



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

**HOUSE OF
REPRESENTATIVES**

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

Reference: Climate change and environmental impacts on coastal communities

WEDNESDAY, 20 AUGUST 2008

DARWIN

BY AUTHORITY OF THE HOUSE OF REPRESENTATIVES

INTERNET

Hansard transcripts of public hearings are made available on the internet when authorised by the committee.

The internet address is:

<http://www.aph.gov.au/hansard>

To search the parliamentary database, go to:

<http://parlinfoweb.aph.gov.au>

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

Wednesday, 20 August 2008

Members: Ms George (*Chair*), Dr Washer (*Deputy Chair*), Mr John Cobb, Mrs D’Ath, Mr Dreyfus, Mrs Irwin, Ms Livermore, Mr Scott, Mr Wood and Mr Zappia

Members in attendance: Ms George, Mrs Irwin, Ms Livermore, 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.

WITNESSES

CLINCH, Miss Margaret Anna, Private capacity.....	1
FRASER, Mr Jim, Waste and Environment Officer, Local Government Association of the Northern Territory.....	8
HANSLOW, Mr David, Coastal Management Officer, Land and Sea Management Unit, Torres Strait Regional Authority	15
MACKIE, Mr Walter, Member for Iama Island and Portfolio Member for Health and Environment, Torres Strait Regional Authority	15
McLINDEN, Mr Peter, Manager, Transport and Infrastructure Services, Local Government Association of the Northern Territory	8

Committee met at 10.47 am**CLINCH, Miss Margaret Anna, Private capacity**

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 you all here today. The committee is inquiring into climate change and environmental impacts on coastal communities. This hearing is open to the public and a transcript of what is said will be placed on the committee's website. I welcome in particular Miss Margaret Clinch. Margaret's submission was the first received by the committee. When we knew we were coming to the Northern Territory it was appropriate that we invited Margaret to attend this public hearing. Margaret, do you have any comments to make on the capacity in which you appear?

Miss Clinch—I am appearing today as an individual, but I have been associated for a long time and have been—and will be again, I am sure—the convenor of PAn, the Planning Action Network Inc. I am appearing as an individual because of the lack of time to consult with the group, which is appropriate if you are speaking for them.

CHAIR—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. The committee has received your submission and it has been authorised for publication. I invite you to make a brief opening statement if you so wish before we proceed to questions and discussion.

Miss Clinch—I wrote that submission on 30 March when I was in the throes of getting ready to go to England for two months. That is why it was written in such a timely fashion. I have brought along two maps today because I realise that as you travel around it is very difficult to know all of the places that you are visiting.

A map was then shown—

Miss Clinch—This is a map of Darwin. You can see that it clings to the sea. This is the outside and this is a small part of our inner harbour. This is the CBD down here, and this is approximately where we are now. That is where you were yesterday at the convention centre. You can see that we have a large amount of mangroves. This picture does not cover all of the harbour, but we have a large amount of mangroves. In fact, this map is rather deceptive because it takes the outline of the outside of the mangroves, but very often the area is tidal. This area here, for instance, is clearly only tidal and the amount of land is very small. This is very significant over here. This is Wickham Point, where the LNG plant is. That is the jetty. This is the plant. This is the East Arm Port.

Where you were yesterday was the old port, and that has been mothballed and is now mainly used for recreation, apartments, the convention centre and so on. This is the East Arm Port, which has been filled to present that elongated piece of land, which is all fill. Over here is Wickham Point, which is where the LNG plant is now. So you can see that these areas are very much interspersed with mangroves. This area here is Blaydin Point, which is where it has been proposed to put the new Inpex plant.

CHAIR—What is there at the moment, where the plant will go, Margaret?

Miss Clinch—There is nothing there at the moment—it is natural. You probably cannot see it from there but there is a shape of land there, which is land, and this area is mangroves—these, these and these are mangroves. It is all very much part of our harbour.

Dr WASHER—The new plant is an LNG plant too—Inpex? That is a new LNG plant, is it?

Miss Clinch—Yes it is.

Dr WASHER—So it is going to be very similar to the one you have got—just a different company is going to own this on that point?

Miss Clinch—Yes.

Dr WASHER—Why the fill? That was a dredge fill, was it? Regarding the fill back then, coming halfway across, why did they fill that part there, in the south?

Miss Clinch—This is the harbour, as you can see. This is the mouth of the Elizabeth River that goes up to Palmerston. Why the fill? The Stokes Hill Wharf is an extension wharf and the Fort Hill Wharf was an extension wharf as well. The problem with the old port was that it did not have good access to ground at the back of the port. There was a report done in 1924, or around that time, that brought up that difficulty. So they moved to put the port over here because it has a capacity for being bigger, and you can see that they have done a lot of landfill here which assists in the working of the port. If you do not have land, you just have to unload and take things somewhere else, which means double handling. So that is why that fill was put there.

There were islands there. That is as it is now. This picture, incidentally, is probably a few years old, but that is basically the idea of the port. Palmerston is there. The northern suburbs are here. Nightcliff is here. The airport sits right in the middle of all of it. While I am in this area, this is lowland along here; that is a coastal plain—it is low along here. You can see by the drainage patterns that it is extremely swampy over here. This is an unused area which belongs to the Commonwealth. Down at the back there is also a lot of swampy area. Up here at the back of Leanyer there is also a swampy area, which is very prone to biting insects.

Mrs IRWIN—Can you just point out where the casino is, because I note in your submission that you talked about the tidal surge zone and I think you might have concerns about the seawall. Could you tell us a little about the seawall and how effective it is? Firstly, just show us where the casino is and then you might be able to answer that question.

Miss Clinch—This whole area is an original coastal plain. It was set aside for recreation in the old days and it is where the Mindil Beach markets are. The casino is about there. It is actually raised up on a pediment and there is a wall that runs along the front down to this end of Mindil Beach. Cullen Bay, which is an artificial harbour, is there. Over here we have Bayview, a canal estate which has gone right into the mangroves. They are two areas which, with Little Mindil, we are very concerned about as far as storm damage and tidal surge are concerned. As you can see, it is very low and, although they have walls, everybody is very affected by what happened in New Orleans where the walls gave way even though they had been built by

engineers. Part of that, which is relevant for Cullen Bay and Bayview, is the fact that there is water inside. The water seems to add to the surge as it goes. This also applies to the waterfront project. It also has a wall.

CHAIR—How high is that wall, Margaret?

Miss Clinch—I have it in my notes here. It is 5.5 metres for the wall—that is the wall around the marina—and it is 4.5 metres for the lock, so the lock is lower, which would be particularly vulnerable.

Mrs IRWIN—I think you also said in your submission that, especially where the casino is, the seawall has been repaired on a number of occasions. Would you say it is effective?

Miss Clinch—We have talked to people in the department about that. We had a session and we had people come from the department, which is called NRETA here—natural resources. They have been monitoring Mindil Beach for a very long time. They say it is continual deposition and erosion. It is going on all the time and they cannot put a finger on it; it is just going on all the time. We have photographs. We had an issue down here at Little Mindil, which is extremely low. It has a foredune, which is high, but that does not cover the whole distance; it is very low. The government has just sold that to the casino on the condition that it remains an outside entertainment area and is not to be built on for residential use. We have photographs from last year and the year before of very big wave action there. Also, the high school is up here and two years ago at this end of the beach there was a whole lot of destruction of recreational things—the little fences and that sort of thing. They were crushed by the power of the storms in the wet season.

One of the problems that worries me is that big companies tend to work on risk management. They might have a list of risks but they do not always take care of all of the risks, and some of the risks just remain risks. It does affect insurance as well. You only have to remember that we have cyclones here every 30 years: 1897, 1937 and 1974. We are overdue for one. You only have to remember the havoc of 1974 to acknowledge that it is not the sort of risk that you take.

While we are at the picture answering questions, the plant on the end of Wickham Point is actually on solid ground. The Inpex plant would be on relatively solid ground—although, if they come here, they think they are going to have to put huge pylons down. I am sorry the map does not show it, but the road out goes directly across mangroves on both sides. If you had a disaster there, it would be a real disaster because you would not be able to get people in or out. But that is probably the sort of risk that employers would worry about.

CHAIR—There is only one road in?

