understand what the impacts of climate change are likely to be for a particular species.

We found there is an extraordinary correlation between where that type of science has been done and the willingness of governments to undertake significant greenhouse mitigation efforts. In areas like Europe there are hundreds of years worth of data in very comprehensive datasets. Often it is data that has been gathered not by government but by citizens who have themselves been engaged in scientific research, in a voluntary capacity, and recording things over time. Just having that data has provided governments with the political capital, if you like, and the depth of understanding in the broader community about the impacts of climate change on some of those species and ecosystems. What we are seeing in Australia, particularly in Western Australia, and also throughout the whole Australasia region is that there is an extreme paucity of datasets that go back in time that we can actually refer to to say that we know what the impact over time has

been in terms of climate change and then to provide some predictive interpretation of what it is likely to be in the future.

Only 0.7 per cent of all long-term datasets in the world of any environmental factors come from the Australasia region. That gives you an illustration of the paucity of these long-term datasets. In Western Australia we only have two long-term datasets. One of them is in relation to the rock lobster fishery that has been monitored for a long period. We are seeing that is starting to go into a major collapse and that has been linked to climate change. The other one relates to seabirds off our near shore islands that have been monitored for a long period. That is only two datasets. You are hearing some things about these species in the Kimberley. Certainly, there is a lot of traditional knowledge and community based knowledge about how these things are changing over time, but we do not have any rigorous scientific research. That is a real priority both for state and Commonwealth government if we are going to both better understand our ecological communities. As I say, it is critical in building the political support base that government needs if it will take the action that is required to slow down this type of impact.

CHAIR—It appears we are not getting that information through the *State of the environment* reports over a period?

Mr Verstegen—The *State of the environment* reports in Western Australia I can only describe as being extremely ad hoc. We have only had a handful of *State of the environment* reports.

CHAIR—At the national level?

Mr Verstegen—At the national level it is better, but I think the types of datasets that are required are data that tracks a particular species or ecosystem over a long period with in-depth analysis. I think the sort of metadata that contributes to the *State of the environment* reporting process is useful but it does not provide the particular snapshot in relation to particular communities that we need. As I was saying before, I think the degree of speciation and biological endemism of our biology in Western Australia and Australia wide means that some of those metadata sets are not particularly relevant from a management and adaptation perspective. So we need to be drilling down into the detail on some of these things. The *State of the environment* reporting process is definitely a start but certainly, in terms of the Commonwealth and state governments science investment priorities, there is a real need to acknowledge that long-term datasets are absolutely critical in our understanding of the impacts of climate change.

Those were the five key areas I wanted to address in relation to your particular term of reference and not only focus on adaptation but address that nexus between adaptation and mitigation. I will give you an example of how that nexus can potentially play out in an adverse way. In Western Australia—and people from Western Australia would be well aware of this—in the south-west we have had a 30 per cent reduction of rainfall and so there has been a need to engage in an exercise in relation to planning how our water future and the water needs of metropolitan Perth will be met.

Mr DREYFUS—Over what period?

Mr Verstegen—The 30 per cent reduction?

Mr DREYFUS—Yes.

Mr Verstegen—It is actually since the seventies, but what we are now seeing is that there has been another step change. The recent data that is coming through is suggesting that the current step change is more likely to be down to 50 per cent reduction of rainfall through that south-west region. The Western Australian government and the Commonwealth government together invested in a scientific research process called the Indian Ocean science initiative—before some of the other state governments did—and did some in-depth climate modelling. They were able to take the decision to build a desalination plant because they knew that at that time we were not in a one-off drought scenario; this was actually a step change in terms of our rainfall pattern. That enabled them to take a decision to build a desalination plant because they were convinced at the time that there needed to be a climate-independent water source. That tells you that the building of a desalination plant is, in effect, an adaptive response to climate change. But what we do not want to see are adaptive responses to climate change, such as the building of a desalination plant, actually contribute to the problem by escalating greenhouse emissions, not just from the actual power consumption of a desalination plant but from the infrastructure required to build it and for the whole of its life cycle.

CHAIR—Isn't it to be powered by renewable energy, at least, in theory?

Mr Verstegen—I could talk to you about that for some time, but certainly the first desalination plant that was commissioned in Western Australia was promised to be powered by renewable energy. That turned out not to be the case and that promise was not met. The second desalination plant which is now planned is, again, promised to be powered by renewable energy and after reports by the Auditor-General and other organisations actually acknowledging that the first desalination plant was not powered by renewable energy, I think there is now a stronger element of rigour and transparency in relation to these types of commitments. So we are pleased to see that there is that firm commitment for the second desalination plant.

Yes, you can power these things with renewable energy, but the point that I am making is that all sorts of adaptive responses to climate change have the opportunity to be done in such a way as not to contribute more to the problem. That is a critically important issue for adaptation planning that goes to this nexus. For example, if you are talking about locating housing developments away from the coastline so that they will not be subject to sea level rises, you also need to be considering the power consumption of those housing developments and how we can also locate them in areas that minimise both transport fuel energy required and energy for heating and cooling for the buildings. So things like building standards are a critically important area that we need to be considering from an adaptive perspective in terms of how building standards can take on board the principles of adaptation to climate change and at the same time take on board the principles of emissions reduction and climate change mitigation. So you can see that nexus bearing out in all sorts of ways. Would you like me to continue on and talk about the strategic assessment?

CHAIR—We might stop there and ask questions on those five priorities.

Mr Verstegen—If I could just make one further point, which is perhaps a bridge across to the EPBC conversation. In relation to the protection of ecological communities and threatened ecological systems—and this issue came up when you were talking to Environs Kimberley—

unfortunately the system that is set up at the moment under the EPBC Act is not working. That system is one of waiting until a species is under a critical degree of threat and then listing it. There are even major problems with the listing process, so there are a lot of species that are subject to critical degrees of threat that are not being listed. The listing process has become a driving factor for a number of government decision-making processes around priorities—for example, for NRM spending through Caring for our Country—how decisions are taken in relation to EPBC Act assessment processes by the minister and how those critical threatened species flow through in terms of becoming matters of national significance.

The Kimberley is a really good example of why that process cannot and does not work. The Kimberley at the moment is relatively intact. We have a situation in the Kimberley where it is a remaining island for many species that are extinct or under critical degrees of threat elsewhere in the country. They exist in the Kimberley because of the lack of industrial and other impacts. What we are starting to see is that those industrial and other impacts are starting to bear heavily on those types of species and they are starting to get to a threatened stage. But as Louise says, because the Kimberley is relatively intact it is not listed and the species in the Kimberley are not listed under the EPBC Act as being threatened in the Kimberley—but they might be threatened in other areas. Government spending priorities and decisions made under the EPBC Act cannot take into account those factors. What we need to see is a situation where there is an analysis from a bioregional perspective of where those areas are intact and then maintaining that intact nature rather than trying to take this just-in-time approach to listing something and then, after it becomes seriously threatened, trying to do something about it. We have seen that on the Swan coastal plain with Carnaby's cockatoo and the western ringtail possums, which are the two federally listed species there. They are in an absolutely critical situation in terms of habitat loss, which has impacted on their viability. The Commonwealth government is now in a very difficult position in terms of being able to intervene in any way to create some sort of viable future for those species, because the opportunities to protect those species for the future have been lost or closed out because those areas have been cleared.

The one message I can give to you is that that structural process in the EPBC Act is not working. I realise that that is the subject of a separate process so I do not want to labour that point. But certainly there is a role for this committee to recognise that point, particularly in the face of climate change, where you are going to see these threats exacerbated and come online faster than the process of listing can cope with. You have got a point at which, in terms of the climate change impacts, it is important for your committee to acknowledge that the EPBC Act process is not set up to appropriately respond to those types of impacts.

Dr WASHER—Carnaby's black-cockatoos I know well because I live in the centre of the area where they are and it is a real problem. People have cleared 100 hectares illegally, for example, and are about to go to court. But the penalties are very poor. I guess what you are saying though is that the act is really a crisis management act. In other words, when things are almost over the hill and irretrievable it is enacted. But when it is transparently obvious that things are going to become threatened if we do not something the act cannot be enacted. Is that what you are putting to us?

Mr Verstegen—That is exactly right. For example, in regard to the recent decision made by Minister Garrett in relation to the Gorgon project, he could only consider those matters of national environmental significance. Unfortunately those matters of national environmental

significance are informed by those species that are listed under the EPBC Act. So you have a situation where that type of industrial development is likely to have a major impact on all sorts of species on Barrow Island that may not be matters of national environmental significance at this point in time. With climate change we are likely to see that they will be, but that way of responding to environmental impact is quite unsustainable from a policy perspective. It is a structural barrier to being able to consider these types of broader cumulative impacts that we are talking about. This gets to the issue of strategic assessment. You have got a good principle of strategic assessment embedded in the act but unfortunately it is embedded in an act that has a number of structural barriers to doing strategic assessment in a way that actually enables it to be strategic.

Mr MURPHY—I will take it as read that the first priority you listed in relation to the federal government taking a leadership role would be your No. 1 priority key area—correct me if I am wrong. But against that background I notice that you said in your opening statement that the council engages in solutions based advocacy. Therefore, what advice do you have for the Rudd government as we approach Copenhagen, because much of what you deal with here has a bearing on that?

Mr Verstegen—That is an important question and I could go on for a very long time trying to answer it.

Mr MURPHY—We do not have a lot of time.

Mr Verstegen—As you are aware, it has also been the subject of other inquiries and policy development processes. From a Western Australian perspective, Western Australia has enormous potential for renewable and clean energy technologies—solar energy, wave power, wind power, geothermal—that we could be harnessing here. Because we are not connected to the national electricity grid, we have got a unique situation here where it is in Western Australia's particular advantage to be developing base load renewable energy solutions. It is critical that we have base load renewable energy solutions for the stability of our grid. So I think there is a need for some fronting investment in R&D in relation to those renewable energy solutions that could be contributed by the federal government, acknowledging that Western Australia is in a different situation from the other states. But there is huge potential for renewable energy and the creation of jobs and infrastructure and new industries and investment in Western Australia. There is the issue of seeing some policies that drive through those types of investments. Unfortunately we are seeing a carbon pollution reduction scheme at the moment that to my assessment introduces more market failures than it actually solves. It tries to introduce a carbon price, which at the start is capped very low for the first year, but then rises. But it does not resolve the market failure of addressing the social price of carbon, because it has got a low target associated with it, whether it is five per cent or even 25 per cent. Certainly we hope that it will be 25 per cent. Even that we believe is absolutely at the lower end of the range of what we need. So that sort of market based instrument is extremely important, but it is important that we get that right.

Our analysis of both the renewable energy target and the CPRS is that, even in combination, because of the way that they have been—and I use this term loosely—bastardised by various different add-ons and compensation measures and those sorts of things, are really not going to drive the sorts of investment that we need to be seeing in Western Australia particularly in relation to renewable energy. There is a fundamental failure of state government policy as well,

and even with the 20 per cent renewable energy target we may very well be in a situation where we do not achieve any increase in renewable energy in Western Australia because there is no state based policies to actually be supporting that. So there is a need again to be working with the state governments.

To get back to your question I think the critical need is for Australia to be playing a leadership role in the international negotiations and to not go into those negotiations with an extremely conservative approach by saying that, notwithstanding that it is in our national interest and global interest to solve this climate change, we are still going to take an extremely conservative approach of only five per cent emissions reduction. That is simply not going to work. We know that the economic modelling shows that even the more ambitious reductions that the science is telling us are required are not going to have significantly more impact on the economy than those less ambitious reductions. So we need to be creating that step change. Unfortunately we continue to pursue industries like the oil and gas industry—and there is a debate to what extent they have a role in a global solution—but that tends to be the driving force and has been the driving force in Western Australia in terms of industrial development. The CPRS is unfortunately not going to put us on a substantially different track.

I will just very quickly say that the gas plant proposed for the Kimberley coastline would increase Western Australia's greenhouse emissions by 25 per cent on its own, and that is just one development. Then there is the Gorgon on top of that and there are other developments on top of that. Western Australia at the present development trajectory is really not in a situation where we are likely to be able to meet even the very less ambitious targets that have been set at a Commonwealth level.

