T R A N S C R I P T

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Climate Resilience

Aireys Inlet – Wednesday 23 October 2024

MEMBERS

Ryan Batchelor – Chair
David Ettershank – Deputy Chair
Melina Bath
Gaelle Broad
Jacinta Ermacora
Wendy Lovell
Sarah Mansfield
Rikkie-Lee Tyrrell
Sheena Watt

PARTICIPATING MEMBERS

John Berger
Ann-Marie Hermans
Evan Mulholland
Rachel Payne
Richard Welch

WITNESSES

Jacquie White, Deputy Chair, Victorian Marine and Coastal Council; and

Dr Tom Kompas, Director, Australian Centre for Biosecurity and Environmental Economics, Australian National University, and Chief Investigator *(via videoconference)*, Centre of Excellence for Biosecurity Risk Analysis, University of Melbourne.

The CHAIR: Welcome back to the Legislative Council Environment and Planning Committee's Inquiry into Climate Resilience in Victoria, here in Aireys Inlet. I welcome Jacquie White from the Victorian Marine and Coastal Council, joining us in person, and Dr Tom Kompas, joining us online.

I will just read this short statement. All evidence we take is protected by parliamentary privilege as provided by the *Constitution Act 1975* and the provisions of the Legislative Council standing orders. Therefore the information that you provide during the hearing is protected by law. You are protected against any action for what you say during this hearing, but if you go elsewhere and repeat the same things, those comments may not be protected by this privilege. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament.

All evidence is being recorded. You will be provided with a proof version of the transcript following the hearing. These transcripts will ultimately be made public on the committee's website.

My name is Ryan Batchelor. I am the Chair of the committee and a Member for Southern Metropolitan Region in the Legislative Council. I will ask the committee members to introduce themselves.

David ETTERSHANK: Hi. I am David Ettershank, Deputy Chair of the committee, and I am a Member for Western Metropolitan Region in Melbourne.

Rikkie-Lee TYRRELL: Hi. I am Rikkie-Lee Tyrrell, Member for Northern Victoria Region.

Sarah MANSFIELD: Sarah Mansfield, Member for Western Victoria.

John BERGER: John Berger, Member for Southern Metro.

Gaelle BROAD: Hi. I am Gaelle Broad, Member for Northern Victoria.

The CHAIR: And online we have –

Melina BATH: Melina Bath, Eastern Victoria Region. Good morning.

The CHAIR: Thank you very much. What I might do is get each of you, for the Hansard record, to state your name and the organisation you are appearing on behalf of. Then I will invite you to make a short opening statement and we will click over to questions.

Jacquie WHITE: Thanks, everyone. My name is Jacquie White. I am Deputy Chair of the Victorian Marine and Coastal Council.

Tom KOMPAS: Hi. I am Professor Tom Kompas, at the University of Melbourne.

The CHAIR: Thanks very much. Jacquie, over to you. Feel free to speak up, because it is a room where it is hard to hear for those sitting behind.

Jacquie WHITE: I understand. I will lean forward as well. Thank you for the opportunity to provide an opening statement too, because in our submission there is a lot of information that we were trying to convey, and that is not easy to do, and there is plenty that sits behind that that we would be more than willing to share with you or speak further with you on to ensure that you access the information that is relevant to this inquiry.

The Victorian Marine and Coastal Council are an expertise-based council. We are appointed by the environment minister. Our purpose is to provide evidence-based, stakeholder-informed advice to enable leadership in the adaptive planning and management of Victoria's marine and coastal waters. So there is a lot of

crossover with the things you are questioning and talking about. Our members span Victoria, and we bring knowledge, networks and coastal management expertise across marine ecology, marine law, catchment management, local government, traditional owners and a whole lot more.

Visual presentation.

Jacquie WHITE: There are just a couple of slides to do a high-level dive into some of the work we have done around the economic costs of sea level rise, and my colleague Tom Kompas is here to help with some of the questions down the track as well. But before we do I just want to stop at this point because, considering the focus of this inquiry, I want to reflect on what climate risk looks like in the marine and coastal environment, because it is often underestimated; it is often a terrestrial conversation, and yet the impacts on our marine and coastal environment are huge. That is what we want to talk to you about through our submission. As you would know, it is everything from rising sea levels, leading to inundation and erosion; to increased frequency and severity of storms, like we have just seen in recent months – they will not be the surprise events, they will be the norm; to changes to ocean temperatures, currents and acidification, which will change our ecosystems, which will change our recreational fishing and which will change the way we use and access our coast. Then there is the coastal squeeze, so the increase in the sea level rise forcing our coastal ecosystems inland, and they abut our hard infrastructure of people, houses and roads, and there is only going to be one winner in that.