Miss Clinch—It is the same road. I have actually got a photograph of it here. You can see that when the mangroves drain with the tides they may drain two ways at different times. I have a picture of the road for Wickham Point going across a little rivulet and that goes both ways when the tides are going in and out of the mangroves. The road going over the mangroves would certainly apply with the Inpex plant, if it went on Blaydin Point.

Ms LIVERMORE—In your submission you talked about the Darwin Harbour Management Plan that seems to have been in the works for many years. Can you tell us a bit about that, where it is up to and why you think it is taking so long to be developed?

Miss Clinch—I do not mind either way, thank you very much. If you think you will need the map again I am happy to stand up here again.

CHAIR—Are there any more questions about the map?

Mrs IRWIN—No, I do not think so.

CHAIR—Do you want to outline anything on the storm surge map? Maybe we will do that first, Margaret; we have got another 10 minutes.

Miss Clinch—I have just bought this map and it shows primary and secondary surge zone areas in Darwin. You can see that these dark blue areas do encroach considerably into what is real land, not mangroves. It happens up here too; this is Lee Point. These are areas we really need to be concerned about, particularly the ones where there are dense populations. As I said, it is no joke when you do have a storm surge. We have not had one here yet; we have had cyclones. You have seen tsunamis and that sort of thing, and it is something that we cannot disregard.

Mrs IRWIN—For the public record, can you please name those places with big populations that you have concerns about?

Miss Clinch—There is a new area up here which is being filled in. It is Tipperary Waters. It is a new building estate and also has a lock. It is much smaller than the others, but that is blue—residential. There is a blue area on the map here, but that is more industrial. If it went further across the road, it would be housing, but it is low industrial down there. I am concerned about this area on the map here, which is the waterfront, where they are putting tall buildings. What they are doing with the tall buildings, which are apartments, is saying, ‘Well, we’ll leave the bottom floor for commercial so there will be nobody asleep in there.’ But you would have noticed yesterday that the road access to that waterfront area is very poor. There are going to be huge populations down there as well.

On this side of the map, too, there is going to be a tall tower. That is mainly commercial there. This area here, as I indicated to you before, is mainly recreational, except for the casino, which is on the map there. The casino is building an extension of its hotel on the opposite side of the road. Having won the Little Mindil site, it is going to build on its own site with the hotel, but that is still blue there. Vestey's Beach is recreational. These are mangroves up here. This is Nightcliff. There is an area there that is filled in and an area around the corner that is residential. There is a little bit of residential here at the mouth of Rapid Creek. That is quite high standard residential along there. There is quite a lot of area that is in blue on the map. You are welcome to have a look; where there are little blocks, that is where houses are.

CHAIR—Could you address the question that Kirsten asked about the Darwin Harbour Management Plan?

Miss Clinch—I do not want to be disrespectful to any form of government, but this a democracy and I feel able to speak clearly. I have been working for 15 years with friends, with this group, to try to keep a balance in development, which of course is closely related to climate change implications. In about 1984, the Territory government started an interdepartmental committee to produce a plan of management for Darwin Harbour. We work very hard at it. We all provide information and we all provide evidence. More recently, there was a Darwin Harbour Advisory Committee established. The staff of that worked very hard and gathered information. It has produced a policy document in recent years, but the policy document has no teeth and is not effective. It is not actually a management document. In fact, just last week the chairman of the Darwin Harbour Advisory Committee resigned. Two members have previously resigned. They are just completely discontented about the amount of work that has gone into it. Every time it comes close to the crunch, we go around another loop and start again. That has been going since 1984, and people are just exhausted with the effort and sad that nothing has come of it. I am part of the Save Darwin Harbour Group, which is now asking for a proper Darwin Harbour Authority with teeth, not an advisory group but an authority that will make decisions to protect the harbour.

We have gone on and on. We have had percentages of mangroves to be saved. That has gone by the board. This is a repeating theme in planning in the Northern Territory, unfortunately, and particularly for Darwin. Unless there is a clause in the planning act and a clause in the planning scheme as well, and that is quantified and nailed down, there is no way you can prevent developments happening. It will not and it will be bad for the harbour.

Ms LIVERMORE—Are you aware of any instances where your group or other groups have made application under the Environment Protection and Biodiversity Conservation Act? Has that ever come into play in any of these developments?

Miss Clinch—I am sure that colleagues at the Environment Centre in the Save Darwin Harbour Group have done that. We have certainly contributed to EISs. But when we contribute to EISs which are state and territory ones, we never see the results. They never seem to do what we want them to do, and the results of the management processes are not published, so we never know what the outcome has been. It applies also to the waterfront project, which we supported to a great extent. But when we found that it came to the Development Consent Authority and it had a different set of processes applied to it, we were disappointed about that too. I want to reinforce that we are earnest citizens and we try hard, but it just goes on and on because there is such a development imperative here.

CHAIR—My understanding is that here, unlike other states, there is no possibility for third-party intervention through the legal process. For example, in my state of New South Wales people can take a case to the Land and Environment Court about a particular development or can attempt to, but it does not apply here.

Miss Clinch—Under the planning act there is no third-party appeal unless it is in a residential neighbourhood in an area in which you are affected and you have already objected in the first place. We cannot object to anything that is in the CBD, for instance. We cannot object on rural lots. It was sort of a giving and a taking away. What we really need here is an Administrative Appeals Tribunal, which we do not have. We go to the Ombudsman, but the Ombudsman declares that because the Development Consent Authority is an instrument, an authority and not

a department, they cannot have any sway in the decisions that are made. This leaves us very much up the creek without a paddle.

CHAIR—You seem to suggest in your submission that the EPA—I think it is called the EPA here—is not a genuinely independent statutory body. Could you elaborate on that?

Miss Clinch—This has the same hairy story to it. When the ALP government was elected in 2001, at the end of 2001 or early 2002 one of the ministers promised an EPA, an environment protection authority, which we thought would be the independent group to assess various of these projects. That went through an investigatory stage for many years. Then last year, I think, they said, ‘We have an EPA now and its first task is to work out what it should do.’ In other words, we went right around the loop again. This was after four or five years. We do not know what it is, because it has not actually said what it is yet. It is certainly not of the type you would find in New South Wales and Victoria, that you could rely on as an independent authority for assessment of the environment.

One of the things that I would also like to stress is that you need to look not only at the natural environment but also at the social environment and the long-term economic impact of what you do. And what they are inclined to do here is just look at the short-term economic benefit. Last night I watched a *Four Corners* show on Port Hedland. I guess none of you would have been able to watch that. It was all about Port Hedland, the mining boom and the wonderful ore that was being exported and how the town had suffered rather than being at an advantage for having all that ore going out. That is what we have to watch. We have to watch out that if we have big industries, they have to benefit the local community. We cannot just talk about revenue that we never benefit from.

CHAIR—Are you aware of any developments, policy wise, by the government in terms of incorporating issues to do with climate change in their planning structures? Is there any thought being given to how high the sea level might rise and what implications that might have, the impact of storm surges, hurricanes, cyclones?

Miss Clinch—There is a storm surge clause in the objectives of the planning scheme but that is in the objectives. In the planning act there is a preamble which talks about the environment, but, so far as I am aware, there is nothing in any of the regulatory documents to protect. Apart from that, there is often mention of the environment. We have very strong environmental groups here, very active groups, but the government is inclined to issue media releases without following up. We did have an engineer last year concerned that we should be moving to force 5 cyclone protections instead of force 4, which we have at the moment, and he was more or less shouted down at a public forum for even mentioning it. I know there are good staff in the departments but I wish I could say that we were on the right track.

Dr WASHER—A storm surge: what sort of wave size are you talking about? What is the definition of a storm surge that will take that amount of country out? What sort of wave pattern would you have or height?

Miss Clinch—I do not know about height. I understand that a storm surge is caused by a lowering of the pressure on the sea which makes it rise. Our tides are normally eight metre tides from a base and they can, on occasion in cycles, go up to 8.4 metres. So if you have a 6.5 metre

wall, it is not going to do much in that circumstance. And, of course, once it is breached, it is breached. I am not an environmental expert; I am more a residential person. I am very concerned about health. One of the things about rising sea levels is that, in a tropical climate, the biting insects will increase. So if you are living low down, you are likely to become a victim of biting insects. There are serious tropical diseases that we occasionally get here.