CHAIR—I am just looking at the time and we probably have another five minutes before we have a five-minute break. Would you like to say a little bit about the strategic assessment process, in general terms, not specifically?

Mr Verstegen—Yes, and I can only talk in general terms. The conservation sector believes that strategic assessments are an important evolution of how to manage environmental issues and how to engage in environmental decision making. We believe that strategic assessments are one of the appropriate tools for managing the impacts of climate change on coastal communities and for planning for coastal communities in the future of rapid and unpredictable climate change. In principle the conservation sector is very strongly in support of strategic assessments. But the first principle of strategic assessments must be that they are actually strategic and unfortunately the first strategic assessment, or the first use of the strategic assessment powers under the EPBC Act, that we are seeing in Australia has been the Kimberley LNG hub process. It has not been strategic and there are a whole range of reasons for that. I cannot lay the blame completely at the feet of the Commonwealth government.

One of the fundamental issues with the way that the strategic assessment provisions in the EPBC Act are set up is that they require the state government to almost be the proponent or to refer the project to the Commonwealth for strategic assessment. It is difficult for the state government to come in and engage in a strategic assessment process without the support of the Commonwealth government. In fact it is impossible under the EPBC Act. You have a scenario where you did have the strong support of the previous state government, and there was a bilateral agreement entered into by the state government, which we believe had many good

principles associated with it such as upholding the principle of prior and informed consent for traditional owners. Then you have a situation where that has unfortunately become politicised by an election and a new Premier who has taken a different approach to that particular development, a different approach to a number of those principles and a different approach to prior and informed consent for negotiation. The Premier at the time took it upon himself to name a particular site while there was still a process underway to look at the various options thereby constraining the process.

You can see how that strategic assessment process has been subject to this politicisation, and that has really eroded the value of that strategic assessment process or the opportunity to allow that strategic assessment process to engage in a strategic way. There needs to be some revision of the EPBC Act to prevent or mitigate against those sorts of things, certainly from the learnings that we have in Western Australian in relation to that particular process. I think that the EPBC Act strategic assessment provisions need to be looked at again. There is certainly a need to do them in partnership with state governments, local governments and local communities—we acknowledge that—but if the strategic assessment process is going to be a significant way in which the Commonwealth government is going to discharge its responsibilities under the EPBC Act then they cannot be subject to that sort of politicisation that we have seen which then erodes the potential of those assessment processes to actually work. Now you have a situation where the gas hub proposal here is basically in exactly the same scenario as a normal assessment process under the EPBC Act and the state EP Act, because we have a situation where the other options have been completely closed out.

The recent decision by the environment minister to approve the Barrow Island gas plant is an extreme example of where a strategic assessment process could have been employed to get a far better outcome but has not, so the minister has been constrained by the other parts of the act. As I said, it will require consideration of those matters of national and environmental significance only. I will briefly outline the situation that has arisen there. You would be aware that conservation groups have been advocating for a long time that that gas be processed on the mainland so that the impact on Barrow Island is avoided. Chevron have said for a long time that they could not do that—for economic reasons it was not going to be viable and that was the reason why they needed to go to Barrow Island and they pursued that development trajectory for that particular resource. The state government had made a decision before an environmental assessment was considered that they were going to allow that to happen. The EP Act process was constrained by that prior decision making process. But, since that decision has been made for that first gas processing plant, Chevron, the company, have proven up another gas field, which is only slightly north of the Gorgon gas field—it is called the Wheatstone gas field. The Wheatstone gas field is now the subject of an EPA assessment process and a Commonwealth assessment process to develop a processing facility for that gas field on the mainland.

The pipe that goes from the Wheatstone gas field to the mainland processing plant will cross the pipe that goes from Gorgon gas field to Barrow Island. There is no reason at all why, with some proper planning in the first place for these gas resources, there could not have been much better outcome from an environmental perspective. There is still the opportunity to combine those plants and process that gas on the mainland. There is plenty of opportunity to do geosequestration and other greenhouse gas abatement in other areas. They do not need to go to Barrow Island to do that. What that scenario illustrates is that you have this absolutely perverse outcome, where the same company is going to develop this resource and industrial estate on one

of Australia's most important nature reserves just because there is a total lack of any sort of strategic approach to planning for the future of that resource. We do not want to see that type of outcome in the Kimberley. This is why we need to do strategic planning properly—strategic planning in advance of industry coming forward with their ad hoc processes, because industry will always respond to the market demands of the day and they will always come forward with ad hoc approaches and proposals for industrial development. So there is an absolutely critical need for government intervention at all levels of government in a strategic way to plan for the future of these resources.

CHAIR—I think it is very important for your organisation, Environs Kimberley and other groups to feed in your experience, because it is the first major strategic assessment that the federal government has been involved with. Have you put submissions to the Hawke review that is looking—

Mr Verstegen—We have, but the nature of this process is that it is unfolding as it goes. We are learning more about how the strategic assessment can work, we are engaging our own legal advice and all those sorts of things. One of the other learnings that I think is pertinent to your inquiry is that at the present time we believe that the EPBC Act powers are being used in a very narrow way. You would be aware that the Commonwealth government has powers to intervene in resource projects or industrial developments under a range of powers that the Commonwealth has under the Constitution, but decisions that have been taken under the EPBC Act are ignoring those opportunities and powers for intervention. The way that the environment minister is taking his decisions simply in relation to matters of national environmental significance does not allow for a strategic approach. If you are going to have a strategic approach you have to rely on other powers of intervention, the corporations powers or the international trade powers, to be able to make those planning interventions which are going to be critically important for managing these impacts into the future.

That goes for all assessment processes under the EPBC Act, whether they use the strategic assessment provisions or not. If we are going to avoid the sorts of impacts of climate change that we need to avoid, we need to take a broader look at what powers of intervention the Commonwealth government has. This also needs to inform the relationship between the Commonwealth and state governments. I acknowledge that I am getting into potentially very difficult territory politically, when there are different political persuasions at the state and Commonwealth levels, but that is exactly the issue that we are seeing with the Kimberley LNG hub process. It is failing on a number of grounds because of that lack of leadership, in a way, by the Commonwealth government and its reluctance to use those broader powers to say, 'Hang on—there's a better way of doing this.'

CHAIR—Mr Dreyfus, would you like to respond? They are issues, Piers, that have exercised the minds of people on the committee, particularly Mr Dreyfus. Is there anything else that people would like to raise?

Mr DREYFUS—No.

CHAIR—Thank you for your very informative presentation, Piers, and for coming up from Perth. We had hearings in Perth. I do not know how we missed you there.

Mr Verstegen—I was not aware of that, but it was good because I was going to be in Broome on other business anyway. I was pleased that that coincided.

CHAIR—It was fantastic. It has been very useful.

Mr Verstegen—I must apologise for not having had the resources to devote to providing a written submission to the committee.

CHAIR—ACF has provided that. I have read that you are also on the ACF board.

Mr Verstegen—I sit on the ACF council. The ACF's policies and positions will not necessarily coincide with those of the Conservation Council of Western Australia, and they have not been as directly involved, particularly in the strategic assessment, as we have, so there may be areas of difference and overlap, but I certainly implore you to take on board what the local environment groups are also saying—the Conservation Council of Western Australia and Environs Kimberley.

CHAIR—Absolutely. Thank you for attending our hearing today, for flying from Perth to be here in Broome and for sharing your views with the committee. We will send you a copy of the transcript for any corrections, and if there is any other material that you have undertaken to provide it would be good if you could do that as soon as possible. Time is rather short. We are now in the midst of writing the report for presentation to parliament. I am sure that all the groups that have presented while we have been in Broome will be interested to see the outcomes of the report. The information that we have gleaned in the last couple of days will certainly enrich that report, so there will be consideration of issues that you have raised with us at the hearing. Thank you very much.

We will have a short break while the Roebuck Bay Working Group prepare their overheads.

Proceedings suspended from 11.58 am to 12.12 pm

CURRAN, Mrs Kandy, Project Officer, Roebuck Bay Working Group

SPENCER, Ms Andrea, Chairperson, Management Committee, Broome Bird Observatory; Member, Roebuck Bay Working Group

CHAIR—I would now like to welcome Ms Kandy Curran and Ms Andrea Spencer, representing the Roebuck Bay Working Group. As you would be aware, the Minister for the Environment, Heritage and the Arts and the Minister for Climate Change and Water have asked our committee to examine the environmental impacts of coastal population growth as well as the impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise. We are also looking at existing policies and programs related to coastal zone management, mechanisms to promote sustainable coastal communities and governance arrangements for the coastal zone.

Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceeding of the parliament and warrant the same respect as proceedings of the House. In that regard, the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. I invite you to make an opening statement before we proceed to questions and discussion.

Mrs Curran—Thank you. Is there a possibility for us to put in a supplementary submission? There was not a lot of notice for the Roebuck Bay Working Group to contribute to the forum. Basically, our group is made up of volunteers. Most of our contributors are away at the moment because they are involved in on the ground activities throughout North Queensland. I do not have the full suite of members available who could really contribute to this forum today. Would that be possible?

CHAIR—Yes, there is the opportunity for you to provide a supplementary submission, as long as it is processed and provided to the secretariat in a very brief time frame, because we are aiming to have the report tabled in parliament by the end of October. If in the next week or two you had something else to add, we would be more than happy to incorporate that.

Mrs Curran—I am going to explain to you what the Roebuck Bay Working Group does and where we have got to in terms of management planning. I will then go into some of the threats from climate change and population pressures. The group formed in 2004. It was basically an initiative of the World Wildlife Foundation. It is a very unique group, because it is made up of traditional owners, volunteers from the community, non-government organisations, government agencies, industry and business. The aims are to protect Roebuck Bay through a community based management planning process. I personally think that it is a very novel approach. It is very proactive. You are looking at a bay that is very unique. It is a natural resource that holds things of exceptional high value for the community and for visitors.

The process that we are involved in is aimed at increasing awareness of the issues and the competing values and encouraging shared participation in developing solutions for effective implementation of strategies. Essentially, what that means is that for each stage of the planning that we do we go out to the community. Traditional owners are involved. It gives people a sense

of ownership. In the last three years, since I have been involved, the group has grown to a membership of 52, which does cause me some headaches—especially when we are trying to develop a Roebuck Bay Working Group logo! But it is fantastic, because it does have penetration into the community. I have not had a member say to me that they want to leave. That is an indication of something quite fundamental about the group: they get the sense of managing a wetland, a sense of ownership and a sense of community. I think that that is very unique to the Roebuck Bay Working Group.

We won a state coastal award in 2007 for the outstanding community group effort to improve the local coastal and marine environment.

A PowerPoint presentation was then given—

Mrs Curran—Here is an overhead picture of Roebuck Bay. It is a very beautiful bay. There are 66,000 hectares of intertidal mudflats, which is a very large area. There are seagrass meadows, sandy beaches, mangroves and clay pans, which become floodplains in the wet season. It is very unique. It has a shallow sloping coastline with soft sediments and big tides. These are all required for the large exposed mudflats to come into being. These mudflats are also rich in shorebirds and they need the abundant invertebrate wildlife living on or in the mud. If you ever walk out there, you will see that it is squirming and wriggling with so much invertebrate life that it is absolutely staggering.

There are only a dozen or so areas in the world with these huge intertidal mudflats that are rich in shorebirds. Northwest Australia offers two, Eighty Mile Beach and Roebuck Bay. At the lowest tide, 150 square kilometres of intertidal mudflats become exposed. Roebuck Bay and Eighty Mile Beach are within the Indo Pacific biogeographic region, which has the highest marine organism biodiversity in the world. This bay, which is right on the doorstep of Broome, has incredible biodiversity. Also, as you can imagine, it has been the lifeblood for the Yawuru traditional owners for some 30,000 years. Roebuck Bay contains a Ramsar site. It is a tropical marine bay and it fulfils the Ramsar requirements over and above.