To the next slide, thanks. I am sure my colleagues from local government and the CMA have talked to this to some degree, but in the context of risk from climate change and preparing for and mitigating the impacts of climate change, there are two really key legislative tools, and they are gold class in terms of what marine and coastal legislation looks like. These are looked on across Australia, across the other states, as modern pieces of legislation, and I think they put Victoria on the front foot in how we can adapt to climate change. The challenge is policy to practice, and I heard my colleagues talking about that before.

The Act sets out nine objectives. I will not go through them, but there is one in particular which specifically promotes resilience to climate change, which is a big shift from our traditional 'protect' model. The policy is what has driven this step change. It includes a hierarchy of adaptation actions that have to be considered when planning and making decisions about the coast. For example, the policy requires you to work through a system of considerations before you reach 'protect' as your option. It looks at nature-based models, accommodating the risk and retreat, and the very last step is to protect. That is a big shift from the way we used to think about our coast and the way we used to plan and make decisions around it.

Through VMACC's engagement with traditional owners, with the department of environment and climate action and many of our coastal land managers that were at the table before, it really became apparent we needed to put a dollar figure on those discussions about climate coastal hazard risk to bring some urgency to the conversation, noting that coastal hazard is often a later problem to deal with and it is really hard to get it at the forefront of decision-making amongst the day-to-day burning platforms for local government, state government and even federal government as well. Our purpose was to provide the economic data: how could we inform the business case for federal, state and local around better understanding of the implications of investing now versus investing later or waiting for later? What are the savings, but also what are the risks, if we do not act? That is what we have gone into. I am going to give you some of the headlines, and really there is a lot more behind this that we are more than happy to share.

Can I go to the next slide. I do not need to read that out to you. There are some big figures there. But of specific relevance, and it is the bit I want to point out for this committee, is that the figures refer to the economic impacts across 132 local coastal areas across the state and 88 different land use classes, the majority of which are built environment and infrastructure. I will show you, two slides along, how that breaks down and what that looks like across the state in terms of the impacts across those land uses and the impacts across the state. But I want to note dot point 5, which says by 2040 we will already have a $123 billion cumulative impact. The numbers are big, but embedded in that there are some gems of hope in that last dot point. If we act now, actions that avoid the cost of a dollar of impact before 2040 are equivalent to avoiding $4 in 2070 or $10 in 2100.

There is one more data slide, if I can jump to the next one. It is the circle on the right I want to talk to. These are the impacts in total over time as yearly amounts. The final column is the impact on our gross state product by 2040, 2070 and 2100 without any adaptation actions. By 2100 the economic impact is equivalent to 2.7 per cent of total GSP each year, so that is about half the impact of COVID lockdowns on the Victorian economy per

year just due to the unmitigated impacts of sea level rise and storm surge. That is a lot to take in. My colleague Tom Kompas is quoted as saying the economic damages from sea level rise and storm surge to coastal areas are more than enough to trigger considerable financial instability for many coastal communities across the state of Victoria as well as for the state of Victoria itself, not to mention potential loss of life and damage to food, water supply and environmental assets from sea level rise and storm surge. It was important to us to do this piece of work and put the evidence on the table so we can start making decisions around how we plan now for the future but, more importantly, how we invest now versus where we choose to plan and invest in the future.

If I can jump to the next slide, I just want to show you that breakdown across the coast. I know it is small, but I have provided the slides to you. Hopefully that is useful. The Y axis is the economic impact in millions of dollars. The X axis is the coastal areas, from left to right: western Victoria, Geelong, west of Melbourne, Melbourne, Port Phillip, east of Melbourne, south Gippsland and eastern Victoria. Then you can see the colours, some of the land classes. Unsurprisingly, the costs are different across the state by different land use classes. But what is important to note is commercial impact is highest in the Melbourne region – not surprising. Residential impacts around Port Phillip Bay and east of Melbourne are the highest. Public land reserve impacts are highest around west of Melbourne, including the threatened ecosystems and our Ramsar sites. Farms are impacted in parts of Victoria, particularly west and east. The utilities around Geelong, a lot of them are situated on the coast. 'Other' refers to the 69 other land classes like schools, hospitals and mines, collectively.