Mr ZAPPIA—Is the Darwin City Council a friend or not to your group? In other words, do you generally have the same views and are they supportive of the actions you take?

Miss Clinch—Darwin City Council, for the last three years, has done magnificent work with a plan of management for the environment and Angelika Hesse has done a fantastic job with lots of public consultation. They have a good knowledge of the area. In most instances, we would be on the same side. We have some differences about the CBD and the heights of buildings and things like that. I saw the new town clerk yesterday and I assured him that we would support them in having a larger role in planning because at the moment all they can deal with is drainage, traffic and parking. That is the only influence they have at the DCA—drainage, traffic and parking. They have their own planning people and they should have a more normal role.

Mrs IRWIN—In your submission, Margaret, and you have also just stated for the public record your concerns that the old port waterfront project is almost at sea level. You went on to state that no residences are permitted at ground level. You are concerned that there is only one exit road for hundreds, possibly thousands, of people; concerned about the convention centre because it is very low-lying, which is stated in your submission; and also concerned about how people would escape in that particular area with a storm surge or deluge flooding. Are you aware or do you know if there is a disaster and emergency management plan for that particular area?

Miss Clinch—I must correct myself a little bit, as there are actually two roads. There is the main road that comes in, then there is a tiny little road that is very steep and only wide enough to go up at the other end—it is a historic road. Am I aware of a plan? No. Because of the way the project is being built, it is out of the hands of Darwin City Council, so I do not know. The information comes out on the website. If it is not on the website, you really do not know. We have other concerns about it as well. One of the difficulties is that the major projects are managed by a different part of the government than the normal planning structure, so you may have to ask in one place first and then in another. It is an exceptional case and you do not quite know what rules they are following.

CHAIR—Thank you very much for coming along. The secretariat will send you a copy of the transcript. I would be grateful if you sent the secretariat as soon as practicable any additional material you think would be of benefit to the committee. Thank you very much for taking the time to send in your written submission and for following it up by being here today. As I indicated earlier, it was the first submission we received. We have now received well over 100. It was very encouraging to hear from you.

Miss Clinch—Thank you very much.

[11.21 am]

FRASER, Mr Jim, Waste and Environment Officer, Local Government Association of the Northern Territory

McLINDEN, Mr Peter, Manager, Transport and Infrastructure Services, Local Government Association of the Northern Territory

CHAIR—Welcome. Although the committee does not require you to give evidence under oath, I advise you that these 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 invite you to make a brief opening statement. Because we do not have a written submission from you, please give us a brief outline of the role of the Local Government Association of the Northern Territory and the kinds of functions that you perform.

Mr McLinden—Thank you very much for this opportunity. I realise we have not put in a formal submission but the association did have input, with the other state associations throughout Australia, into the ALGA submission. We support the submission that they have put before the committee, but I would add that they have taken an eastern states, populist point of view. Once again, thank you for the opportunity to give a remote perspective on it.

A quick overview of the association: we are the peak body of local government in the Northern Territory and represent elected members. We are going through significant reform and amalgamations at this point in time. As of 1 July, 61 councils became 16, a significant restructuring of local government. Previous to 1 July, there were unincorporated lands that were not covered by local government in the Northern Territory. That has been taken up through this reform process, although there was a political move earlier on where there was excision of some lands, but we will work through that in the political environment. Local government is going through significant change. As part of that reform process the Northern Territory government, to ensure service delivery, identified core services that local governments have to deliver, and there have been significant changes. Local government now takes in emergency management and has a bigger role in the environment.

As the peak body, we have a number of hats. We are a little bit different from the other states in that we have a very hands-on role because of our members' needs and requirements. We provide program delivery for a number of Australian government and Northern Territory government agencies and we have a lobbying and advocacy role on behalf of local government. As Margaret mentioned previously, we are a little different in the Northern Territory—you probably hear this from every other state, too—in that local government has no legislative planning control. There is some frustration with that process, certainly in the urban areas of Palmerston, Darwin and Litchfield. Some people might think it is the right way to go, given the population and the lack of numbers up here.

I would like to touch on the impact in the more remote areas of Northern Australia—and probably parts of Queensland and Western Australia are left out of the equation. With the

amalgamations there are 10 councils where rising sea levels and climate change will have a direct impact on coastal areas. A number of these communities are very vulnerable even at this time, without the predicted increases in sea level. As much as these communities are vulnerable, they are also very resilient. They go through this on a yearly basis even now. A number of the East Arnhem and West Arnhem areas are isolated for six months of the year. They have no road access. The only access is through barges and airports. They are resilient in the sense that they have some local solutions to local problems. But the concern for local government is the impact of the rise in sea levels on infrastructure—airports, roads and intermodal accessibility between barge landings and the communities.

I will finalise my comments and then hand over to my colleague, who is a bit more technically savvy than I am when it comes to the environment. There are a number of policies that have impacted on the sustainability of remote areas in the Northern Territory—for example, the homelands movement, whereby Aboriginal communities were encouraged for social and cultural regions to move into smaller family units of anything up to 50 people. With climate change, that will place a burden on the sustainability and accessibility of these communities in the future. It is something that needs to be addressed at a very high policy level to ensure sustainability. It is not just the smaller communities. Even now we are finding that water is scarce in larger communities such as Maningrida, Numbulwar and Milingimbi. So it is not just about climate change, rising sea level and weather events; it is also about the natural resources we have out there, such as water and the like.

The process that local government is looking at—and it basically gets down to funding levels and budgetary constraints—is very much a risk assessment process. One of the core things that the new shire councils have been instructed to look at is the risk to assets, including mitigation, sustainability of construction and vulnerability. Principles and policy development are very much in their infancy in local government at the moment. It is something that has to be worked on immediately, and that is part of the process that is taking place in the Northern Territory.

With respect to the ALGA submission, there are certainly a number of governance issues that we would like to address, and I will hand over to my colleague to address those issues. It should be more of a national approach rather than a jurisdiction-by-jurisdiction approach. And there are certainly some issues regarding a lack of data and councils or communities making informed decisions. What does a four-metre rise in the sea level mean to my community? When we are rebuilding a barge-landing, where do I move it to? In the scheme of things, a lot of this infrastructure build is not a huge amount but, for small communities of 400,000 or 500,000, to relocate a barge-landing is quite a significant budget item. There needs to be a lot more emphasis on long-term sustainability and protection of that infrastructure. On that note, I will hand over to my colleague.

CHAIR—I would just like to ask a question. You say that you are the peak body of the councils, and they are going to be reduced to 16 in number. Is it open to Aboriginal communities, whose management structures in many cases are equivalent to local government authorities? Are they eligible to become members of your association here?

Mr McLinden—Yes. The reform has taken place. We are now 16 councils throughout the Northern Territory, where we were 61. The 61 councils, the majority of which were Aboriginal communities, have border management that report through to the shire councils. Within the

association, we certainly have the capacity to have associate members that provide municipal services. We have a number of those. They are mainly resource centres. The Mabunji Aboriginal Resource Centre, which is down at Borroloola, is an associate member. I must admit that a majority of it is service provision that we provide to members, as much as we do take up the advocacy and lobbying side of it.

So there is certainly a capacity for the smaller Indigenous communities to become associate members, but they are also represented by the shires due to the fact that the shires have management control over those communities. They all have committee managers that have been appointed through the shires, because there is a responsibility to still provide municipal services to those communities.

Mr Fraser—In addition to what Peter has already outlined, the ALGA submission does contain a lot of detail that we agree with but, with regard to these communities making management decisions on infrastructure, the digital elevation model—which is mentioned in their submission—is something where the local government would like to have access to the latest research on those resources and then they can make informed decisions regarding their infrastructure. So I would like to reiterate that point that ALGA made in the submission.

The other issue is to do with coastal reserves and the management of coastal reserves. Often they are under council's management, and resources for council for management of those reserves are often ad hoc because of funding restrictions. Darwin City Council, as was mentioned by the previous speaker, has some great resources for its environmental management plans but, to institute priorities under that plan, funding is an issue for the council, and they are continually seeking funding through the Australian government programs—Caring for Our Coast and things like that. Often those coastal reserves are the buffer zones between the ocean and the residential areas. So councils need to be well resourced to manage those. But there is also an issue about who is responsible. There needs to be a coordinated approach across the different levels of government.