The first step that the Roebuck Bay Working Group undertook was to identify the values. As you can imagine, the bay has tremendous value for the Yawuru traditional people. Their connection is significant, not only for food but for customary practice and maintenance of their culture. We have the Pigram Brothers there. There are a number of artists—it is a very creative community. There is a lot of inspiration for art and music that comes from the bay. A lot of songs are inspired by the blue bone or the fish or the beauty of the bay. It is a migratory shorebird habitat. Birds come from the northern hemisphere each year to fatten up on that rich invertebrate life in the mud that I was describing. Then they return to the northern hemisphere to breed. The diversity of species in Roebuck Bay is unparalleled, but I will not go too much into that because Andrea will cover that very nicely.

As I say, Roebuck Bay is one of the richest mudflats in the world in terms of biodiversity. But there are competing values. This slide shows one fisherman out there but if you were to go out on any weekend here at the moment in the dry season and look at the car park at Entrance Point then you would see it full of boat trailers. I have never seen so many boats as I see these days. So there are competing values such as fishing for subsistence, commercial fishing and recreational fishing.

Then of course you have the pearl jewellery. There is pearling going on in the bay—that is pearling aquaculture. If you go to Chinatown then you will see a long row of jewellery shops. There are more jewellery shops in this small town than there probably would be in any other town in Australia. So the bay is very important for Broome's cultural, social and business infrastructure—and also for its economic future.

There is tourism. There is another hovercraft being purchased at the moment. The number of tours has increased. There is also kayaking and jet boat tours. This all places increasing pressure on the bay, along with, as I mentioned, the jewellery industry which is occurring. The port has been extended, and that is another value for the bay. There are only two deepwater ports in the Kimberley and Broome is one of them. It is servicing vessels to do with the mining industry. There are live exports of cattle going out. There is pearling, fishing and tourism. We have a deepwater channel which allows this to occur. But, as you know, over the last two years there has been a 700 per cent increase in port traffic, with a further 700 per cent increase expected over the next two years. So there are changing values.

We did a values mapping process in 2005 and we now find those values are changing. There is increased industrial activity both offshore and onshore, resulting in a high value being placed on the port and the infrastructure that is used for vessel servicing. We have increased population. We can see on this slide that there is more mining off the coast. With that increase in population we have a shift in values. We have more people visiting the northern shores of Roebuck Bay where the migratory shorebirds congregate and roost at high tide. There is increasing boating; recreational fishing, as I said; and activities such as jet boat skiing, hovercraft trips and commercial fishing.

The next task we undertook was to look at the issues in Roebuck Bay. That was a significant undertaking. Once again the traditional owners were involved. We went out to the community and identified all of the issues. As you can imagine, there is a whole raft of issues involved, because basically Roebuck Bay is unmanaged. Despite having this high biota and high ecological and cultural values, when the Roebuck Bay Working Group was formed—and this is basically why it was formed—there was no management plan with any jurisdiction to protect that biota and the ecological values for the bay. There was no coastal management occurring, particularly on the northern shores. You basically had this incredible resource that was unmanaged. So, instead of sitting on our hands, our community got together and tried to put into place a management planning process to start protecting that bay at a community level.

One of the issues we found was that there is cultural site disturbance from cars and people. There is tremendous erosion occurring, especially along those northern shores because people are actually driving down onto the beach when they should not be. I do not know if you have ever been to Gantheaume Point, but I went there a couple of weeks ago and took some photos. There was a tremendous number of cars, obviously, at Gantheaume Point. I went around to the northern shores, and I think there was a big rave party on the northern shores recently. This is where these migratory shorebirds come. When the tide pushes them up they are sitting on this high-tide line so they are very at risk from disturbance when they are trying to develop their fat reserves. If they do not get those critical fat reserves then they cannot migrate. Then of course you have cars, people, dogs, hovercraft and horse riders. I myself did not think about this until I started in this job. I would go out to photograph the shorebirds and race up to try to get a good shot. This disturbs them over and over again. There are not really the coastal rangers to advise

the public. I am sure that if people really knew about the effects of this then they probably would not keep doing it.

There is also the issue of coastal erosion, as I showed you in the photo before, from cars, people and dogs. There has also been a hypothesis that the pindan leaking into the bay could be having an effect on the mangroves and other biota. There is also the issue of rubbish. The Roebuck Bay Working Group have cleaned up tons and tons of rubbish, particularly driven by the Western Australian Department of Environment and Conservation, who have been very supportive of the Roebuck Bay Working Group. Each year we go out and clean up our rubbish. There is also the issue of weeds. When we cleaned up all those old rubbish sites it left behind huge pockets of weeds which are yet to be cleaned up.

There is also the issue of climate change. When we first started this process I remember reading a very brief entry in the issues paper about climate change when we developed interim management guidelines in 2006. I remember it being passed around the group. We were asked: what was the greatest issue confronting Roebuck Bay. I think shorebird disturbance was a big one but I remember someone raising climate change as being a big issue. There were only a couple of people who raised it then, but as we have gone on, and as more has become known about it, it has become more of an issue.

Since we have actually finished discussing the issues we have gone on to produce these interim management guidelines. You will see here a little DVD which the Broome Bird Observatory produced. This is an indication of the teamwork that is involved. We have actually produced the interim management guidelines and come up with the idea of slipping them inside the DVD that the Broome Bird Observatory made about the ecological and cultural values of the bay. So every copy that goes out to the community and tourists whilst promoting those values also promotes the protection and management of them.

We have also produced a Crab Creek management plan, which is in draft phase. That is the site which the shorebirds are going to. We have also supported the development of an ecological character description, which is basically baseline data all about this bay. We have sourced funding to develop a preliminary draft of a Roebuck Bay Ramsar site management plan. That is underway and is expected to be finished at the end of September this year. We have also developed a lyngbya contingency plan. I will get to lyngbya in a moment. So those are all the planning initiatives that this amazing group do. They are all volunteers. This is all funded through grants. I think Jennie asked me how many people are employed. Well, it is one—and that is me. Through the work of all our members we write grants, we get money and then through annual planning we decide what we are going to do next. We have completed all of those initiatives. Through all these planning initiatives we keep revisiting all the issues and it is very hard to keep up. The explosion of Broome's population and of course the increase in port activity is placing a lot of pressure on the group to keep meeting the demands of the management of the bay.

So the issues now are really coming from the increased recreational boating. You have issues like fish stock depletion. Traditional owners have been raising this over and over again. A lot of traditional owners do not have boats or GPSs. They do not have a lot of those facilities. They tend to shoreline fish in barganna season, which is when the easterlies are blowing. They tend to fish in the creeks themselves for crabs. They are having difficulty catching their fish and their

crabs using that more traditional style of customary practices. They can see all these boats out there with GPSs and everything else and they are not catching their normal quota of fish. That has been a real issue for the Yawuru traditional owners.

Boat speed is another issue. Crab Creek is a biodiversity hotspot and if you go out there on a weekend then you see all of these boats catching crabs. They zoom up and down the creeks, and you have got mangrove lined creeks that are obviously suffering. People are not advised on what speeds they should be travelling. Also in this bay we have these incredible cretaceous dolphins called the snubfin dolphins. They are bottom feeders. I do not think I have a photo of them to show you, unfortunately. There are cretaceous feeders. They put their heads down into the mud and they feed on the benthos. They stick their tail and their fins up into the air. They are often covered in mud. People do not see them and they are travelling too fast. The dolphins are in that muddy, shallow water and they get hit. The local scientist here, Deb Thiele, has identified almost every animal here in the bay, and each one of them has boat propeller strike injuries on them.

Then you have dugongs feeding in the seagrass meadows in the bay. They get down and dig up the rhizomes, which are the roots of the seagrass, with their tails pointing upward. They are being hit as well. These are issues caused by the boats.

You also have increased shipping. With the increased shipping you have an increased risk of marine pests. This is something we have written to the ministers about. It is deeply concerning to the Roebuck Bay Working Group and to members such as the pearling industry, who would be devastated if there were to be black-striped mussel outbreak in the bay. There are not the resources at the moment to really protect the bay from these risks.

You also have the increased risk of a chemical or fuel spill. Of course, there has been a 700 per cent increase in shipping, and you only have to go to Gantheaume Point now to see all these different yachts and vessels. Broome is the flavour of the month. There is just so much pressure on this town. People are coming in from international ports. There are risks in terms of biosecurity and there is also the risk of a chemical or fuel spill. As you have probably heard, there was an oil spill recently. Fortunately it was not a terrible oil spill, but it certainly indicates the risk ahead.

We have also had lyngbya occurring in the bay. I think I showed a photo of it. It has been occurring in the bay since 2006. It is a real concern because each year the lyngbya blooms are increasing. This slide shows the wash-up of the lyngbya. It is also called blue-green algae. It is spreading in the bay and it can have quite a deleterious effect on the seagrass meadows, which are very important. Also, we are yet to really have the funding to fully understand why it is occurring. We believe it is nutrient driven, but there are other hypotheses out there. Climate change might be a driver, of course, or it may be that a whole range of issues are keeping it ticking along.

Then, of course, we have climate change. We have benthos and migratory shorebirds. With the sea level rise, there is a strong likelihood that these invertebrates may need to move further toward the coast, which has strong implications for planning and coastal management. Turtle nesting is occurring. There are obviously going to be impacts. The seagrass meadows are the feeding grounds for dugongs and turtles and the nursery grounds for prawns and fish and they also contain important invertebrates for migratory shorebirds and these Cretaceous dolphins. As

I said, they feed in these areas. They are nutrient sinks and they buffer and filter nutrient and chemical inputs to the marine environment, which are significant in Broome. You have to remember that this town has old rubbish dumps and an old meatworks. A lot of this pollution could be sitting in the sediment, so the importance of these seagrass meadows cannot be underestimated. They also protect the coastline because they anchor those sediments. If there are an increased number of storms occurring, you stand the risk of those seagrass meadows being inundated by sand, which has happened in the past, but if there are repeated events they may not get their anchor again and, of course, you can suffer much greater coastal damage. Also you have floodplains, freshwater lakes and lagoons, which may suffer salinisation as the whole system moves further toward the coast.

There are also increasing population pressures. In my opinion, looking back through all the Roebuck Bay Working Group consultations, the greatest threat to us right now is this increase in population. It is just phenomenal trying to keep up. You have increased shipping. You only need to go out to those northern shores or to the car parks that service the boating facilities and you will see there are just an incredible number of people, not only the resident population but visitors. People love coming to Broome at the moment—it is just very popular.

Our group comprises a whole range of people and I would like to have someone who is more scientific than me speak on climate change. That is why I have asked to make a supplementary submission. But I have trawled back through and found some information from members. There is an urgent need for scientific research to examine the effects of climate change on our unique wetland that has these extremely high ecological and cultural values and this high-value biota. It would make sense to perhaps return the coastal foreshores to public open space or public parkland to enable natural processes to occur with fewer threats to dependent ecosystems, to people and to property.

It would appear that the current legislation and policy on coastal setbacks and buffers is not sufficient to ensure we do not create greater problems in the future. There has long been awareness of the need for environmental sustainability for communities around the Western Australian coast, and more recently with the recognition of climate change and its likely impacts. It would be good to see information on the possible impacts in Broome, because it would appear to be vulnerable—it is remotely located, very low lying, subject to monsoonal conditions and has a large tidal range. During major storm events, like cyclones and tsunamis, retreat is only possible where there is somewhere to retreat to. Broome's population is growing fast and, like the rest of Australia, people gravitate towards the coast to live and play. Our economy is heavily dependent on tourism and business development. Both these industries place heavy demands on our decision makers in order to get closer to the coast. The natural attractions and the undeveloped nature of Broome is a tourism drawcard. All of these features are at risk from possible impacts of climate change, including rising sea levels increasing the probability of inundation, storm surges, increasing vectors and changes to dependent ecosystems and nutrient loads on mangroves, seagrasses, cockles and seafood stocks.