I will just jump to the next slide in wrapping up. Part of the work we did with the Kompas report was to put forward some recommendations in partnership with Life Saving Victoria, whom we undertook this work with, and one of those is calling for an independent taskforce or commission. We see that there is a need to bring the experts together to look at not only how we address what is found in the report we actually have but how we address that policy-to-practice challenge that we have now got. But I want to leave you with a couple of key messages, and that is: we are all in this together. It is not like it is one part of the state or a particular part of our community or a particular part of our environment. It is across all levels of government, as you heard from local government, state and federal. But it is coastal communities that are going to be affected – and their livelihoods and their agriculture and their recreational pursuits as well. We are at the point of choosing between the road, the community centre and the sports centre. It is at that scale. But the other message is we have the evidence. It is there. It will cost Victorians more to delay, like we have shown, and we also have the legislative framework to build resilience and adapt. I am going to leave it there.

The CHAIR: Thanks very much. Dr Kompas, I do not know if you want to add anything briefly to that or whether we can address things in questions. It is up to you.

Tom KOMPAS: No, I think she did really well.

The CHAIR: Great.

Tom KOMPAS: It is a very high level summary. Just keep in mind that the actual technical report is really highly detailed. It is a large dimensional computational model for 88 land-use classes and 132 LGAs, so it is really quite detailed.

The CHAIR: Fantastic. Thanks so much for appearing today. I might kick us off. One of the things we have to grapple with is how we make recommendations to government about what to do. You have obviously provided us with some there; that is really useful. Based on your experience and expertise, are there other jurisdictions, either in Australia or internationally, that are doing this well, addressing this challenge well and have the frameworks you think that Victoria could look to as to how we better do marine and coastal management given the climate change challenges?

Jacquie WHITE: Certainly, and I think that has led to our marine and coastal policies, that we have really drawn on those examples from around Australia to build on what they have learned and put that into our policy. So a lot of the work came from QCoast, Queensland's work around climate adaptation, but also in New South Wales and Western Australia particularly as well. So there is plenty to learn from what the other states are doing. I think the challenge is we have not necessarily connected across all the states to bring that together. So I think there is some opportunity at a federal level to look at how we bring the expertise and learning from across the country into Victoria. In Western Australia the state government funded modelling around looking at climate hazard risk and did that at a state level so that councils, committees of management and others could

invest where the priorities were using the best available science, but you had a whole-of-state evidence base, whereas at the moment a lot of that we do piece by piece.

The CHAIR: Dr Kompas, do you have anything to add on that?

Tom KOMPAS: Yes, I would just say that from my perspective, Victoria has the best spatial data for inundation in the country. I mean, again, these 132 LGAs and 88 land-use classes, you do not get that in other states. It is really nicely detailed for someone like me who loves these sorts of large dimensional models. It is like love. It is lovely. I love it. So in a sense, Victoria is well ahead that way, which makes it in a way easier to adapt as well because you can find the specific assets that are being impacted, where they are located and to what extent, and it is highly detailed to do so.

The CHAIR: So you think that we have the data from which to do the analysis; we have just got to translate that into action. Is that –

Jacquie WHITE: I would even add a few more things. We have the data, we have the tools, now we have got to transition that into practice. And that is some of the challenges around what are the expectations of our community in terms of how they access and use the coast.

The CHAIR: Yes, just on that, we had evidence from the Borough of Queenscliffe before that there were some changes that they proposed to put through the planning scheme that ultimately were not introduced because of resistance from members of the community. That obviously presents a degree of difficulty. How do we bring the community along with the kind of adaptation changes that may affect how they enjoy the coastal communities, and what do we need to do to bring communities with us on this journey?

Jacquie WHITE: That is a great question, and one that VMACC has been considering for some time around how do we normalise the conversation about climate risk and climate hazards on the coast. I think as Martin from the Borough talked about, it is wrapped up in people's feelings about the coast. It is wrapped up in how we remember our association with the coast but also how we live and work and play along the coast now, so that change is hard because – I think his word was 'it's emotional'. So no-one wants to tap into that. It is tricky.