Another issue for Northern Australia is water resources. Obviously we have the wet season every year and we get a lot of water, but the actual sharing of that water resource with other regions or the rest of Australia could be an issue for us down the track if other areas are affected by droughts and things like that. Water resources is a big issue, and local government needs to be heard by the new Office of Northern Australia.

The other issue is the effect on the ecosystems that are within council and local government areas. Often it is the councils, volunteer groups and such organisations that look after the mangroves through local government programs. Also, there is a flow-on effect for industries, which are vital for communities and jobs with, for example, fisheries, and if mangrove areas that are nurseries for these fishing industries do collapse due to higher sea levels then perhaps that will flow on to jobs and people and the sustainability of those communities. That is something that needs to be reinforced. Those are the main issues. As we said before, ALGA in the Northern Territory strongly reinforces the issues raised in that submission as well.

CHAIR—Has your association made representations on behalf of all the councils seeking from the government a referral of some of the planning powers that would normally be in the

control of local government authorities? Have you had a campaign about that issue or negotiations with government about it?

Mr McLinden—I would not say they are negotiations, but it has certainly been a long-term policy and we have been pushing for a lot more involvement in the planning process. That is a compromise because basically the reality is that politically we will not get the planning powers. There is certainly a policy of the association that local government, being the grassroots, should have more say with regard to planning issues within their jurisdictions. In the remote communities, I would say they probably have more consultation in their planning process than Darwin, Palmerston and Litchfield, mainly because of cultural land rights issues with regard to the location of urban living areas and the like. So there is a lot more consultation in the remote areas than I would say even in the Darwin region. You saw that frustration from the previous speaker, Margaret.

Darwin city, Palmerston and Litchfield are very proactive on planning and making presentations to the casino authority. We did have a win three or four years ago where local government was represented on the consent authority, but the instruction is that they are not there to represent local government interests. There are strings attached to a lot of these issues. I probably support Margaret's comments too in that both sides of politics in the Northern Territory government have been very proactive in promoting development. In some fields it has been at the expense of the environment and natural resource management.

CHAIR—So, hypothetically, if the Darwin City Council had an environmental plan that covered development on the waterfront area and they had delineated some zones that should not be developed for a whole range of reasons, could it happen that, despite the plan that that council—Palmerston or any council—had adopted, the planning people would have to take no heed of the local environmental plan so that they could override on every occasion?

Mr McLinden—That is correct.

CHAIR—On every occasion?

Mr McLinden—Yes, on every occasion. The plans and work that the Palmerston, Litchfield and Darwin city councils do have no legislative power. It is basically a policy document for those specific jurisdictions to take on any issue with regard to planning or the harbour developments, so they really have no legislative powers. It is a policy document for that jurisdiction to take forward to the public and to any of their decision making and to process it through the consent authority.

Mr Fraser—Just to back up on what Peter just said, the new waterfront development, for example, is technically not in Darwin City Council; it is in a separate area. It is not under Darwin City Council's control, it is a separate development. They do not even have a local person that they can vote for, so it is a totally separate development from Darwin City Council.

Dr WASHER—Peter, to follow that up, I would have thought that if a council came up with a very good proposal or good ideas and the Territory government overrode that, there would be a hue and cry. Has that happened? Have there been protests and newspaper type actions on them?

Mr McLinden—Yes, there has. Margaret's group is a proactive group in the community. I was pleased with the comments in regard to their support of Darwin City Council. Darwin City Council use those groups because at times the perception out there is that they have more political power to get some of those decisions, especially the high-rise units, which is a very contentious issue. In saying that, the Darwin City Council is a political animal in its own right too; we are dealing with elected members who are representing the community, so there are disparate views there. There are opportunities and, in the past, through the media, various avenues and consent authority, the various councils have contested proposals that have been put forward for development. Jim mentioned that one of the reasons for that was the harbour development down there. There was a lot of angst for the Darwin City Council, and that was one reason why they objected to taking responsibility for it. It was not just a climate change environment. There was an accessibility issue and transport. From a local government perspective, we can see huge impost—

CHAIR—What are they proposing to house in that waterfront development?

Mr Fraser—It is a mixed development of hotel and apartments. How many long-term residents there are will depend on what that final mix is. There are both apartments and hotel developments slated for that area, but I am not too sure on the number.

Mr McLinden—I think that is the frustration too: the unknowns. A lot of those facts and figures were not made public, which was of concern to the Darwin City Council in regard to future planning, traffic movement, public transport issues and things like that.

CHAIR—Would that project have gone through a process of public consultation where the plans would have been on exhibition and people were allowed to submit their views?

Mr McLinden—Yes, that is correct. There was a period of consultation with the community, plans were made available and there were displays. That consultation took place and views were submitted; whether they were taken on board is another thing. I am not privy to the details of that, but certainly there would be records of that.

Ms LIVERMORE—If the waterfront development is not part of Darwin City Council's jurisdiction at all, do they still have responsibility for the emergency management plan for that area?

Mr McLinden—No, they have no control over there. It is done through a statutory body from the Northern Territory government—I might stand corrected on that, but it is basically excised from the Darwin City Council region. There are no rates paid down there. They will end up paying rates to a statutory board of management who will run that side of it.

Ms LIVERMORE—I understand that the Northern Territory government has put out a climate change issues or discussion paper. Have you been involved in that process at all? Can you tell us a bit about that?

Mr Fraser—They are trying to develop a policy at the moment. Earlier in the year a discussion paper asking for submissions went out. The Local Government Association of the Northern Territory is currently putting together some comments on that submission, and we are

kept in the loop in regard to participating in forums and those sorts of things. They have engaged with the Local Government Association in regard to formulating their Territory-wide policy. That is under review at the moment. They are accepting submissions, and we are quite active in making sure the local government's concerns get across.

Ms LIVERMORE—Is it looking at both mitigation and adaptation strands of policy?

Mr Fraser—Yes, it is. For instance, a lot of our member councils in the municipal areas around here in Darwin are very interested in having a greater role in adaptation aspects of effects of climate change. They are well placed to coordinate a lot of that response, especially in regard to community awareness and things like that and, as we have mentioned before, Darwin's active environment management plans. I think it would be important to make sure that that is an ongoing consultation with their new policy.

Mrs IRWIN—Margaret mentioned in her submission, and she made a statement on the public record, that 1984 was the start of a plan of management for Darwin Harbour. It shocks me that there is still no plan to date. It is really an ongoing thing. What are the implications of this for coastal planning and management in the Northern Territory?

Mr McLinden—I suppose one word is cynicism. It has been a very protracted approach. I should put it in the perspective of the association too. The Darwin City Council and Palmerston and Litchfield are very proactive and a lot better resourced and the tendency for the association is to give them carriage. A lot of the negotiations from the Northern Territory government perspective are directly with Darwin, Litchfield and Palmerston.

We come in with regard to the missing link in all of this, and I am glad that you have brought in the whole perspective of the implications for the coastal areas. The remote areas are the missing link. Also, there is a lack of advocacy, resources and expertise. We find that we take more proactive advocacy lobbying with those remote areas, whereas for Darwin and Palmerston we feed off the councils, for want of a connotation. Because of their expertise and resources, we are very dependent on them. In some ways, as a unified approach, we have separated ourselves a bit because of that. Certainly, with the changes and reform to local government we are finding, even now, that as an association we have a lot stronger voice and we are going to have to be a lot more proactive in advocacy and getting that information together and not be so concentric in regards to remote areas and the urban living areas.

I probably did not answer your question. In regards to the planning of the Darwin Harbour region, at this point in time there has been no spill-over of such planning and action in the remote areas. In Nhulunbuy, Gove, that will be coming under the mining act because of the mining infrastructure, and we have got Bing Bong down at Borroloola which is driven by the mining. So there are impacts with the legislation and other requirements that will come into place other than through the environment process. Our constituents: we have a number of island communities that are very vulnerable and at risk at the moment.

CHAIR—We will be hearing from them straight after your submission.

Mr McLinden—A lot of it has to do with integrity of infrastructure and accessibility, social equality, fabric of society, the cost of getting equipment and those types of social issues. The

climate, raising of sea levels and weather events are going to put a huge impost on those communities. The question is sustainability in the long term.