It would make sense that any new development should have a broad hazard or buffer zone between the shoreline and the first line of development so the shoreline can naturally encroach into this zone—that is, a naturally occurring coastal foreshore, not seawalls or artificial barriers. Furthermore, it would seem preferable to not spend tax dollars on defending public property or

private property developed on vulnerable coastal foreshores in areas of known risk, or spend even more money on property insurance that will naturally rise along with these risks.

Roebuck Bay is already showing signs of stress: the lyngbya—blue green algae—in the bay, the oil spill, the coastal erosion, the rubbish accumulation, increasing boat activity, shorebird disturbance, the threat of marine pests. It is one of the fastest growing towns in Australia. I honestly do not think the solution is that hard. I think it is really a matter of government will and community will. We need to resolve the tenure issues and who is going to manage it. The Roebuck Bay Working Group does support a Marine Parks and Reserve Authority process, should the government go that way. Thank you.

A PowerPoint presentation was then given—

Ms Spencer—My presentation may involve one or two repetitions, but we are now getting down to a very specific area and a very local matter in relation to Broome. Just to clarify, I am not a scientist in any way, shape or form, so I might be able to help you with some of your questions—our scientists are away at the moment, as Kandy mentioned—but I would couch myself as someone who has been actively involved in the research over the last seven years, really.

I thought I would start by giving you a bit of background on the Broome Bird Observatory. The BBO is a non-profit organisation operating under its parent body, Birds Australia. That is an incorporated body in Victoria.

CHAIR—We have had submissions from Birds Australia, and visited some of the sights in Tassie.

Ms Spencer—That is excellent. I am actually going to make that point a little bit later on, when we get to matters relating to climate change and birds, because they have done an enormous amount of work in that area.

We were established in March 1988 on 2½ hectares of land on the northern shores of Roebuck Bay. It is about 15 kilometres to the east. In this picture of Roebuck Bay we can see roughly where we are. Our initial operating and infrastructure was actually provided by Birds Australia and through very generous donations of assets and support from local businesses and local volunteers. We have been very much embedded in the local community for quite a period of time. It was founded primarily because they did not know about the shorebirds in Broome, nor did they know about the shorebirds in Eighty Mile Beach. It was a fairly significant find and that then led to the establishment of the BBO and to the research that has taken place. You are probably wondering why we are here at all. There are approximately 700 bird species in Australia and more than 300 can be seen in Broome. So if you are a twitcher, which I am not, you will have a good time here in Broome.

Roebuck Bay is also a site of international significance for migratory shorebirds and is located on the East Asian Australasian flyway. There are actually two other flyways in the globe; one stretches from South America through to North America and Canada, and there is also one from Africa through into Europe. On those migrations the birds ultimately meet up in the Arctic Circle in Siberia and Russia. Those are the three primary flyways. Of the about 24 species of shorebirds

in Australia, 20 species occur in internationally significant numbers in Roebuck Bay, which is why it has been included in the Ramsar Convention as a wetland of international importance.

Some may ask: what do we do out there? We believe we make an important contribution, along with a lot of other organisations in Broome, in raising the awareness to tourists and the local community about the ecological and cultural values of Roebuck Bay, as Kandy mentioned. We promote Roebuck Bay within Australia and internationally as a site of immense ecological value for birds and particularly as a critical habitat for the migratory shorebirds. We promote and facilitate ornithological research, which contributes to the broad scientific knowledge of Roebuck Bay. One of our recent studies—in fact we have undertaken two studies and I am going to mention them later—is a project around shorebird disturbance, which can be alluded to, and further study where we thought that most of that disturbance was as a result of birds of prey, particularly given the Broome waste management facility or our local rubbish tip. We thought that that may be a contributing factor to the increasing abundance of birds of prey. At the same time we also looked at the general disturbance of shorebirds, so it was really a follow-on from that initial survey. I think some interesting results have emerged from that and I want to share that with you in a moment.

We have also been involved in a lot of bird-banding studies of the normal ‘little brown jobs’, or passerines as they are referred to, but there are some wonderful colourful ones around here, and also of the shorebirds on an ongoing basis. One of the key groups involved is the Australian waders study group, which is also a special interest group of Birds Australia. They regularly come to Broome to undertake international expeditions. They base themselves in Broome at the observatory and also go to Eighty Mile Beach. We also contribute towards various bird surveys and collect an enormous amount of data. We entertain our guests by running a bird log every night, so we collect lots of data and have done so for over 20 years now on the sightings of birds and also on the abundance of them. So if there are certain events then we are usually going to be able to record that. That contributes to the broader work that Birds Australia are doing. So you can see that it is quite an in-depth and important monitoring and information source.

We also record data on migration and we include the community in that. We have what is called ‘migration watch’ during March and April. We encourage people to come out to the Broome Bird Observatory and face the mosquitoes and sandflies and everything else at that time, because it is not exactly the right time of the year to be sitting still. We watch the mudflats from about four o’clock in the afternoon and we keep detailed records of those birds and when they set off. If any of you are ever here at that time of the year I would strongly encourage you to come along. It is a very emotional moment. I remember the first time I did it; I saw a flock of birds calling, then lifting up and forming a V-shape and heading off on their journey to China and then up to the Arctic Circle.

Following on from that, we have also participated in a range of shorebird censuses, including monitoring Yellow Sea migrants, which is funded by the federal government. So we have had a lot of support in monitoring these birds, particularly understanding some of the hazardous journeys that they take from here in Broome through the Yellow Sea up to their breeding grounds in Siberia.

Since March 1996, diverting slightly, we have been conducting a lot of monthly benthic sampling. The Broome Bird Observatory has been basically assisting the Netherlands Institute

for Sea Research, which is known as NIOZ, with studies of feeding ecology in migratory shorebirds. They also punctuate this regular monitoring that we do with international expeditions. So they take over the Broome Bird Observatory every so often. In 1997, 2000, 2002 and 2006 we had all these various international scientists, mostly from Holland, coming over. They have produced some fabulous research. They are also currently doing some work for us. The Department of Environment and Conversation provided us with funding to do a snapshot sample of Roebuck Bay back in March and also Eighty Mile Beach, and they are currently conducting that work to feed back into the various monitoring reports. The next expedition, if you are thinking of coming up, is in 2010. That is quite an experience in terms of getting out onto those mudflats and seeing all those worms and everything else.

We also run courses, open days and programs for Australian and international university students. Every two years we get visits from a particular university in Ohio in the US, and they have other experiences in Western Australia. They make a particular point of wanting to come back each time to the Broome Bird Observatory. One of the highlights that they enjoy is participating in one of our cannon-netting experiences, which is where we fire these nets over our shore beds as part of our research studies. If you want to know a little bit more about the cannon-netting, I would encourage you to watch our little DVD, which would give you an idea of what it is like to be under those nets. We have the camera underneath the net and you can see the net firing. It is a really lovely little DVD which explains the work that we do.

We do not get any funding from anywhere. We do not even get funding from Birds Australia—or very limited funding. We undertake what we call commercial activities. As you can imagine, this is all volunteer. We have tough times bringing people into the observatory. We provide accommodation, which is both camping and some dongas which were provided to us by Woodside many years ago. You may or may not know that Charles Allen is a keen birder. When he was CEO of Woodside he very generously arranged for us to have this accommodation block, which has served us well over the years and also served some of those international expeditions in the wet seasons. We do a number of bird identification courses, where we encourage people to come and hone up on their ID skills, and a lot of birdwatching tours. Also we sell things in our little shop. This is basically how we fund ourselves and how we operate. But we have to be careful. We obviously want to be financially viable but at the same time we do not want it to compromise some of our research, conservation and education goals.

I want to talk about two things. One was to go back to the shore bed disturbance, and give you a little bit of background to that. The first survey work that was done was as a consequence, as Kandy has mentioned, of the population explosion within Broome, and a lot of anecdotal evidence suggesting that the disturbance of the birds was becoming quite critical. We were given funding to undertake this survey.

A lot of people say, ‘What do you mean by “high-tide roosts”?’ Those intertidal flats of Roebuck Bay are submerged and are obviously unsuitable for shore beds for about 12 hours of every day. When the tide is high, shorebirds are forced to take refuge on the beach at what we call high-tide roosts. They are unable to feed in these sites, so their objectives are basically to try and rest and avoid being eaten by predators. These shorebirds typically take flight to avoid predators, as you can probably appreciate. It is an amazing spectacle when you see these birds fly off in their formations in very large numbers when they are disturbed by either cars or people walking along the beach. They live on very tight energy budgets. Every calorie they spend on

high-tide roosts can be diverted from those vital activities which Kandy mentioned, which are basically fuelling up for their migration. So it was very important that we tried to get some evidence and understanding as to any increases in the disturbance of those shorebirds. It is important that we try and put in place anything that can mitigate or reduce those disturbance levels.

In the two surveys that we have undertaken, three key areas have emerged as critical in terms of the disturbance. First of all was birds of prey—and I mentioned that the Broome rubbish tip may be increasing in size. People was the second one and aircraft was the third. In 2005-06, 55 per cent of the birds were disturbed by birds of prey. In the following survey that we did, that had increased to 64 per cent. I have to qualify that by saying that I think it was just natural. It was part of life. There was an increase in birds of prey, but most of the birds that we thought were moving from the rubbish tip were actually thinking, 'Why should we bother? It's easy pickings,' so they remained. So it was not an issue for us in terms of the increasing numbers of black kites et cetera.

What was interesting was that the people disturbance in 2005-06 was just over 20 per cent of all the disturbances that took place that we monitored as part of the project. By 2007-08 that had increased to 29 per cent. So, in just a year or so, it increased dramatically. Between 2005-06 and 2007-08, aircraft disturbance increased from 4.3 per cent to seven per cent. That does not take into account the possibility that we are seeing more disturbance as a result of the helicopters, but I am glad to say that there has been some recent work with Roebuck Bay Working Group. Some of the scientists who are involved with the work on shorebirds have had some very, very constructive discussions with the airport, which were actually facilitated by Woodside, to make sure that these big Super Puma helicopters do not fly over the Ramsar listed wetland, which is what they were doing. This is very recent, but we will continue to monitor that. The airport and everybody are very, very keen now that they understand what their obligations are.

I will just summarise some of the work. We understood shorebird disturbance was high. We are just accepting that it is a natural phenomenon and that birds of prey are going to do a lot of that disturbance, but the worry is the increase in the level of people and aircraft disturbance in that very short space of time. Some key recommendations that are coming through are that we want to continue monitoring shorebird disturbance for the foreseeable future and look to implement some measures to mitigate the impact of human disturbance. That includes improved signage and proper education about that disturbance. This DVD sends some key messages, along with the interim management guidelines from Roebuck Bay Working Group. We have developed some new signage, which Coastwest have helped us with. That will be featured at the observatory as well. We will also take it into the community. At weekends, for example, we participate in the local markets. We have our own little stall there. We want these signs to be mobile so that we can get the message across. We also want to restrict vehicle access, as Kandy was highlighting. That is quite important for us.

In terms of climate change, I do not want to go into too much detail. I spoke to one of the scientists who was involved in this area, and he openly admitted that there is very little that is being done as far as climate change and the impact of it on this community are concerned. As you may be aware, Birds Australia published *The state of Australia's birds* in 2007, which addressed birds in a changing climate. One of the key messages which came through, which perhaps we ought to take on board, was that, by 2040, 55 per cent of birds species living in

Northern Australia—and it would be very interesting to try and get some analysis as to which birds they mean—are expected to have undergone significant population declines. With climate change, as we know, people talk about birds being like the canaries down the mines—giving that first signal. There is mixed news from Australia's point of view, because some birds will benefit and others will be disadvantaged. My concern is that, if any of the shorebirds are going to be disadvantaged, then it is a disadvantage on top of some of the disadvantages and threats that they are currently facing.

We do not know how quickly birds can adapt. Maybe many of them will, but certainly some will not. Some of the factors that I found interesting when I was quickly looking at this report, which I think relates to Roebuck Bay, are the availability and the quality of food. That is expected to change for all bird species and in all habitats, so, here in Roebuck Bay, the health of that benthos in the bay is going to be critical in terms of those shorebirds being able to survive. As we know, birds will indirectly be affected by storms, floods, drought and everything, and we hear all of that. But, as the volume of fresh water decreases, as all the predictions are, we know that wetland birds such as ducks, ibis and egrets will decline.