There is also work that VMACC has been doing around a longitudinal study around people's attitudes towards the coast – and we are happy to provide that information as well – in terms of what is important, and it is often not what you think. It is about having access to nature and open space and that value that that provides. Further down is access to fishing and boat ramps and the infrastructure side of things, but right up there it is nature, walks, empty spaces. So it is about, I think, tapping into what we care about and matching that with the evidence we have got. If this is what we care about and this is the evidence about the impact on that, what is it we need to change? And I think the policy sets us up to do that with that order of consideration to be able to think about different ways of managing the coast, and that is everything from traditional approaches of a seawall, and the expectation might be that we put hard infrastructure in to protect, versus looking at examples like Greater Geelong are doing around using nature-based methods to achieve the same thing. And that is again underpinned by the evidence that the department is doing around all the modelling of our currents and climate risk. The work they are doing is around how nature based can be used and implemented in these examples and what is the cost–benefit compared to what we are traditionally used to in terms of hard infrastructure.

The CHAIR: Thanks. Mr Ettershank.

David ETTERSHANK: Thank you for coming today; I really appreciate it.

Jacquie WHITE: Thanks.

David ETTERSHANK: Can I just say the report is like staggeringly good and disturbing.

Jacquie WHITE: Yes, both of those.

David ETTERSHANK: It is an extraordinary read; I could not put it down. First of all, in all that excellent analysis you come to the pointy end, which I think is the establishment of the independent taskforce, which is to sort of give life to a lot of the data you have pulled together. Can I just ask: has there been a response from government to the establishment of the taskforce, or where is that at?

Jacquie WHITE: We are still working with government on that response, yes – not directly, but we are still having a conversation with our department colleagues around that response.

David ETTERSHANK: And it is how long since the report was produced?

Jacquie WHITE: Tom, a couple of months?

Tom KOMPAS: More than that. We have to have an engagement with the Victorian Treasury, and there are other things that are in the works, but it is taking some time to get things going.

David ETTERSHANK: And your report would suggest that time is money, amongst other things.

Jacquie WHITE: Absolutely.

David ETTERSHANK: Look, I think with all these things it is sometimes hard for people to get a grip on exactly what it means in real life, so I would like to throw up a scenario, if I may. In the south of my region we have got Werribee, we have the Ramsar wetlands, we have some of the fastest growing suburban corridors and we also have some critical infrastructure, such as the sewerage works. I guess I would be interested if you could just describe for the many viewers and the committee what your modelling would suggest about the impact on that region, and what would that look like in terms of resilience and mitigation measures potentially?

Jacquie WHITE: Yes, great. Tom, do you want to jump into that first?

Tom KOMPAS: Yes. We can drill down to specific areas within a region. I mean, we do have the data for that. The infrastructure loss in your area was especially disturbing to me, but there are damages across the whole spectrum of land use classifications near Werribee. So if you wanted to, we could actually drill down a bit and see what specifically is going to be impacted. We have got that information. Keep in mind too that the original inundation layers out of the department of environment, although they are crackerjack – they are really good – have an estimate of a sea level rise of 0.82 in 2100, and that is the work that we did on that basis. But that is probably very conservative. It is seen as conservative. CSIRO says 1.1. Climate Risk up in Sydney says a 1.5-metre increase in 2100. So those numbers you are looking at and the potential damages you are trying to drill down on are probably underestimates, unfortunately.

David ETTERSHANK: If there is an offer there to provide more elaboration, could I perhaps ask you to take that on notice and come back with that as maybe a bit of a case study. Would that be suitable?

Jacquie WHITE: Absolutely. Yes, we can do that.

Tom KOMPAS: In your area it is not just houses and roads and commercial properties. There are a lot of environmental losses from Geelong all the way out west, and the infrastructure losses, again, are the ones that I found really, really disturbing – yes, quite bad.

David ETTERSHANK: So if we were looking at this in terms of the sorts of priorities you identified where protection is the last line, and again looking at that area, what would that mean in terms of priorities for both local and state government by way of action?

Jacquie WHITE: In the Werribee region?

David ETTERSHANK: Yes, in that catchment.

Jacquie WHITE: That is probably difficult for me to answer with detail, not being the land manager across those different classes that you talk about. I suppose the policy in itself talks about a range of different options that you must demonstrate you have considered as part of your planning and decision-making. They start with non-intervention. That goes back to the community conversation: do we need to? Do we need to replace what is there? Do we need to put in the same as what we had, or is there a different way of thinking about this, or do we let nature take its course? So that is number one. Then there is 'avoid'. So how do you actually avoid the hazard risk by considering that could go somewhere else? Does it need to be on the coast, or could it be placed somewhere else? We have got a history of putting a lot of our infrastructure and choosing to live on the coast. Does everything have to be on the coast? Can it be moved, or can it be movable like you have seen with the lifesaving clubs down at Inverloch, which are on skis and can be moved back?