Dr WASHER—You mentioned water as being a very restricting issue up there now, because we come up with the impression that you get the wet and you get over a metre of rain in this wet season. But we hear then about water in the bores dropping in levels and the fact that they are planning on damming the Adelaide River to provide water. So, water is obviously a bigger problem than we imagine. Then I go back and hear Bill Heffernan talking about this as the food bowl for Australia in the future, and you tell me there are water problems. Can you illuminate and put a reality check on this?

Mr Fraser—There is always that misconception because of the wet season. It is, though, six months of wet and six months of dry, so you do not get a drop of rain for that six months and you need to manage your water resources effectively to provide water for industry and community, and Darwin dam is not bottomless. Currently, Pete was telling me, they are putting up the level of Darwin dam because, even if there was one season of a wet season that is just a little bit below the average, it would be empty at the end of the dry season, just for the Darwin community. Those sorts of issues become more pertinent when you have people running around saying that there is endless water. What happens if Alice Springs bores run low or run out? There might be talk of piping the water from the Top End to the middle, and then you would have all that scrambling around for this precious water resource.

There are issues that need to be managed with regard to water. It is something that is often overlooked because of the nature of the wet season and the sheer volume of water that comes through, but you still need to manage it over time. If you start setting up new industries—there are already mango farms and things like that—that will take advantage of that water, it still needs to be managed effectively to provide for not just communities but also the environment. You are seeing issues like that in Adelaide and the lower lakes at the moment because of mismanagement of water. It is not endless, so it has to be managed effectively.

Mr McLinden—Once again we are talking about the Darwin region. Certainly in larger communities in remote areas one of the problems we have is water sustainability. They have had to move the satellite communities in Numbulwar and Maningrida out because of a lack of water—and it is all bore water. So you are correct: there is a vulnerability, but the perception of it is not there. You just have to drive around Darwin now to see sprinklers going and things like that. So the whole community needs to be educated on the water supply and its vulnerability.

CHAIR—I am sorry we had to rush at the end. Two of our members have to leave before the formal proceedings are over and I am very keen for them to hear from the representatives of the Torres Strait Regional Authority, so we did not have the flexibility that we might otherwise have had. Thank you both very much for coming along. I think it is important to hear from local government, particularly after the first few days, when we recognised the system here is so different to the southern states. It is an issue that we will look at in our report and its recommendations. The secretariat will send you a copy of the transcript. If there is anything else that you would like to forward to us, we would be more than happy to receive it. Thank you for coming along.

[11.53 am]

HANSLOW, Mr David, Coastal Management Officer, Land and Sea Management Unit, Torres Strait Regional Authority

MACKIE, Mr Walter, Member for Iama Island and Portfolio Member for Health and Environment, Torres Strait Regional Authority

CHAIR—Welcome. We value very much the time and effort you have put into coming to speak to our committee. The committee was very keen to hear the voice and perspectives of Indigenous people. In that regard, we had scheduled both the Northern Land Council and the North Australian Indigenous Land and Sea Management Alliance in our agenda for the hearings over the last few days. But, for a variety of unavoidable circumstances, neither the land council nor the alliance representatives were able to attend. We will follow up with both those bodies because, as I said, we are very keen to ensure that the voice and perspectives of Indigenous communities, both on the mainland and on the islands of the Torres Strait, are incorporated into our report. Walter and David, we sincerely welcome you along and we are looking forward to hearing from you.

As a matter of formality I have to indicate to you that, although we do not require you to give evidence under oath, these hearings are legal proceedings of the Australian parliament and warrant the same respect as proceedings of the House. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. We thank you very much for your written submission—it was very interesting—which has been authorised for publication and is now on the committee's website. When we hear from you today, that will better inform our understanding and the recommendations that we will be making to government. I would invite you both to make a brief opening statement and then we will have questions and discussion. Thank you.

A PowerPoint presentation was then given—

Mr Mackie—Do we all know where Torres Strait is?

CHAIR—Yes. And my colleague Jan McLucas visited the Torres Strait and made speeches in parliament about the situation.

Mr Mackie—Our region, the Torres Strait, lies between the tip of Australia—Cape York Peninsula—and the coast of Papua New Guinea. There are 19 Indigenous communities across our waters, most in remote outer islands. As a people we have a strong relationship with the sea and also our land, so our traditions and our culture maintain the bond that we adapted from our ancestors. We each have a unique way that we need to capture here. In our communities, and I have identified 19, we have a unique affiliation with our community.

Here is a map that indicates where we are. The Torres Strait consists of the top western islands, which are Boigu, Saibai and Dauan, the western islands of Mabuiag, Badu, Moa and the inner island of Hammond Island, and extend out to the central island where I come from, Iama

and Warraber, Poruma and Masig. Extending out further to the Barrier Reef, we have Ugar, Erub and Mer. As you can see by what the map portrays, we have a lot of reefs up there and that is what we refer to as our supermarket. That is where our lifestyle evolved. This is our world I am looking at. This is my world, my people.

Here is another map, which indicates more or less the closeness of where we are to PNG. In the terms of the treaty, we have all this free movement. From last report, we had over 50,000 visitations—more so to the closest islands, Saibai and Boigu, but extending to Badu, Iama and Murray. I believe that, through the impact of climate change, the coastal villages of PNG have been affected by droughts and such, so they come over to our community. That has been a big issue for us, with overstayers utilising our resources—more so to do with water. Most of our community have dams that capture the water from the rain. Some have desalination plants. Others—only a few—have access to bore water. Predominantly it is the salt water through the desalination plants that we have and that is now providing for the dams because of a lack of rain. So, as you can see, we have a social issue, more or less, that has impacted on our community because of where we are.

Dr WASHER—It looks so close. Is there about a kilometre between you and Papua New Guinea?

Mr Mackie—Yes. It is about three kilometres from Saibai.

CHAIR—It is amazing. I did not realise it was so close.

Dr WASHER—It is very close.

Mrs IRWIN—While we have the map there, I have a question. You were saying that there were about 50,000 visits from PNG, Mr Mackie. Is that correct?

Mr Mackie—Yes.

Mrs IRWIN—How do they get there? Mostly by boat, of course. What is the main island that they go to? I did not catch it when you mentioned it.

Mr Mackie—The main island would be Saibai. That is the closest one to PNG.

Mrs IRWIN—You have grave concerns about overstayers. How long do these overstayers actually stay on your island?

Mr Mackie—They could stay for over a year or more. It is an issue. When they do get reported, they just filter themselves into the mangroves and hide away until the authorities go away. It has a very drastic effect in the community. It creates social issues. Families get involved. They come over in their tinnies. Nowadays they use aluminium tinnies with a mat sail and just skim over. At Iama they come in fibreglass boats; they call them 'banana boats'. You could have 15 to 20 people in a banana boat. They are denying all the laws of the land, including the fishery laws and the laws on safety equipment and such. We have all these activities. Now and then we have to rescue them. It is an issue for us. They do overstay a lot. Currently they utilise our prior advice, which is not worth the paper it is written on because it is not legal; it is

just a management thing so that we can keep tabs. I have stated that 50 or so is just the recorded figure for that prior advice. There is more to that. Here is a snapshot of Boigu, one of the communities that are affected by issues of erosion and tidal inundation.

Ms LIVERMORE—How many people live on that island?

Mr Mackie—Boigu would have about 267, I would say.

CHAIR—Has the erosion got worse in more recent years? How long has the pattern of coastal erosion and inundation been developing? Is it a more recent phenomenon or has it been happening over time?

Mr Hanslow—I would say it has been a problem for a long time. There are a mixture of protection measures in place already. There are various sea walls of different designs that are in various states of disrepair. At the moment there is an assessment of the current sea wall erosion issue, the causes of the problem, that is being completed by the Queensland EPA for our coastal management committee. So there has been some work done on the issues at the moment and some of the options for repair into the future. We will talk a bit more about that at the end.

Mr Mackie—Here is a snapshot of Boigu at low and high tide. This slide shows Saibai. As you can see, the only land mass is on the edge of the waterfront. There is water on both sides and a swamp at the back.

Mrs IRWIN—Is that an airstrip that I see in that photo?

Mr Mackie—Yes, that is an airstrip.