Here in the Kimberley we have experienced—I do not know whether you have heard this term—what we call dry wet seasons. There is an assumption that it is always wet up here. We may get some rains, and we may get some extreme wet seasons, but we also may get some very dry wet seasons. As a consequence, that means that there will be some nearby wetlands that will be affected. If that continues, we have no idea whether that is going to be a more regular occurrence.

I mentioned rising sea levels and coastal erosion and the potential for inundation of some of those low-lying areas with salt water. In particular, I am talking about those claypans that have been mentioned, which are just behind the northern shores of Roebuck Bay. Again, any increase in sea levels, any changes to the Roebuck Bay intertidal mud flats, could have an effect not just on the shorebirds that are on the bay but also on the wetlands that are behind. Consequently, birds may have to move to new habitat areas, but there may not be anywhere else to go. In those cases, they may also not be able to get there.

As I mentioned, we think there are limited studies that have taken place in this particular environment, and we would encourage those to be undertaken. However, given the wealth of information we have now, we do know how important it is to try and conserve what is effectively our current natural landscape and how it acts in this region. Thank you for this opportunity.

CHAIR—Thanks, Andrea. That was a very interesting presentation. Thank you to both Kandy and Andrea for coming along today at short notice. Andrea, just to get this right for the *Hansard* and on the public record, my understanding from your commentary is that currently there is no management plan, even though the area that we are referring to has international significance as a Ramsar listed wetland. Is that right?

Mrs Curran—Yes, that is right. We produce interim management guidelines, but it is basically up to the community whether or not they take them on. There is no jurisdiction to back those. The draft Crab Creek management plan, which is almost complete, once again is a trial management plan that we are trialling before we go on to an overall Roebuck Bay management

plan. There is still a way for us to go. Put it this way: if a marine planning process is not put into place by the government, the Roebuck Bay Working Group will continue the management planning process that we are already doing, and then we will have to get the agencies to come on board and apply the jurisdiction and cooperate to put it into place. It will be a hard process.

CHAIR—It is my understanding that the precondition for listing was that there was to be a joint federal-state management plan in existence.

Mrs Curran—We have got funding to undertake a preliminary Ramsar site management plan.

CHAIR—But, if your group did not exist and there was not the interest and the commitment of so many dedicated volunteers, would there be a total vacuum in terms of a management plan?

Mrs Curran—Probably. I would think so, yes.

Ms Spencer—And there has been for some time.

Mr DREYFUS—When you referred to ‘the government’ a moment ago, you were talking about the state government?

Mrs Curran—Yes, that is right.

CHAIR—Very interesting.

Mrs Curran—It is a long-neglected area. We live too far away from cities. I think that there probably have been a lot more resources put into areas closer to Perth or Bunbury et cetera, but we are a long way away up here. I think that some of the planning that probably should have been put into place has not been, probably due to the location of Broome.

CHAIR—Are these interim management guidelines that you are working on under the umbrella of the state government, or are you doing that independently?

Mrs Curran—The state government, through agencies. We have the Department of Environment and Conservation, the Department of Fisheries; there is local government—the list on the back is an extensive list.

CHAIR—Yes, I understand that. I think you said you had about 30.

Mrs Curran—Yes, that is right.

CHAIR—But have you been asked to prepare a management plan by the state government—

Mrs Curran—No.

CHAIR—or is this your own initiative?

Mrs Curran—It is our own initiative, from the membership of the Roebuck Bay Working Group.

Ms Spencer—I have just been informed by someone here that apparently there was no requirement for a management plan when Roebuck Bay was listed in 1990. I am sure that has probably created the vacuum. And so, while there have been increasing pressures on Broome, it has obviously highlighted the fact of the importance of a management plan that should be put in place.

CHAIR—Are there any other questions?

Mr MURPHY—I will just ask one quick one. Of all those impacts that you have listed as threatening Roebuck Bay, what would be No. 1 in your view in terms of climate change? Nominate one.

Ms Spencer—I was going to say that, without the science, without understanding what the impacts might be in terms of the sea level rises or even the temperatures—because I know there has been work done in terms of temperature change on the benthos—basically those shorebirds will not be there unless the health of the bay is maintained. From that point of view, I think at least getting a greater understanding as to how we can maintain the health or protect the health of that bay is going to not just protect those shorebirds but also be important for the whole ecosystem.

Mrs Curran—Everybody sees the birds and the snubfin dolphins and all those larger, more visible creatures, but it is actually the benthos and the shallow sloping sediment nature of the bay. We are not to know exactly what is going to happen to the benthos, but if that does diminish then I think a lot of the other biota will probably go as well. And then, of course, I think the other one would be that Broome is a very low-lying town. With sea level rise, you have got to consider cyclonic events. It puts the people of Broome, the population of Broome, at great risk.

CHAIR—Are you aware if there is any state government modelling on the impacts of sea level rise in this area?

Mrs Curran—They have not contacted us—or not through me. The Department of Environment and Conservation may know of those initiatives, but I am not aware of it.

Ms Spencer—Our energies have been very much focused, in the absence of a management plan, to try and protect what is currently here. I think I mentioned earlier that, even though scientists are involved in some of the research here—which probably to some extent I have focused on today—and looking at the survival of these birds, I would also focus to some extent, specifically talking about the shorebirds, on the threats that they are facing in terms of the Yellow Sea, with the increased industrialisation and reclamation. But I do not know whether anybody has really come back and said, ‘Where’s the future and where’s the impact likely to be in Roebuck Bay from a climate change perspective?’ I certainly think that we would welcome some forward thinking around the impacts.

CHAIR—Has the group been provided with resources by the state government to undertake a management plan?

Mrs Curran—I think I mentioned to you before that, for the Ramsar site, we have achieved resources. DEC applied for a grant many years ago, actually, and we received that and started that planning process early this year. That is only a preliminary draft of the Ramsar site management plan. I think we achieved \$60,000. There is talk that we will receive more funding to complete that Ramsar site management plan. But all the other initiatives are basically sourced through grants that we have to write, manage and acquit, and it is a very arduous process. I did not actually get a grant this year from Coastwest for an overall Roebuck Bay management plan. We missed out. It is very hard for a community group to win every grant and to keep that progress going when you have to go through that process every time.

CHAIR—Was the funding you got for the management plan project a competitive grant, or was that money that was provided for a specific purpose?

Mrs Curran—I believe it was a competitive grant and that it had to be signed off at both the state and federal levels. I could be wrong so I will have to check and get back to you but I believe it was NHT. I have just been informed that it was specific under Ramsar from the Commonwealth.

CHAIR—Keep up the wonderful work.

Mrs Curran—Thank you.

CHAIR—It was great that we were able to come across the group. It was very late in the piece so thank you very much for presenting this morning. As I indicated, we are keen to have our report presented at the end of October this year. Obviously if there are additional points that you want to bring to the attention of the committee you would need to do that as quickly as possible.

Mrs Curran—Would you be able to provide us with a date that it would be required by?

CHAIR—Yes, we can make those arrangements. We will take the DVD and the shorebird publication as exhibits. Perhaps you could provide your overheads to the secretariat as well.

Mrs Curran—Yes, we will.

Mr DREYFUS—May I also ask that, when you do come to make this further submission, which we welcome, you reflect on what particular role you would like to see the federal government play.

Mrs Curran—Yes. Thank you very much for the opportunity to appear.

CHAIR—There being no further questions, the committee is suspended.

Proceedings suspended from 1.06 pm to 1.31 pm

VERNES, Ms Tanya, Program Manager, Kimberley, WWF-Australia

CHAIR—We will resume our public hearing. I welcome Tanya Vernes, from the World Wildlife Fund Australia. Tanya is here to present on their behalf. Mr Paul Gamblin, the program leader, was to come along as well but unfortunately he has been taken ill and so he is not able to be with us. I am sure that Tanya will convey the concerns that Mr Gamblin would want to put before the committee.

As you would be aware, the Minister for the Environment, Heritage and the Arts and the Minister for Climate Change and Water have asked the committee to examine the environmental impacts of coastal population growth as well as the impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise. The committee has also been asked to look at existing policies and programs related to coastal zone management, mechanisms to promote sustainable coastal communities and governance arrangements for the coastal zone.

Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. In that regard, the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. I now invite you to make an opening statement if you so wish before we proceed to questions and discussion.

Ms Vernes—Firstly, I want to acknowledge the Yawuru traditional owners whose country we are on. I would also like to thank the chair and the secretariat for the invitation to appear. As you said earlier, I will be presenting some information about the Kimberley. Also, Paul has asked me, as I think was organised with Julia earlier, to read out some information he has provided me with. He is also very happy to submit a supplementary submission if that is required.

I want to start by talking a little bit about climate change projections and the Kimberley in particular. There is a little bit of information that is still quite coarse information about climate change impacts in Northern Australia. The information that we had last year when we produced this document, which I can also provide to you—it is about assessing climate change in Northern Australia—is already outdated. The information is changing all the time, and the upper scale of the projections that we have in this document are now considered to be quite conservative. An important point to make for Northern Australia is that there is a lack of information on that fine scale data in terms of climate change.

First of all, I point out that there are about 100 million hectares of tropical savanna. It is the largest remaining tropical savanna in the world, so we have an incredible resource here. There are probably around 100 rivers between Cairns and Broome and most of them would be unmodified, I would say—that is, without dams. So we have a very intact ecosystem which is also a great carbon store. I just want to make that point. There is low disturbance and there are some really important ecosystem processes and functions. There are two things: it is an incredible environmental resource, but it is also a really important carbon sink.

Some of the impacts across northern Australia include: an increase in temperature; decreased rainfall, except for probably Far North Queensland; declines in moisture balance; sea level rise, as we all know; an increase in fire; an increase in intense cyclonic events. We expect a whole range of things will happen in northern Australia—storm surge events and those sorts of things. We find that these potential impacts have not really been considered greatly in terms of planning, especially protected area planning. That is the point I want to make about northern Australia.

When it comes to the Kimberley, there is even less information when compared to other regions. We have very little information on which to base projections and on which to base protected area management, for example. As I said earlier, our projections are probably at the lower end, but we expect about two degrees increase in temperature by 2030. Also by 2030, the number of days above 35 degrees could increase to as much as 87 days for Broome. I am not quite sure what it is at the moment, but it is nowhere near that. There are the compounding impacts of a decrease in rainfall, increased evaporative rates, more frequent severe droughts, associated decreases in river flows, extreme weather events, cyclones and more flooding—because where the rainfall does occur it will be more intense, so there will be more flooding.

I am pointing this out again not only in terms of environmental impacts and looking forward to planning but also in terms of future enterprise development in northern Australia. The conditions will be very different to now. As I said, the tropical savanna covers quite a large area that is a carbon store at the moment. We really need to look at those characteristics when planning for future development. It is about looking at how we keep the greenhouse gas emissions down and keep the carbon in the soil with future development—not only where they are located, with sea level rise, but what is appropriate for the north, so that we can maintain this great store of carbon that we have.

The growing perception, especially after the last inquiry that I attended, which was looking agriculture development in the north—I think that was with Senator Heffernan—is that the north is seen as some sort of solution. We are seeing a lot of problems in the south, with reduced water and problems from the agriculture. So people are looking to the north. The point I want to make is that we do not repeat those mistakes in the north. It is a very different situation and the climate change impacts will be different, and we should really be looking at what is appropriate for the north.

I would like to provide some information. I will not go into detail now. I want to provide this afterwards, but I just want to note now that I want to focus on the impacts of northern Australian ecosystems in a supplementary submission. We have quite a lot of data here and I do not want you to fall asleep after lunch! The coastal low-lying wetlands of northern Australia is a very important ecosystem in terms of climate change. As we heard earlier today from other environmental groups, sea level rise is coming into these low-level wetlands—sometimes river systems. Roebuck Bay is another example where the wetlands extend quite a way inland. Some serious impacts could happen there.