You have then got the nature-based method, so using a different approach, which is a really emerging piece of work, and a lot of your colleagues at the University of Melbourne, Tom, are working on different nature-based models and how they might apply, particularly around Port Phillip Bay and Western Port Bay. Then you move into 'accommodate'. I think that is the interesting one too: how do you accommodate the risk? And again, that plays to the community expectation conversation. What degree of comfort or what degree of risk are we prepared to accommodate versus 'protect at all cost' or the sense that 'I will be protected' – 'the government will protect me or my house or my road or my skate park'? 'Retreat' is the next one, and then last of all 'protect'. I think all of those are on the table, and that is where it comes back to: these are local decisions that are being made, so across that whole region all of those local decisions would be part of the consideration.

David ETTERSHANK: Perhaps I could just ask you if you could elaborate a little bit on that in what you are taking on notice.

Jacquie WHITE: In terms of the case study? Absolutely, understood.

David ETTERSHANK: That would be wonderful. Thank you so much.

The CHAIR: Given we have mentioned the Inverloch lifesaving club, I might go to Ms Bath, because she will no doubt want to ask some questions.

Melina BATH: Thank you. Thanks, Chair. Thank you very much. Yes, I think to my mind the Inverloch Surf Life Saving Club and Inverloch surf beach are very much the canary at the moment – they are right out there on the sticky end. I am just really interested to understand, and can you just refer to that: in legislation all of those six adaptation options must be considered. Is that correct?

Jacquie WHITE: In that order, so working through that order as a hierarchy.

Melina BATH: Yes. But how do you address options? I want to understand – and maybe you can take it on notice – the difference between 'accommodate', because 'accommodate' could also have protective elements in it –

Jacquie WHITE: Yes.

Melina BATH: They may not be a rock wall, but they may be some other new technology. How do you or how does government address an accommodative feature that is not a protective feature under your definition but can still avoid retreat?

Jacquie WHITE: I will certainly have a go at answering your question. I will just clarify, though, the policy is a state government policy, not a policy of the Victorian Marine and Coastal Council.

Melina BATH: Yes. Could you interpret the policy for us?

Jacquie WHITE: Yes. Thank you. We were contributors to it. It is not that it is one or the other; it is really bringing in those adaptation pathways – that there are a range of options that could become, if you like, the package to address the issues at that site. So by no means is it meant to be one or the other. I suppose the step change that I reflect on in this policy is a change away from the traditional approach, where our approach was 'protect' – hard infrastructure, protection. So the options here are about a step change away from that being the first port of call – in history possibly the only port of call – so really bringing in a range of different measures with different cost benefits and that take away from the asset. The challenge of having, then, hard infrastructure in our coastal areas and the cost of maintaining those over time, which is where we are starting to see now aging infrastructure, is one of the biggest costs that we are facing, and we are at the point of: do you replace them? What is the hazard that they are now causing because the environment around them has changed? So it is the step change for mine, Melina, that is important, not that there is one or the other – if that answers your question. If not –

Melina BATH: Yes. It is a huge conundrum. I heard you mention that the surf lifesaving club is on rails and it can be moved back. I would challenge that from the conversations that I have had, and it is not about a debate today. But I think more broadly sometimes it is where they are removed to, because if part of the solution is retreat by government or the adaptation is retreat, you are clearly going to end up retreating back onto pathways and roads and the like. What I want to understand from your point of view is about your work, and therefore

government, drilling down into the economic loss of our 300 towns and communities on the coast, because the conversation around not protecting anymore seems to be a balance of ecology and the financial costs. How do you feel that you can accommodate and understand the real cost to those communities?

Jacquie WHITE: From an economic point, Tom, do you want to jump into that, or do you want me to?