Mrs IRWIN—And, again, what is the population of that particular island?

Mr Mackie—Saibai would have between 300 and 400 people.

Mrs IRWIN—So that airstrip is where they would bring the food in for the other islands as well?

Mr Mackie—Yes. We have regular flights to our communities every week. Here is another snapshot of Saibai, with water under the houses.

CHAIR—Are those events becoming more frequent and more intense?

Mr Mackie—Yes.

Dr WASHER—So are you saying this is a new phenomenon and that normally there is not water under those houses?

Mr Mackie—I would not say that. I think it is just becoming more recognisable. We can practically see it happening and it is on the increase. This slide shows my community of Iama. Iama is part of the central island group. It is a hilly island, so the village is on the flat land. It is the only flat land we have, so that is where most of the houses are. But we still get affected by

issues to do with erosion. This slide shows the back of the island. That is one of the high tides that came up.

Mrs IRWIN—Was that high tide in 2006?

Mr Mackie—Yes. We could not get to the airstrip because of that. This slide shows our sewerage plant. It is not on the screen but the Ergon Energy electrical box is underwater there somewhere. Water infiltrated the sewerage system through the manholes, so that is the sort of issue we have. The weather was calm by the time this was taken. Normally, as you can see on the far right, there are sheds there with weather vanes. They face north-west. When the north-westerly comes, we have waves crashing and spraying over the weather vanes. There are people living there. There are about six of those sheds and families living in those sheds. They get plastered by the waves every now and then, and it increases when we have a monsoon. Part of our dump has also been affected. We did some work to raise it up a bit, but there is still more to be done with it. There are more photos showing rubbish floating all over the place, even onto our sports field.

Ms LIVERMORE—How many of those high tides would you have in a year?

Mr Hanslow—The highest tides of the year are in January, February and March. Walter, do you know for how many days?

Mr Mackie—I would say for a week or so. These are just high tides, not the really high tides. We get affected by high tides more than before.

Mrs IRWIN—So it is getting worse each year?

Mr Mackie—Yes, it is noticeable. This photo is of Poruma. There is the landing for the barge when it comes in to drop off cargo. That is exposed to the elements, as you can see. There is no protection as such. This photo is also of Poruma and the erosion there. Erosion is taking away trees and creeping up to houses. A resort there is under threat of being washed away. This photo shows Warraber. This is the waterfront. It is a pretty high area but, as you can see, the water comes over it. This photo is of Thursday Island. To access Thursday Island, you have to walk through this area to get to the ferry. They did some work on it last year, but water still comes up to it. This photo is of Horn Island. You fly Qantas into Cairns. If you go on to Thursday Island, you need to go through that area to get to the wharf and your ferry.

CHAIR—Would you be happy for the secretary to have copies of these overheads for our report?

Mr Mackie—Yes. I guess the reason for my presence here is that I have lived most of my life in my community. I am an Indigenous person, and there is no doubt in the mind of our people that climate change will have a profound effect on the people in the Torres Strait. On my island of Iama, we have already experienced the impact of inundation from king tides. I have seen the entire possessions of families destroyed or washed out to sea—sucked out, more or less.

Mrs IRWIN—In relation to the statement that you have just made about your people, has there been a need to relocate people because of the coastal erosion events in the areas that we have just seen?

Mr Mackie—It never crosses our mind to relocate. Relocation is the last avenue for us. You have to understand who we are. I mentioned that this is our world.

Mrs IRWIN—This is where your roots are.

Mr Mackie—Yes. We are keenly aware of the challenges that face us; however, we are also fearful of the loss of our homes—our family homes. Each individual island has its own unique attributes. As an Iama Island person, I cannot live on Saibai, because I will not fit in. We identify with our area. I do not know if you understand, but that is where our identity and everything are derived from. So it would be the last resort for us to leave, because our roots are there.

For generations we have had embedded in our sense of pride that unique identity in our island home. We have found ways to hold onto our traditional practices and our unique culture in this modern day and age. We also have embraced challenges and have adapted to changes in order to protect our island. We have taken whatever steps are needed to ensure our sustainability. We have a traditional saying in the Torres Strait which originated in 1970 during the PNG push for independence: ‘Not for one teaspoon of saltwater, not one grain of sand, will we surrender. Border not change.’ This determination has ensured a continued existence for each community so far, and I have no doubt that it will do so into the future.

Our region is the frontline in many ways—significantly so due to rising sea levels. We do recognise the urgent need to address climate change and find long-term solutions. Our people are very much aware of the social issues we have—overcrowding, disease and damages and our traditional fishing practices—and we welcome the chance to become involved in a long-term strategy to ensure the protection of our beautiful islands.

In the community of Warraber back in the 1990s, they had to take into their own hands the building of a seawall because the tides were taking skeletal remains from the cemeteries out onto the reefs. They said to themselves, ‘We’re not going to sit here and wait for research and studies; we’ve got to take some action; we’ve got to do something’—and that is what they did. Even with the sea level today the seawall does its job, and it was built 20 or so years ago.

Mrs IRWIN—What is the response of the state government or the Northern Territory government on that issue? What assistance are you getting?

Dr WASHER—It is Queensland.

Mrs IRWIN—What sort of response or assistance are you getting from the Queensland government?

Mr Hanslow—The Queensland government have been working through our coastal management committee. They have been assisting in providing assessments of causes of coastal erosion and the options available to manage into the future. We have been working in partnership with the Queensland government. We have also been working on applications for

funding to implement identified solutions, but thus far those applications have been under the Natural Disaster Funding program and have been unsuccessful. So, yes, we have been working together but there is a lot more to be done.

Mrs IRWIN—If there were a natural disaster, is there an emergency plan in place for the beautiful people who live on the islands?

Mr Hanslow—I am not sure I can talk in specifics. I am relatively new in this job myself. I know that the emergency services are also represented on our committee and are aware of issues in Torres Strait. There is a natural disaster study of Torres Strait which has done some mapping. I will talk a bit further about some of the caveats on that in terms of lack of data. So there has been some work done. I am not sure that there is a formal local strategy, but it is covered by the broader arrangements for natural disasters management within Queensland. I think emergency management arrangements are on a broader scale, so there are arrangements in place to take care of disaster management generally. However, I would say that there is probably further work needed and I will talk a little bit more about that.

CHAIR—I am just mindful of the time, and I want David and Walter to have all their statement on the *Hansard*. So could we keep the questions until the end? Kirsten has to leave. Is there anything particular that you want to know before you leave?

Ms LIVERMORE—No, but it is a terrific presentation.

CHAIR—So we will just finish the verbal submission. Thank you, Walter. Do you wish to add anything more to your statement?

Mr Mackie—Yes. I wanted to say that we do welcome the opportunity to be part of a discussion in a whole-of-government approach to these problems. However, we believe that now, over a decade since the community of Warraber took matters into their own hands to address an immediate crisis, it is important to engage in constructive, outcomes based research in order to achieve proactive, not reactive, results for the people of the Torres Strait. I will hand over now to David, and he will talk some more about key concerns that currently exist in our region.

Mr Hanslow—I will just expand a little bit more on our submission. A key issue in Torres Strait is coastal erosion. It is already a very major issue and is of extreme concern to the residents of Torres Strait as it is threatening the communities, cultural heritage sites, infrastructure et cetera. With respect to the impact of a sea level rise into the future, in combination with changes to extreme weather events I think it is readily apparent that any increase in mean sea level will have drastic implications for the Torres Strait Islands.

The impact of climate change on marine ecosystems also has large implications for the economy of the region and the way the islanders interact with the sea. As Walter said, the sea is their supermarket. I think the science is a little bit less definite, but there are obviously concerns about long-term implications of climate change for ecosystems and marine life. There are also implications for water supply, both groundwater and rainfall, as well as health, with the spread of disease, malaria et cetera, heading south.

With respect to management considerations, the area generally has complex international border issues, so it is not like other parts of Australia. Any negotiation around management solutions for each of the island communities involves agreement from native title holders and extensive negotiation processes. There is a lack of local capacity in terms of being able to implement works. There is also a big issue with the high cost of works in island communities. We are very remote, so the cost of general things is significantly higher than in mainland states. There is a big lack of local data on local coastal conditions. However, there is a lot of Indigenous knowledge. We have got some projects going that seek to understand more about that, but we are constrained by a lack of funding.