For the coral reefs in northern Australia—I think Environs Kimberley noted how important those coral reefs are and how little studied they are as well—information is lacking on those. The tropical rainforests across Northern Australia—the tropical savannas as I have mentioned—and river systems in terms of the impacts of climate change on the flows of the river systems and the species that they support, such as IUCN red listed species such as sawfish. The snub fin dolphin

is another one—and we have just found out that Roebuck Bay has probably the highest population in Northern Australia—so we are putting measures into place there. For small island environments, probably the biggest risk to them would be the sea level rise. At the moment those islands are some of the only places where we have no mammal extinctions at present off the Kimberley coast, so that could be quite a severe impact on the mammal population.

In summary, before I move onto Paul's information, what we would like to see in terms of climate change and future planning would be to look at mitigating climate change impacts, which I am sure the others talked about this morning, strengthening adaptation and building resilience of the ecosystems that we have. I think it was EK that rightly mentioned how the biodiversity is quite strong in Northern Australia and the rate of mammal extinction is less than other areas, although we are beginning to see indications of decline now. Seed-eating birds are starting to decline but we actually have one of the most intact ecosystems in Australia. We need to build the resilience to make sure that those ecosystem processes are maintained. The other one of course is free-flowing rivers and making sure that we do maintain those free-flowing rivers because, as the impacts on rivers increase, the biodiversity decreases and the resilience decreases. The cumulative impacts of climate change in Northern Australia—the ones that I mentioned earlier—in terms of the area drying, the rainfall being less, increased cyclones, flooding, fire, all of those things. Putting them together is quite a serious scenario so I think we need to look at how all of those things together would impact on the environment here and also impact on people's lives and people's livelihoods, which is another really important area for the Kimberley. Weeds and feral animals—I will not go into that because I heard EK talking about that this morning. Erosion of rivers and that impact on the coral reef system is something that has not been looked at either. It is something that is gaining attention in Queensland with the Great Barrier Reef but I think that in the future it will be just as significant for the Kimberly seeing as how we have such large river flows emptying into the sea where those coral reefs are, such as the Fitzroy River.

Another key point is protected areas. I am looking at protection in two ways. Protected areas such as Indigenous protected areas and national parks acting as refuges for plants and animals. That is very important future planning in that it allows not only for what is there now but for movement of those ecosystems. For example at Roebuck Bay it would be movement of those wetlands and the shallow grasslands behind the bay and allowing for movement of that and the mangrove system inland. At the moment there is actually a development planned for behind that area, so I think that has not been taken up in planning guidelines to date.

The other part of protected areas, which I consider to be part of protected areas, is the active management. You can have a protected area but if it is not managed, it is no management. I think having a protected area and/or having appropriate management for those areas counts as protection. In Northern Australia that is working directly with traditional owners because we have probably around 90 per cent of the land under native title claim or determination. The largest ownership or management responsibilities would be the traditional owners in the Kimberley. That is a very important part of future management.

The only other thing that I would add here is in relation to sustainable livelihoods and the responses that we might consider in terms of climate change. Those responses have to be very well-thought out or else they may become threats that are just as great in the end. For example, moving agriculture to the north without really considering what that means with reduced rainfall.

What does higher temperature mean for crop germination? All of those sorts of things need to be considered, along with how that impacts in terms of land clearing and reducing that carbon store in the soil. How we approach fire is another one. There are some suggestions in this report that we have on what might be appropriate, but the conservation economy is another appropriate model that we would recommend. That is in relation to sustainable livelihoods for Indigenous people, as well as conservation outcomes.

We are here in Broome, so I will use Roebuck Bay as an example. The sea grass in Roebuck Bay is quite important. It will probably be impacted by climate change, both through temperature and nutrient increases into the bay. That may increase *lyngbya*, the blue-green algae that is occurring in the bay. That would have a flow-on effect in decreasing the numbers of dugong and turtles, who feed on the sea grass. That would have another flow-on effect in terms of the subsistence lifestyle that Indigenous people have and the cultural values around those things. It is quite a complicated set of impacts. But our response to the climate change impacts needs to be complicated as well. We really need to consider all of those angles and look at what is appropriate for northern Australia. Would you like to ask any questions before I move on to Paul's information?

CHAIR—Before you go on with that, we will make the report an exhibit for the proceedings. Do you also have a written submission from Mr Gamblin?

Ms Vernes—I do.

CHAIR—We will also table that as an exhibit. You were suggesting that he may do a follow-up submission as well.

Ms Vernes—No, this would be his follow-up submission. He was going to email it directly to you.

Mr MURPHY—Thanks for your presentation. What would you nominate as the greatest environmental threat in this region as a consequence of global warming?

Ms Vernes—That is a big question. For me, the threat is the cumulative impacts. I probably cannot divide them out into one thing or another. As I said earlier, you might have sea level rise, but then you might also have storm surges or changes in the surface temperature of the water, which increases cyclones. For me, the cumulative impacts of climate change on the environment are the main things—if that answers your question.

CHAIR—Is it the wish of the committee that the submission from Mr Paul Gamblin be incorporated in the transcript of evidence? There being no objection, it is so ordered.

The submission read as follows—

Standing Committee on Climate Change, Water, Environment and the Arts

Broome, 27 August 2009

WWF-Australia

WWF is the world's largest independent conservation organisation. We have around five million supporters internationally, and a global network of more than 100 offices.

Our goal is to be science-based, economically responsible and socially acceptable. Our mission is to conserve the world's biodiversity, ensure sustainable use of renewable natural resources, and to curb pollution and excessive consumption and through all of this we try to work collaboratively, where possible, with communities, governments and companies.

In Australia our major priorities are

- To conserve the globally significant biodiversity found here, both places and species, with a focus on the policies, plans and strategies that underpin conservation delivery.
- To reduce the ecological footprint of Australians through a dual focus on our domestic consumption patterns and our interaction with international markets.
- To encourage Australia to be a strong supporter – politically and financially - of conservation and sustainable development in the Asia-Pacific region.
- And to encourage Australian people, business and government to make their voices heard on global environmental issues.

With respect specifically to the energy industry, a sector growing in size rapidly off the Kimberley, our basic premise and our vision for responsible energy companies is that they should:

- avoid areas of high conservation value
- take a positive role in tackling climate change
- go beyond compliance and achieve net economic, social and environmental benefit over the life of an operation.

Our vision for Governments with respect to this industry is that they should:

- minimise the total environmental footprint of the industry through planning, effective regulation and sustainable development policies
- set out a clear plan for major reductions in Australia's greenhouse gas emissions through appropriate, effective mechanisms.

There may have been some progress but there is still a very long way to go. For example, the approval this week of the expansion to the Gorgon development on Barrow Island - one of Australia's most important nature reserves - even in light of much better alternatives on the mainland, is of great concern to us. The impacts of the recent and ongoing oil spill from West Atlas is particularly topical too.

The message is that the footprint of the petroleum industry in this region is getting bigger, very rapidly. In combination with other pressures from other industries, and climate change, the globally unique and important coastal ecosystems are being put at very real cumulative risk.

WWF has a comprehensive set of positions on climate change mitigation and adaptation, as well as on coastal biodiversity conservation and the review of the EPBC Act. We would be very happy to provide input to this committee on these matters before it reports but in the comments today will focus on issues relevant to the Kimberley.

The main focus of this part of our commentary is LNG projects off the Kimberley coast and the challenge of responsibly developing the Browse Basin.

The Kimberley is one of the few true intact natural areas left on the planet. From a habitat perspective, the Kimberley and Pilbara coast and offshore ecosystems, have unique shelf edge coral atolls, complex extensive inshore fringing reefs, and rare halimeda bank reefs, which incidentally are in the vicinity of the oil spill.

From a species perspective, it is home to breeding areas for rare turtles, calving and nursery grounds for whales, and is home to the elusive snubfin dolphin and sawfish, among many others.

There are spectacular islands, free of weeds and feral animals. Incredibly, it is one of only two places place left in Australia yet to record the extinction of a mammal. Many of the islands are also fringed by diverse and healthy coral reefs.

It also seems to be a magnet for migratory marine creatures - a green turtle tagged by WWF on a beach in Sukamade national park in Indonesia, sped across the ditch and then spent the last eight months foraging off the Kimberley.

Add to the mix the likely role of regional ecological fluxes and flow and the picture of the biodiversity gets richer and deeper even at a global scale.

How climate change will affect these barely-understood processes is a crucial question. What we do know is that the sense of urgency for conservation has increased. We need to protect this region now, and we need to do a much better job.

The levels of marine and coastal protection in the Kimberley are low or none. You might like to read the submission that WWF and other conservation groups produced recently. This lays out 29 recommendations for addressing the serious deficiencies in conservation. Without a serious treatment of this issue, we will not deal adequately with climate change.

For WWF and for many others too, we acknowledge that the Kimberley is of immeasurable cultural significance both to its traditional owners and to the wider world. Its country; both land and sea are finally being realised for what they are - globally outstanding.

Part of WWF's vision for the Kimberley, is that the key natural and cultural values of the Kimberley will be identified through large scale planning processes and that these values will be protected.

For natural areas this protection can come in a range of mechanisms that must include networks of marine and terrestrial protected areas but this must be done in genuine partnership with Indigenous people.

Well-managed protected areas are the first line of defence against the impacts of climate change. Currently 0% of Kimberley state waters are protected and only a very small percentage of offshore, Commonwealth waters are.

Unless we fix this situation, this inertia will become a national embarrassment and will undermine our nation's aspirations to be a global leader in dealing with the threats from climate change. The oil and gas industry must take this seriously and commit to supporting networks of protected areas.

We recognise that Indigenous knowledge and management (such as through Indigenous Protected Areas) will be central to any discussion of protection of natural values and that healthy, resilient communities are a critical part of our long-term vision.

The challenges in the Kimberley are therefore to understand how the cultural and natural heritage of the region can be protected; to identify pathways for responsible development and to understand how that development can sustainably contribute to its communities.

Central to any vision for the Kimberley are the Traditional Owners of the Kimberley. Indigenous communities that today represent one of the world's oldest and most complex continuous living traditions.

It is important to recognize that many Kimberley communities face serious social disadvantage. Whether large-scale resource development should be part of the answer is being hotly debated. We are very concerned about the environmental impacts from these large developments.

Whether or not LNG is ever processed in the Kimberley, serious investment is urgently needed to provide support to these communities.

The Kimberley Land Council, working closely with WWF and other environmental groups, prepared a Joint Position Statement which identifies the stringent conditions that would underpin any consideration of gas development in the Kimberley.

It talks of the importance of broad assessment; of protecting natural and cultural values; of Traditional Owners being in a position to make informed decisions; of real economic benefits being delivered. You can read the statement by visiting wwf.org.au and following the Kimberley link.

Negotiating this statement required all sides to shift ground. There will always be points of difference between WWF and the KLC, as there will be with other organisations but we work hard to find common ground and this is one example of that.

We believe the KLC deserves credit for supporting the assessment of natural and cultural values in order to provide a framework for major decisions about development but we also believe that Pilbara options must be fully evaluated for LNG development of the Browse Basin.

Scientific research and conservation planning should happen before development proposals reach decision makers. Logically a system of parks, Indigenous Protected Areas and the like occurs first and becomes the backbone, around which development occurs.

Otherwise, development may be approved in an area that in hindsight should have been protected – no-one wants that to occur – it is the reason why we need to be precautionary.

This is not what is happening in the Kimberley-North Pilbara. The cart is still before the horse and no one knows with certainty which areas would be included in protected areas and meanwhile development proposals keep on coming.

Because of its marine and terrestrial importance, we had been keeping a watching brief on the Kimberley region for a number of years. Then about four years ago, with proposals - from companies like Woodside and Inpex - to develop Browse Basin gas fields, we saw the chance to call for things to be done differently, to call for a different approach and call for leadership.