Tom KOMPAS: I guess, Melina, it depends what you mean by economic cost or the real cost. I mean, we calculated economic cost in terms of physical damages using market values, but we also calculated what are called non-market values for environmental damages, and they are aggregated; they are put together in the report. So it is trying to capture as much as we can possibly capture using our methods for valuing environmental losses and scraping data for physical losses. I just might add that I was just pulling up the data while we were talking. Werribee and Point Cook – what are called zone 3 in the report, which is an aggregate of a number of different LGAs – are in fact the most impacted. It is just ahead of where I live currently, in Southbank. It pays to look at Werribee; it is a good example of what can go wrong. In terms of dollar amounts, it is the most impacted. In terms of the percentage of area that is impacted, there will be other metrics that are relevant, including Inverloch or Port Fairy or other places.

Melina BATH: Thank you. I guess the other thing is that we are making recommendations to government. Around the world or around Australia, where are we doing this the best? Where are we mitigating without spending billions on protection? Where is there a good balance between nourishment and intervention? We need to understand, because it is a real conundrum for all coastal communities.

Jacquie WHITE: I will lean on your expertise there, Tom.

Tom KOMPAS: Yes, that is a very good question. I typically work in areas that are going to be potentially inundated, not the good case scenarios, but I think there are very few places in the world that are doing adequately in terms of measures. I have just finished a major work on Vietnam, and most of the Mekong Delta will disappear in the south. Some of these impacts are just so huge that it is hard to take into account how to handle it at the moment. But there are areas that focus on seawalls, even in Australia, as you know – New South Wales and so on. There are areas that are putting in mangrove forest to attenuate the sorts of waves that are coming through with storm surges; that is being done. There are changes in zoning laws that require you not to build on flood plains. That is common in the United States now, and certainly it is going to be more common in Tennessee and North Carolina – that is for sure. There are areas that are about retreat. There is a move towards retreat and moving away from the coast. That is happening. Who is doing it best? Boy, good question. I would be hard pressed to answer.

The CHAIR: All right. Thanks, Ms Bath. Dr Mansfield.

Sarah MANSFIELD: Thank you. It can be hard not to find some of this a little bit overwhelming, frightening and depressing. But I guess you have made some practical recommendations and have identified that there are huge benefits in acting now and not delaying. One of the things you have identified is the need to establish dedicated funding. I would be interested in understanding more about why a separate dedicated fund would be helpful in this instance.

Jacquie WHITE: The challenge we have, as you heard before, is we have got our coastal committees of management, local government and volunteer committees, with varying scales of capacity and various income sources, and they are all having to tackle those figures and that risk. It is really difficult then to do that when you have got a council the scale of the Borough, versus Port Phillip or Geelong. How do we help all of our committees of management who are at the coalface of managing and making a lot of the planning decisions around this to deal with something of the order of magnitude that we have just shown? We felt that there was some value in a fund where we looked to established investment around the priorities that then looked across municipal boundaries. It worked across the organisational structures that we have in place to say, 'In terms of Victoria, where do we absolutely need to invest? What's the evidence behind that and why, and then how do we use the dollars to do that?' And that might still be in partnership with the agencies and coastal managers. But what needs to happen in those priority areas is beyond what they can fund.

The other part of it I suppose is: how do you do more with the dollars in the system? I think having priority areas that we can be targeting and investing in means we are working to the same outcome, and that is difficult for a council, who are working to their rate base.

Tom KOMPAS: Yes. Can I just add a point to that? This is a really good thing to think about. We do not put the dollars just where the largest damages are necessarily. You put the dollars where you get the best rate of return, the best risk reduction, and that is work that needs to be done yet. We need to think about where the best rates of return are along the coast. You care about risk reduction, not about risk levels or damage levels. Our report is all about the total damages that will accrue, but when you are investing money for adaptation purposes you care about, again: where is the best rate of return? That is something to really look forward to.

Jacquie WHITE: And then it is that rate of return in terms of community benefit or environmental benefit or a balance of both.

Tom KOMPAS: Yes.

Sarah MANSFIELD: You identify that that is work that is yet to be done, but do you have a sense of areas where we would benefit most from investing now, already? Do you have a sense of that?

Jacquie WHITE: Yes, we do. Go on, Tom.

Tom KOMPAS: Yes. This is the sort of work we do quite a bit. I will not name specific LGAs or suburbs, but you would be surprised; some of the areas with the smallest damages in fact have the biggest rates of return. So it is not clear. You know, the big-dollar damages in Southbank or in Werribee may not warrant investment – it is an open question – whereas smaller damages in Point Cook or Lakes Entrance might warrant investment. It varies a lot, and it requires a lot of analysis to get that right. But from the preliminary work we have done there are a lot of small LGAs and suburbs where rates of return are very high. You do not have to spend a lot to make vast improvement, and that is what you would want to focus on.