We are coordinating coastal management activities through the Torres Strait Coastal Management Committee which is a whole-of-government forum including representatives from each of the island communities. We are addressing coastal issues. We have several projects underway in partnership with Queensland EPA, James Cook University, with various researchers from the MTSRF program and others. So there is a lot of work happening but a lot more to be done. As I said earlier, for some of the solutions to addressing the coastal erosion we have asked for funding but so far have been unsuccessful.

CHAIR—Can you tell us what NDMP stands for, David?

Mr Hanslow—It stands for Natural Disaster Mitigation Program.

CHAIR—Is that federal or state?

Mr Hanslow—It is a combined program initiated out of the COAG review into natural disasters which I think recognised that it was more cost effective to put in place mitigation of natural hazards as opposed to just aspects of emergency response.

CHAIR—So that I have it right: you made submissions for funding and you said those submissions were unsuccessful.

Mr Hanslow—Yes.

CHAIR—Were they made via the Queensland government or direct to the federal government?

Mr Hanslow—The program is administered through each of the states but is a combined source, as I understand it. So it goes back to—I am not sure if this is still correct but it was DOTARS. Yes, it is a combined source of money.

In relation to our submission, the first recommendation related to further support for Torres Strait Islander communities to access information about projected changes to climate change, at a locally and regionally relevant scale, to enable informed decision making. I have added that we need specific information on regional sea level rise.

I would add that, from Will Steffen's presentation at the conference yesterday, Will's numbers differ from what is available through formal government channels. There is a lot of confusion between academics and managers. It is a big issue—communicating science to communities

about getting an agreed set of numbers. I think that is a universal problem. Beyond that, we need more specific information on storm surge and other influences on sea level extremes, and there have been no formal studies on storm surges in Torres Strait so it is an unknown. We have got some estimates but there is a lot more work that needs to be done there. Changes to winds have big impacts on island dynamics as well as waves and water quality et cetera.

The second recommendation relates to further studies of island processes so that we can model the impacts of climate change on those island environments. I would note that most of the simple models of beach response to sea level rise do not apply to island environments so ideally we would be doing island-by-island modelling. I think there has been a call nationally for more elevation data to enable us to undertake inundation modelling so we can study the overlay of storm surge and the like onto the land.

We actually have some reasonable information on the terrain for a lot of these islands that is derived from photogrammetry. However, we have very poor information to connect it to the ocean. There is no network of tide gauges. There are a couple of tide gauges on the inner islands, around the shipping channels, that are funded through AMSA for marine safety reasons. But for those northern islands, Boigu and Saibai, where things are so close, our estimates of what comprises the highest astronomical tide are fairly rough, and as I understand it are from a fairly short-term deployment of tide gauges by the Navy a couple of decades ago. There is further work happening at the moment, through Griffith University and the Department of Natural Resources and Water. But I would call for a network of tide gauges right through Torres Strait to improve knowledge on that and also improved knowledge of bathymetry to do the modelling.

Our fourth recommendation related to suitable renewable energy systems that are applicable to Torres Strait. I think that there is a lot more work that could be done to make island communities more sustainable, but they have to be suitable to the environment, to local capacity to maintain them and to withstand the environmental conditions. Our last recommendation related to trials for coastal erosion and inundation problems. I would add to that that we are working on a coastal strategy for Torres Strait. It is one of my jobs, which will look at climate change implications for all of the islands. But, if the higher scenarios for climate change eventuate, without funding we have really got a major issue. Thank you.

CHAIR—Thank you, David and Walter. We do have those recommendations from you which will be incorporated in our report. And the overheads that you provided today will also be of great assistance. There are a couple of issues I just want to clarify with you. Walter made the point about research studies and more studies, but the time for action is really upon us. In terms of that EPA assessment of shoreline erosion on the six islands, you said in your submission that the information assisted in prioritising and identifying options to mitigate immediate threats. Has there been any follow-through beyond the scoping study? For example, if you have recommended that walls be built or resettlement occur in a particular area, have there been any resources provided as a result of that research into the coastal erosion and inundation issues?

Mr Hanslow—They have provided a further \$150,000, I think, to the committee, and a small portion of that has gone towards a detailed costing of the identified options—commissioning an engineer's costing—and, with the money that we are provided, we will now go towards trying to commission design work to implement the solutions. But the costings are millions for each island. So we have a little bit of money to progress things but there is a lot more that needs to be

done. It does not really implement the thing as such. We are able to progress the design component but a lot more needs to be done. I would also add that the EPA work was commissioned specifically to look at erosion issues, and it has touched on the implications of sea level rise to some extent. But I think a lot more work has to be done to really think through the implications of sea level rise, and further studies into storm surge and the like are required as well, as a matter of urgency.

CHAIR—In the submission you indicated some concern that the money that was going into the digital elevation model may not be applicable to the Torres Strait Islands—that you might be excluded. Have you been able to clarify whether that is the case?

Mr Hanslow—I have clarified that the first pass assessment does include Torres Strait. I think it is designed to indicate where there is a problem, and I already know I have got a problem. Most of the residents of Torres Strait already know they have got a problem. As I understand it, the funding for the high-resolution digital elevation modelling, which Jo Mummery talked about at yesterday's conference—it is targeting the cities for the high resolution and they are rolling out a mid-resolution model for the rest of the country. I do not think the mid-resolution model is sufficiently accurate to enable detailed modelling to be done. I would also add that there also needs to be a strategy to capture the bathymetry, capture the tidal data and enable the modelling to be undertaken and then the strategies to be developed at the local level.

CHAIR—Walter, what I think would be useful is if, from your regional authority, we could get a supplementary submission which outlines some of the issues you have touched on today, in particular the need for some urgency about remedial action. You could cite the fact that you had applied for funding under the disaster management pool of funds, your concern about the modelling and where you would fit into that scheme and some of the urgent priorities that need to be addressed in a joint cooperation between both governments. I am a little bit anxious that this might take another year for us to report and then another year for the government to respond, so, with the support of the committee, if we do get a further submission, we can certainly bring that to the attention of the department and the minister in the short term. These slides show that we do not need too many more research studies to be aware of the impact and that what we do need is at least some priority being given to addressing the problems in the most vulnerable communities. Can you do that, Walter?

Mr Mackie—Yes, we will be able to do that.

CHAIR—If you address it through the secretariat to the committee, we will deal with that matter when we next meet in Canberra.

Dr WASHER—There are a lot of climate change sceptics, and your pictures would tend to make them less sceptical—I am not a sceptic, I hasten to add—but, Walter, I guess what you are showing us are new events. These are not historical. You would have the wisdom to go back to your grandparents' time on Murray, even if they are now no longer with us. Did they see king tide events like this historically?

Mr Mackie—No. There was one incident in Saibai. I am not too sure; I believe it was back in the 1940s. There were some people relocated to Bamaga on the tip of Cape York. The others

decided to stay because of what I mentioned earlier: 'It's our land and we're going to stay and we'll die on it.'

Dr WASHER—So what you are saying is there were episodes similar to this back in the forties, but this is the worst since then? This is really as bad as it was in the forties? So it is not a new event, but it is a repetition of an event as bad as that back then?

Mr Hanslow—I will comment on the science. Torres Strait receives cyclones quite irregularly compared to other parts of Queensland. As I understand it, the event in Saibai in the late forties was one of those rarer events where a cyclone passed nearby. It is an extreme event that can happen on occasion. As those photos indicate, we are getting high tides now with clear skies, so the implications of a cyclone occurring in combination with an extreme tide—putting the two together—I do not think would be a good event for the communities now.

Mr Mackie—I am 50 years old now, and I am not ashamed of it! The highest tide I saw was in 2006. I had never seen the tide come up that far at Iama.

CHAIR—How high did it come?

Mr Mackie—It came up to the second level of our street. It had never been there before. It was another 10 or so metres from where it usually is. That is why we have got about 17 residents' houses and our centre under threat. We did some initial work through TSRA funds to build up the land. It does prove its use now. We see that the rise of high tides in certain areas of our community does have profound effects. It is a concern. We know something is happening. The weather pattern is not right. We have got less monsoon than usual. The fish are not where they should be. Some of our reefs are dying. So it does affect us whether we are on land or sea. It does affect us totally.