Rather than the usual course of events, where individual proposals would be referred to government agencies for environmental impact assessment, conditions would be arrived at and approvals given, we wanted a project assessment system that not only assessed the impacts of individual projects but determined what the impacts of all likely projects in a particularly region were projected to be. Common sense in principle, though not a trivial exercise in practice.

We wanted decision makers to start by assessing the broad environmental and cultural values at a regional level and saw logic in the scope being the region between Karratha and Darwin.

We also thought that the assessment would also need to consider potential protected areas in this region - potential, because it still is largely a blank canvass with respect to coastal and marine conservation areas.

With proposals mounting and strong bidding for offshore acreage, we embarked on an intensive advocacy campaign around the need for a regional strategic assessment for the Kimberley-North Pilbara as we believed this would provide the greatest transparency for all. Without it, we'd be flying blind.

We very much welcomed the creation of the Northern Development Taskforce and worked through the taskforce's various committees, although we've always called for Pilbara options to be thoroughly assessed too and more work is still needed on that.

We also welcomed the announcement of the Joint State-Federal Strategic Assessment, which we feel marked an important new step in coordinating processes and provides the real possibility that certainty will be reached sooner, and with much more rigour.

In February last year, in the spirit of helping inform planning processes, WWF convened the largest workshop of its kind where scientists, the Kimberley Land Council, tourism experts and industry spent three days, here in Broome, mapping the natural values of the Kimberley North-Kimberley coast.

However we are now concerned that there is a risk that much of the intensive work that has been done by governments, Traditional Owners, industry (oil and gas, tourism and fishing) and conservation groups will not be used.

WWF has called for governments to protect the integrity of process and to invest in the last crucial phases of an environmental and cultural assessment of the Kimberley-Pilbara coast.

The real value is a strategic approach is that it can better flesh out options and more readily choose the best of them. This can increase certainty to industry and the community. However, it takes a lot of work and commitment to see through a strategic assessment and while good progress has been made, we've been concerned for sometime that the options have been narrowed prematurely here.

Pilbara options must be thoroughly analysed for the assessment to be strategic in more than name only. We urge all governments to keep all feasible options on the table until such time as the public evidence shows clearly that they are not worthy of further consideration. This is the only fair and honest approach to take.

The kind of process we describe here would take into account the cumulative environmental impacts of a variety of developments on the Kimberley-Pilbara coast as a whole and make clearer the opportunities for shared infrastructure, including sites for the geosequestration of greenhouse emissions.

This bigger picture analysis would identify the most precious natural and cultural areas which would be off-limits for industrial development; places like Scott Reef and large intact areas of the Kimberley-Pilbara coastline.

The challenge is now to extend these efforts to the work that only government can coordinate with perspectives across a range of projects and sectors and with a full range of public good considerations; social, environmental, economic.

There is enormous pressure for decisions about development to be made soon. WWF is determined that these decisions should be guided by scientific conservation planning and strategic assessment, alongside Aboriginal traditional knowledge, and rigorous, open debate.

WWF believes that the current review of the EPBC Act, among other things, needs to bolster the role of comprehensive regional strategic assessments. These assessments will never be the final word but can provide a much better overarching context for the community, government and industry to identify areas for protection and to more intelligently steer development.

As we see it, there is no alternative.

With respect to climate change and coastal policy, there are different levels of policy that can provide very useful levers to prepare for rapid change.

WWF is concerned about the lack of precaution in the application of coastal planning policies in many areas. In Western Australia, for example, the State's coastal planning policy does not have to be applied in all relevant circumstances, in our view, and when it is, the setback calculations for development do not yet adequately accommodate a provision for sea level rise in light of the scientific advice from the CSIRO and others in recent years. Given that so much critical habitat lies in that narrow contested strip between the waves, and urban and industrial infrastructure zones, it is vital there are wider buffers.

In this region for example, turtle nesting beaches will need space to move and in many cases that will mean moving inland of where they are now. It is prudent to take this into account when development is considered.

As this committee knows well, experience shows that it is just good sense to maintain a wide buffer between the moving coast and hard infrastructure. A missing element in this is often nature. The federal government could do a lot to help determine coastal areas that need better protection and could provide more guidance to state and local decision makers on creating wider natural areas so our coastal-dependent habitats and wildlife have a fighting chance now and in the future.

CHAIR—There are a couple of points that I might want to come back to in that submission.

Mr ZAPPIA—Thanks for your presentation. How long have you been up here?

Ms Vernes—I have been living in the Kimberley for about 12 years now.

Mr ZAPPIA—Have you noticed whether the local Kimberley community collectively is taking a much stronger stance in protecting what you have here or would you describe it as still being an area which has a large degree of apathy about climate change and the risks associated with it?

Ms Vernes—People's knowledge is increasing, but the apathy and the lack of the knowledge is still too high for my liking. People are beginning to understand that there may be an impact from climate change, but we do not see it put into any kind of action—certainly not in terms of planning. The information level needs to be higher.

Mr ZAPPIA—I will put it to you another way. We have today and yesterday heard from a number of groups, many of whom represent environmental groups broadly. I formed the impression—rightly or wrongly—that there is a strong environmental focus in the community out here. Why do you believe that you are not getting through to the rest of the community?

Ms Vernes—I guess I believe that the community might have that focus, but the decision makers are not taking it on board and they are not seeing it as serious or imminent enough. An example is the location of Broome airport and a new industrial complex, which is right on the edge of the Ramsar site. There has been no consideration to any buffer zones that may be needed in the future. Probably now it looks fine to them. But considering the low-lying level of that landscape, they have not taken climate change into account.

CHAIR—Mr Gamblin in his written submission talks about the proposal that came from your organisation about doing a regional strategic assessment for the whole Kimberley-North Pilbara area. Do you want to put on the *Hansard* record a little bit more about the thinking behind that?

Ms Vernes—I can start by saying that we supported the strategic assessment process, because there had not been—and I know that the other environmental groups talked about this this morning—a coordinated approach to development and industrialisation. I know that Paul has covered this, but one of the main points that we would make about the strategic assessment is that it started well but it was not seen through. We do not believe that it was seen through. The Pilbara options were not assessed in as great a detail as they were for the Kimberley. It was almost as if a decision was made prior to the end of the process. Paul goes into detail about other aspects of the strategic development. We still support the strategic assessment and see it as a positive step—if it can be carried through as it was intended to be, which means looking at all options and not making decisions before the process comes to an end; not pre-empting anything. The other things to take into account in terms of the strategic assessment are the protected area planning, the national heritage listing process for the northwest marine protected area that will be happening and Indigenous protected areas around the Kimberley coast. Those things must be considered as part of that overall planning assessment.

Dr WASHER—You said that there is a planned site near the airport that is going to be a large commercial or light industrial site. Wouldn't the state government need to be the planning authority for that? The state government would directly plan that.

Ms Vernes—Yes. I would imagine that the state government did the planning. The site has been located for the new airport and a new industrial site. But no other work has begun there yet; it has just been identified as an area.

Dr WASHER—Has there been any public consultation regarding this? Have the state people been up here? They obviously spoke to the local government. Did they talk to the community about that?

Ms Vernes—There has been some, yes. I do not know the extent of it, though, although there would have been some.

CHAIR—Tanya, thank you very much for appearing before the committee this afternoon. We will send you a copy of the transcript of evidence, and if there is any supplementary information

or material that would you would like to bring to the committee's attention please feel free to do so. Thank you for standing in for Mr Gamblin at the last minute. It was very generous of you to give up your time.

Ms Vernes—Thank you very much.

Proceedings suspended from 1.55 pm to 2.09 pm

MITCHELL, Mr Christopher Ralph, Private capacity

CHAIR—Mr Mitchell, thank you for your attendance at this public hearing. You would be aware that the Minister for the Environment, Heritage and the Arts and the Minister for Climate Change and Water have asked the committee to examine the environmental impacts of coastal population growth as well as the impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to sea level rise. The committee has also been asked to look at existing policies and programs related to coastal zone management, mechanisms to promote sustainable coastal communities and governance arrangements for the coastal zone.

Mr Mitchell—I am a shire councillor but I am not here representing the council today. I believe you have already spoken to the shire president. I represent a wildlife care organisation and just the community in general. I am a member of the Lions Club and am involved in a number of other organisations in Broome, so I suppose I am a community representative.

CHAIR—Although the committee does not require you to give evidence under oath, I should advise you that the hearings are legal proceedings of the parliament and warrant the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. I now invite you to make a brief opening statement before we proceed to questions and discussion.

Mr Mitchell—I am happy to just go to questions. I did not prepare an opening statement. I am more interested in the information the panel is after. I am happy to answer questions, if you wish.

CHAIR—We got a presentation yesterday from Councillor Campbell and Mr Butcher from the Shire of Broome. As I understand it, you are the deputy mayor of the shire.

Mr Mitchell—The deputy president.

CHAIR—But you are appearing in a personal capacity?

Mr Mitchell—That is correct.

CHAIR—I would be interested in your own take on the level of community understanding of the impact of climate change. We have heard from a range of local environmental organisations this morning. Is this an issue that is generating some interest and discussion in the community? For example, the Roebuck Bay Working Group presented this morning. They are a very active local community based organisation. How widespread is the engagement and discussion about these issues in the community?

Mr Mitchell—I think there is substantial discussion. I forgot to say that I have just taken over as chair of KNRM, which is the Kimberley Natural Resources Management group in the Kimberley. We are concerned about climate change through temperature extremes, managing fire—a lot of environmental issues. A lot of the community are concerned about climate change

and are looking at the mechanisms that could be put in place to ensure that climate change does not have detrimental effects on the local environment.

CHAIR—As chair of KNRM, is there much interaction between that body and the Shire of Broome? What we are finding in other parts of Australia is that there is sometimes a disconnect between the considerations of both bodies.

Mr Mitchell—The previous chair actually attended all the Kimberley zone meetings, which is the four shire councils in the Kimberley, and reported to those shires on issues affecting the Kimberley, mainly in relation to eco-fire and the range lands issues, like weed control, feral animal control, water management. Water is a big issue. There are a number of projects or areas that we would like to see more involvement in. Currently the Commonwealth has identified other priorities than eco-fire and other environmental issues. A lot of the priorities are going towards weed control through the Kimberley. We feel that the government should be looking at the great picture. Eco-fire is a massive concern in the Kimberley, and that it is to do with wildfire and things like that. We need proper management in place. With climate change, temperature extremes and water shortages, there will be substantial problems facing us. Some of the towns are having trouble expanding due to water restrictions. Halls Creek is a classic example. They have been told: 'We don't want you to expand anymore until we sort out where the water is going to come from.' A lot of people are not really aware of the water issues affecting the Kimberley, even though it appears, if you fly over the Kimberley, that we have substantial water supplies.

Dr WASHER—One of the things is that fire is fascinating. I don't remember flying up to this part of the world and seeing smoke clouds everywhere. When you say 'ecofire', do you mean fires that are started at random, by lightning et cetera? What is ecofire?

Mr Mitchell—Ecofire is more about controlled burning and ensuring the environment does not suffer through wildfire burning. By having controlled burns annually in different areas, you can control the amount of fuel out in the wilderness for when you do have a lightning strike. We do get a lot of lightning strike fires, but there are also a lot of fires that are probably started by human intervention, which burns out the Kimberley. By having controlled burns in areas, you can actually control how much of the area will get burnt at any one time, and by reducing the fuels you can try to make sure you are not going to have the extreme wildfires that we have, which virtually ruin the environment. They scar the environment to the point where it takes substantial time to regenerate.

Dr WASHER—You said these four shires meet on a regular basis. Basically, what is their policy? How often do you burn, or is it on a case-by-case basis, area by area? What is the policy in place?

Mr Mitchell—The organisations involved are the NRM, the DEC—Department of Environment and Conservation—and FESA. They have a policy in place. They are working with station owners. Not all station owners are involved. It is more of a voluntary type situation with the station owners, and we are encouraging more station owners to get involved so that we can do proper controlled burns in areas. Some stations just do their own burns, but unless it is really well controlled you have the chance of fires getting out of control and continuing on to other people's pastoral properties and things like that. It is more the DEC and FESA that are driving

the fire management, with Rangelands, but the shires are involved as to where the burns are going to be and if there are issues close to some of the towns and communities.