Jacquie WHITE: And we have that information – as in the state of Victoria has that information.

Sarah MANSFIELD: Okay. Along the lines of having a dedicated fund, you have also recommended establishing an independent taskforce. Now, there are different views about whether this should just be embedded – you know, responsibility needs to be taken by every department across every level of government – and just integrated and everyone is just doing their bit. What do you think the value is in having an independent taskforce looking specifically at this issue?

Jacquie WHITE: I think, to your example, if everyone was doing it, we would have done it. Part of the taskforce is putting a spotlight on this and raising the profile, which links in with that third recommendation: how do we raise awareness – the impact, the issue, the responsibility, the accountability? I think we have talked about it like a royal commission. Is it Victorian or is it national? We feel there is a spotlight that needs to be put on the issue in order to get some traction.

Sarah MANSFIELD: Thank you.

The CHAIR: Mr Berger.

John BERGER: Thank you both for your appearance this morning. What gaps in research does the report identify, and what areas should be prioritised for future studies to support coastal resilience efforts?

Jacquie WHITE: Look, I will give you the high-level non-economist answer, and then Tom can give you the other one. We did not cover the cost of coastal erosion – that is not included in those figures – we did not cover living culture and historic heritage in those figures and we did not cover the avoided cost for adaptation. That would just lift them up even further. Your version of that, Tom?

Tom KOMPAS: No, I think that nailed it. Perfect.

John BERGER: So how does the report suggest local governments collaborate with the state government and other stakeholders to enhance coastal management and resilience?

Jacquie WHITE: Sorry, how do –

John BERGER: Yes, how does the report suggest that local governments collaborate with state governments?

Jacquie WHITE: Look, that is probably a question for state government and local government. But one of the things that came out of the policy and the strategy was Victoria's Resilient Coast Program that the state funded, which was about building the capability of our committees of management – so local government particularly – and funding work associated with managing climate change on the coast. That program built on the lessons from Queensland and other states as well and has done a really good job of bringing a community of practice together across all of those coastal land managers, because knowledge sharing is going to be fundamental to that as well. I think the challenge, back to our second point, is it has not got the funding it needs to do the job it can do.

John BERGER: So let us talk about the committees of management. What are the compositions of those committees of management?

Jacquie WHITE: What do you mean by composition?

John BERGER: Where did you draw from to get them to be on the committee of management?

Jacquie WHITE: In terms of who – how do you get someone on a committee of management?

John BERGER: Yes.

Jacquie WHITE: There are different – again it is probably a question for state government, but there are two categories for committees of management, category 1 and 2. Local government is a category 1, Great Ocean Road, the GORCAPA, is a category 1 and there are some larger category 1 – Barwon Coast that you have met, and Bellarine Bayside. Then there are smaller committees of management that might just be for one stretch of beach. They are more often than not volunteers from that local community. So that is a big scale of difference in terms of skill base –

John BERGER: or expertise.

Jacquie WHITE: skill base and expertise. Succession planning is often a bit – if you look at the demographics across those volunteer committees of management, there is not always the next group of people coming through, and then you look at the funding base. Some of them have caravan parks or parking fees or other things that they can generate an income base from, but it is so varied. I think that is a challenge, and I think as an example, in Port Phillip Bay alone around the coast, there are 64 different land managers. So you can cut it up into 64, and that is everyone from Melbourne Water and Western Treatment Plant through to a small committee of management for Whitecliffs Beach – 64 different land managers, and we are all working on those issues.

John BERGER: And how do you get the focus going in the one direction?

Jacquie WHITE: How can they? How can some of the smaller ones even tackle that? And that, I think, points to some of our recommendations about a taskforce and that investment fund, that it is about working with those groups to deal with these issues, recognising that the split of capability and funding resource capacity is just so varied.

John BERGER: Okay, thanks. Thanks, Chair.

The CHAIR: Thank you, Mr Berger. Ms Broad.

Gaelle BROAD: Thank you very much for appearing before the inquiry. We appreciate your insights. I am just interested because you showed the financial modelling that is without any adaptive actions. What actions will change that course? What are some practical examples?

Jacquie WHITE: I might throw that to Tom.