CHAIR—Walter, did you say the tide was 10 metres higher than it was before?

Mr Mackie—Horizontally where it is. It is a further 10 metres than it is usually. We do have a high tide mark but then it gradually comes up. It was not like that before. We never experienced it. So something is definitely happening. The birds are not flying in their usual pattern. Everything changes.

Mrs IRWIN—I think David mentioned that research is desperately needed in Warraber. David, were you also saying—Walter might be able to answer this as well—that no formal studies on storm surge have taken place in the Torres Strait Islands?

Mr Hanslow—The work with James Cook University has been looking at coastal erosion issues, looking at island dynamics, and has involved some deployment of tide gauges and the like, which is helping to improve estimates of highest astronomical tide. But there have been no formal storm-surge modelling exercises. As I said, it will be a difficult exercise to do it without the knowledge of tides. The tide range is four to five metres. It is highly complex because of the interchange between the Indian Ocean and the Pacific Ocean. The existing tide gauges are around Thursday Island and the shipping channels. I have talked to the national tidal authority and had a quick look at some of that data. Their estimates indicate that the sea level regularly varies above their predicted levels. But we do not have estimates or a proper formal analysis of

how high it could get within, say, a design cyclone event—a one-in-100-year or a one-in-1,000-year event.

Mrs IRWIN—I noticed also that on one of the slides that you showed us you pointed out the lack of local data and science. You also mentioned that there were some projects underway, which you have also stated in your submission, but you have not really told us much about the research projects. Could you briefly tell us about those that are underway at the moment.

Mr Hanslow—There is the work done by the EPA, which has been under a rapid assessment process, which I think is a process that they kick in in lieu of having a formal coastal management plan for the area. So they have gone through and done assessments for the four coral cay islands and Boigu and Saibai, looking at causes of erosion—the driving mechanisms—and some of the options available to manage those erosion issues, considering environmental impacts, community views et cetera. They have recommended solutions and presented those options to the committee and the community, and feedback has been sought. So there is some consensus view by the committee on preferred options to progress into the future. That work has looked at some implications, as I said, of the rise in the context of coastal erosion. The James Cook University project looks at the four coral cay islands, and it has been running under Natural Heritage Trust funding. It has been running for a couple of years now, looking at island dynamics, and has been quite a good process of, I think, educating the communities about science and options available for the management of coastal erosion and explaining coastal engineering options to the community, as well as the likely impacts, advantages and disadvantages of different management options such as groynes and seawalls or just maintaining dunes. That work has also done some estimates of tide levels and the implications of sea level rise. I think their upper estimates go up to 59 centimetres, the upper level IPCC numbers. They have mapped those scenarios for places like Masig, Warraber, Poruma and—

Mr Mackie—Boigu and Saibai.

Mr Hanslow—Just Iama, I think, not Boigu and Saibai. So that work has been done. There is also a sustainable land use project that is running.

CHAIR—You have outlined these in your submission.

Mr Hanslow—Yes.

CHAIR—Are there any new projects that have come on stream since you wrote to us?

Mr Hanslow—The only other one I would like to add is a project with UNSW and Donna Green, looking at Indigenous knowledge and the implications of climate change. It is seeking to access Indigenous knowledge concerning the impacts of changing weather. That project has been running. So there is a lot of good work that is happening. I guess the assessments have not addressed all of the islands as yet, and there is a need to expand that work. There is also the need, as I said, to address the other issues of storm surge inundation and then the long-term implications of climate change for these islands. We have not been through a scoping exercise in relation to climate change and to whether we will look just at adaptation or at mitigation as well, but that is something that is scheduled for our next committee meeting to discuss.

CHAIR—Walter, it seemed from the conference proceedings that not enough attention has been paid to the impact of climate change on marine life. You mentioned the impact both on your fishing areas and on the bird life. Is there any research being undertaken specifically on those issues in the Torres Strait?

Mr Mackie—I do not believe so.

Mr Hanslow—I missed this question.

CHAIR—The impacts on marine life and bird life that Walter had mentioned—they sometimes get lost.

Mr Hanslow—There is a further project through James Cook University looking at the impacts of sea level rise and climate change on turtle nesting.

CHAIR—On turtles.

Mr Hanslow—Yes. I think that was mentioned in the submission. There is probably a lot of other work that is happening through the Great Barrier Reef Marine Park Authority on the broader implications for reefs that is applicable as well. I do not think there has been a formal assessment of the implications of changing water chemistry and temperature on marine ecosystems within Torres Strait.

CHAIR—I think we have probably exhausted Walter and David. Any other questions?

Mrs IRWIN—No; if we have other questions we might be able to send them to the two of you.

Dr WASHER—I just have a short question. David, you said that you spoke to the tide people. A picture speaks a thousand words, if you understand me. People say, ‘Listen, we think the seas have moved a couple of millimetres in the last few years.’ The sceptics say, ‘Well, when I go down to my local beach I don’t see that.’ I look at that picture. If there was no cyclone in 2006 and no seismic activity—and we would know that from the satellites and by monitoring, so this is not a maybe; we do have detection methods through these regions to know that—and you had this king tide, then you would assume the next most likely thing, given that the sun and the moon are not pulling any harder than they used to, resulting in tidal effects, is that there must be an effect of even a small sea level rise to create that. Would that be a reasonable assumption? In other words we can say, ‘Go and look at the Torres Strait Islands for an example of where the problem is already starting.’ Could we do that?

Mr Hanslow—The science is pretty clear globally that the sea levels are rising. There is no doubt about that. The altimeter data on a global average shows rates in excess of three millimetres at the moment. The capacity to get a local rate—I guess the gauge records are quite short; the one that I have looked at within the Torres Strait was only for 10 years, although I think there are some longer records—makes it difficult to draw conclusions at a local level about removing climate change trends from natural variation. Sea levels do vary for a variety of reasons. It may well be that recent events are a combination of influences, including from southern oscillation types of processes, which we know affect water levels right around

Australia, but the long-term implications of a steadily-rising water level are readily apparent given those photographs.

It is a big issue already. You do not have to raise mean sea level by very much for it to be a very serious issue. Once you start considering the more extreme events—that rare occurrence of a cyclone—it becomes very concerning. If funding is not forthcoming to implement protection and mitigation solutions to coastal erosion and inundation, eventually things will default to an emergency problem. I would note that that becomes problematic when you think about islands that are very finely tuned to sea level rise already. Boat movement becomes problematic because of sea conditions. Airports can potentially go under water. There are a lot of issues, and a lot of work is needed to be done.

CHAIR—We will be having a presentation from the Department of Climate Change and Water officials, so I will certainly ask the deputy chair to get together a particular set of questions to pin them down a bit more about what projections they are working on and what their plans are, because if you look at the most recent data and the possibilities now of the range of sea level rise between 0.5 and 1.4 metres—and then others that speculate as high as five, six or seven metres depending on the ice caps and Greenland—it is a very serious issue. I have the agreement of the Deputy Chair that he will specifically focus on addressing some issues—

Dr WASHER—It will be a pleasure.

CHAIR—to the department about the impact specifically in the Torres Strait based on the evidence you have presented.

In conclusion, on behalf of the committee, I thank you most sincerely. As I indicated, we are very keen to have the perspective of Indigenous communities both on the mainland and in our islands and the Torres Strait. We thank you for the effort you have made to be with us today. We will send you a copy of the transcript from our Hansard staff for any corrections that you feel need to be made. I would also invite you to put in a supplementary submission on the issues that have been raised in our discussion today.

I thank the hardworking members of the committee. We have had a very interesting and informative time in the Top End here, having spent time in Kakadu and, more recently, in Darwin in the last few days. We have been greatly assisted by our secretariat staff, Adrienne and Kate. We thank you both most sincerely. We also thank Peter and Erin, who are responsible for putting together the transcript of evidence so that we can inform the wider Australian community about the serious issues that are the focus of our committee's work. Walter and David, we look forward to hearing from you again in the not too distant future, and we thank you very much for coming.

Resolved (on motion by **Dr Washer**, seconded by **Mrs Irwin**):

That this committee authorises publication of the transcript of the evidence given before it at public hearing this day.

Committee adjourned at 12.56 pm