Mr MURPHY—Apart from fires, what are some of the other serious potential impacts of climate change on the coastal community of the Broome shire?

Mr Mitchell—I am led to believe that, if climate change increases water levels, the tides will rise, so you will end up having localised flooding. More specifically in cyclone times you might have an increase in flooding. Even two or three centimetres of tidal rise is going to have some impact on areas, so it is one of those issues that we are all concerned about. Even though most people have built in areas where we are not expecting floods, some areas can get inundated. The last thing we need is to see rising sea levels affecting the local communities.

Mr MURPHY—What sorts of plans do you have in the event of storm surges or cyclones?

Mr Mitchell—The local emergency management committee has regular meetings. We have tabletop exercises and things like that to address those issues. There is a tsunami plan already in place and we are working on other plans, I suppose you would say, in respect of that sort of stuff. Every time we have a cyclone, we have to worry about whether there could be a tidal surge or flooding. We have plans in place and we have maps, so we do know what areas could be inundated by flood, but we have not had it happen yet. We are very mindful of it and we want to ensure it does not occur, and that is why it is imperative that residential buildings are not put in areas of risk. Even though there are areas which you would say could be subject to one-in-100-year floods, I suppose you have to weigh up the odds on that. If you did that with most of Australia, you probably would not build in a lot of places. You have to be mindful of all those issues.

Mr DREYFUS—How long have you been on the council?

Mr Mitchell—So far, it has been 17 years.

Mr DREYFUS—Congratulations. That is a long length of service.

Mr Mitchell—I know. It amazes me sometimes.

Mr DREYFUS—But it is good because it means you are in a position to comment on what I am about to ask you about. I wanted you to comment on the level of involvement of each of the three spheres of government in relation to coastal management. To take each in turn, is local government, particularly the shire of Broome, which you are a councillor of, taking action in respect of planning controls for Broome in relation to possible climate change impacts. I am not asking you to speak on behalf of council; I am asking you to give us some observations about what is occurring.

Mr Mitchell—I fully believe that we are looking at those issues. We make sure that future developments should not be impacted by climate change or flooding and things like that. It is something that the council has taken on board and is mindful of. I am dead sure we are going to ensure that new subdivisions are not released where there is more chance of flooding, even just through the normal wet season floods or a tidal surge. That is our biggest problem with a

cyclone. Most times that we get a close cyclone it is usually at night time and it is usually on the top of a king tide or a full spring tide, which means that the tide is going to be at the highest level along the coastline. Usually there is the possibility of a one or two metre tidal surge on top of that if the cyclone comes into the town. We have been very fortunate. The last one we had was Cyclone Rosita. We expected about a metre or a metre and a half tidal surge and it did not eventuate. That saved a lot of problems because we would have found out what areas do get flooded. Also, our drainage system along the foreshore has been improved, so it should stop a lot of the high tides coming into the town. It allows for substantial drainage during the wet.

Mr DREYFUS—What about the state government? Do you think the state government has been providing the guidance or assistance that you would be looking for in the area of managing the coast?

Mr Mitchell—We just had a LandCorp forum last week on Broome North, which is our new subdivision of about 3,000 blocks. There was substantial community input into that. From the way it all worked well, I believe the state government is ensuring that that is taken on board. But it is a matter of getting all the respective agencies involved and talking to each other as well—the likes of DEC, LandCorp, the water authority and even Horizon Energy and all those sorts of agencies. Some of them will want to put things in certain areas and others will say, ‘No, we are going to put it over there.’ So it is a matter of them all working together.

Mr DREYFUS—Lastly, what would you be looking for, if anything, from the federal government in terms of managing the coast?

Mr Mitchell—Probably, strong leadership direction, an input into what can and cannot be done and their getting feedback from local people about the issues. There is a perception, especially up here, that we are so remote from everywhere else that if you do talk to people in Canberra we are often likened to a northern suburb of Perth. Then when you say that we are 2,000 kilometres it is like, ‘Oh, okay.’ It is frustrating. Our remoteness and isolation is our biggest issue. We are so far from everywhere else. We are actually closer to Asia than to Perth and Sydney and places like that. I think it is a matter of the substantial powers realising where we are what the effects of that can be here. That is the case especially with floods during the wet season because a lot of the country is isolated. You cannot get into a lot of the areas during the wet season. Isolated communities have to be supplied by helicopter.

One of our biggest issues is that there is something like 290-odd Aboriginal communities all through the Kimberley. They do not seem to be getting any less; they seem to be increasing and they are all expecting certain infrastructure from local, state and federal government. It is a matter of the state and federal government recognising what is an actual community, and that is one of the issues we have faced of late. The state recognises a community as something like 500 people, but most of these 200-odd communities are probably 20 or 30 people, yet they all expect power, water, roads and all that sort of stuff. There is no money available and there needs to be some sort of—not government intervention, but something to say: ‘Look, the major communities are the communities. If you want to live in an outstation with a house, you’re not going to get roads supplied and things like that.’ Government needs to address those issues because all of those people are expecting services and it usually falls back on local government, even though local government is not funded to service any of the Indigenous communities.

Mr DREYFUS—We were told by some other people who have come before the committee today that quite a lot of those small Aboriginal communities are along the coast.

Mr Mitchell—That is correct. A lot of them are one- or two-family communities, they are not big communities. A lot of them are trying to get into ecotourism type ventures. Through the emergency management committee, we are trying to come up with a risk management plan for the whole of the Shire of Broome at this stage so we can address what resources are required by all of those communities in case of flood, fire or other emergencies. Fire is one of the biggest risks. We had a house fire up at Beagle Bay late last year. It took two hours for the local bushfire group from here to get there, so by the time they got there the house was gone. Through FESA and DEC, they are looking at ranger systems where the young people are trained as rangers in all sorts of areas—fire management, emergency management, even tourist access and things like that. That is a positive thing that is happening. There is a lot of work to be done on it, but, again, it also comes back to the amount of money available to implement those programs.

Fisheries are involved in a program at One Arm Point, which is on the top of the Dampier Peninsula. That was a joint project with Customs and Fisheries to do a sea ranger program to do patrols all through that King Sound and outer coastal area. They were actually doing other work for other agencies, like stopping introduced species and things like that for the ag department and monitoring of turtles for DEC. So there are a lot of things they can be doing, but it is a matter of funding. That is the biggest issue. And training. The training is there, it is available, but it is not something you can just set up overnight.

We had a really excellent program happening last year. It was a horticultural project through the TAFE and the ag department, which got a lot of the Aboriginal people involved in setting up community—more so to do with gubinge plantations, which is a plant that produces a really high amount of vitamin C. They went for a couple of years to help them get set up, and just as they were getting set up the funding was stopped and the whole program has now fallen over. The biggest issue in the Kimberley region is this: there is always money available for training, but there is no money there for ongoing support and mentoring. Without that, most of them are set up to fail straight away because you cannot just train them and say, 'There it is there, go and do it.' Once you walk away, it just falls over. That is a big issue, providing ongoing support and mentoring until they are at the stage where they are self-sustaining.

Mr DREYFUS—Just on these coastal communities that are in the shire, what services is the Shire of Broome able to provide to a one- or two-family community?

Mr Mitchell—Very little. Djaradjung-Lombadina has a police post; Bidyadanga has a police post. We are working closely with both of those to set up a subcommittee for emergency management. So if a cyclone is coming, those subcommittees can ensure that all of the outstations are advised of what is going on, so there is open communication. The biggest problem is communications. We cannot get up to the peninsula in under two or three hours, unless you get a helicopter or something, so to try to warn all of those people through the coastal settlements is pretty hard, so we have to ensure that the main communities have the ability to advise the small outstations. One of the issues though is there is a great amount of movement between those outstations and town all of the time. Unfortunately, some people liken them to the beach holiday shack. They are in town for the week and they go there for the weekend, so it is

not really a community as such. But the major communities, there are always people there, and most of those are going very well.

Mr ZAPPIA—Mr Mitchell, we heard yesterday that the population of Broome has increased quite dramatically over the past decade or so. In your opinion, as someone who is obviously very familiar with this region, do you expect the population to continue to increase? If so, what do you think are the drivers in creating that increase?

Mr Mitchell—Firstly, I believe the population will increase. We know already that the population numbers reported by the bureau's census were not correct. A lot of the Kimberley population was not recorded. I believe it could be out by somewhere up to 20 per cent. The figures are slightly misreported. With the resources industries happening in the Kimberley region, the population will expand. With the Ord stage 2 and \$400-odd million happening up there, the population in Kununurra is going to expand considerably. With the proposed LNG plant happening up the coast from Broome, that will have a major impact on Broome and that is why the shire is working at further land releases so that we have the potential to address the need for accommodation. The last thing we want to do here is follow the same mistakes that have happened elsewhere, and that is why the state government is doing a social impact study on Broome already so that if and when the LNG plant goes ahead we will be able to cover those areas of concern.

One of the big issues up here is the FIFO—fly-in fly-out. Government seems to support FIFO, but it is one of the biggest impacts on community that is around at the moment. Most of those people live in a city or an outer suburb of a city. They fly in, they work at a mine site for two weeks, four weeks or whatever, so while they are away from home that community suffers by not having those people around to be involved in community. They are not living in the community up here, so they are not having any positive impact on our community—they are not buying products or things from the towns—and it is increasing the rental values of properties because some of those people want to stay here all of the time, so they see that as an investment. To get infrastructure, you need to have population. But to have population, you need infrastructure. It is a catch-22 situation. We talk to the resource industry companies and say, 'Why don't you move your people here', and they say, 'You haven't got the infrastructure'. You talk to government and say, 'We need the infrastructure', and they say, 'You haven't got the population'. You cannot win. It is one of those chicken and the egg syndromes, so what do you do? We are planning for that, and that is where this Broome North will help out a lot as well as the future relocation of the airport and things like that.

The shire is mindful of the impacts of what probably will happen with the LNG happening as well. Our concerns are that with some of the other resource industries that are happening in the Kimberley that there is potential to have a second port somewhere in the area where some of this resource product will be shipped from. We are concerned they might set up another port, which will then have an impact on Broome or Wyndham. Derby has problems because it is a tidal port and you cannot come alongside 24 hours a day, whereas you can at Broome and Wyndham. But there has been speculation about another port to ship coal out and things like that.

Mr ZAPPIA—I want to follow up on the FIFO population. Can you put an estimate on what percentage of your population that would represent?

Mr Mitchell—No-one is able to give us that. We have asked for figures like that. When the LNG plant goes ahead, they are talking about a setup crew of about 3,000 workers. To start with, they are saying that most of those people will fly in and live on a camp set up near the proposed site so they can build the plant. There is potential for locals to be involved, but I do not think they have worked out whether people are going to live on site or travel back and forth to Broome and things like that if locals want to be involved.

Mr ZAPPIA—But that is a new plant, I am talking about currently.

Mr Mitchell—Currently it is really hard to say. I know the airport is experiencing vast increases in the number of planes coming in every day, but most of those are going out to the rigs and stuff like that. We have something like seven helicopters out there now, which are constantly transporting crew back and forth. It is increasing all the time. One of the worries for the town is the location of the airport. The town has expanded, there is an increased amount of traffic coming in all of the time, and with the increase in the number of flights and stuff like that then you have the potential of some sort of air accident where, if it comes down on Chinatown, we do not have the resources to handle an emergency like that. They are things we do worry about. The future is to relocate the airport just out of town, but that is all part of this Broome North proposal.

CHAIR—Thank you very much, Mr Mitchell, for attending the hearing today. The secretariat will send you a copy of the transcript for any corrections that need to be made, and I would be grateful if you could also send on any additional material that you have undertaken to provide us with as soon as possible.

Resolved (on motion by **Dr Washer**, seconded by **Mr Murphy**):

That, pursuant to the power conferred by paragraph (o) of sessional order 28B, this committee authorises publication of the evidence given before it at a public hearing this day.

Committee adjourned at 2.37 pm