Tom KOMPAS: So again, you mean in terms of adaptation measures specifically?

Gaelle BROAD: Yes. I guess I am just – my grandma was a very practical woman, always looking for projects that actually made a difference. And you are talking about an investment fund to set up to do some of

those actions. So just from a practical perspective, what are some of the projects that will help change that course that you have shown?

Tom KOMPAS: Well, again, you would have to look at rates of return across various kinds of investments. It is everything from natural barriers all the way out to retreat, and indeed everything in between. You would have to look and see what the best alternatives are. Now, that is research that Jacquie may know about, but I am not aware of any of that.

Jacquie WHITE: And that was part of putting it up there in terms of saying there is not enough data to do that assessment on the positive impacts of adaptation. That is a research gap that we should be considering.

Tom KOMPAS: Yes, we are keen.

Gaelle BROAD: So how do you determine the financial impact if you are based on – if you are saying that this is the impact without these solutions, if you do not know what the solutions are, how do you know the impact?

Tom KOMPAS: Well, the ultimate impact would depend upon the solutions that are put in place, but this is the counterfactual: if we do nothing, if we do not do any adaptation measure, these are the damages that will occur going forward in 2040, 2070 and 2100. It gives you a benchmark. It tells you what could happen if you do not do something to fix the problem.

Jacquie WHITE: That is the baseline, so anything on top of that we consider to be a return on investment. But that is why it is such a local decision to look at what the orders of consideration are and what is going to be, locally, the best bang for buck. But how do you do that across the whole of a state, where in each of those local areas and those different land classes there are big issues happening across the whole state?

Gaelle BROAD: Can you give an example of a few local projects that have been effective at adapting?

Jacquie WHITE: Yes. If you are looking at the nature-based examples, there is a huge investment that the City of Greater Geelong have made in really leading the way in trialling different adaptation options and looking at nature-based defence as a way of protecting against the erosion that was happening on particular beaches. I will not speak to that in detail, but I will be happy to get you that information. They have done a lot of work in trying to put that practice in place and test a range of different materials and a range of different options and partnering with a lot of their academic colleagues as well to do that to make sure it is done in a robust way so that we can measure and report on the effectiveness.

Tom KOMPAS: We have a recent paper on natural barriers that has been published that we could provide as well. As Jacquie said earlier, there are a number of our colleagues at Melbourne Uni who work on this. One point to note, though, is that natural barriers are typically effective only at relatively small sea level rise layers – you know, after 0.6 or up to 0.8 the natural barriers do not really work very well, so you have to do other things.

Jacquie WHITE: We can provide you that paper, yes.

Gaelle BROAD: Aside from that project, are there any other sorts of practical projects that you would highlight?

Jacquie WHITE: There are. There are plenty of things happening across the state. I think it is tricky to do. They range from things like planning decisions through to actions in the water, so to pick one, I think, would be a challenging thing to do. I am happy to provide something that gives you a snapshot of the different things happening along the coast – I think that would be a better way of doing it to show you the breadth of different things that are being trialled and worked on and perhaps to get a sense of the land managers who are leading that work as well. I think that is interesting – the different scales of organisations in the sector who are working on it and leading the way. Would it be okay to take that on notice and give you a more comprehensive answer, rather than just picking one at the exclusion of some really good stuff that is happening?

Gaelle BROAD: That would be great. Thank you.

The CHAIR: It is always hard to pick your favourites.

Jacquie WHITE: Yes.

The CHAIR: Mr Ettershank has just a very quick follow-up question.

David ETTERSHANK: One of the lovely things in your report, I think, is it provides some really good intellectual frameworks and things like the hierarchy of response. I am wondering, is that thinking equally applicable in riverine catchments as it is in coastal settings?

Jacquie WHITE: It is a great question.

Tom KOMPAS: In my mind, absolutely, yes. It is a great question. I mean, in my mind, absolutely. In fact a lot of the inundation that happens here along the coast happens more or less inland – it comes through rivers. I mean, Southbank is not on the coast, right, and neither is Docklands literally; it is the Yarra that floods. It is exactly right, and that is picked up –

Jacquie WHITE: And it is good timing, because the revision to the *Victorian Waterway Management Strategy* is underway at the moment, so it is a good opportunity to ensure that the links between the two are clear, yes, or to lean on one for the other.

David ETTERSHANK: Thank you.

Tom KOMPAS: There are alternative sorts of scenarios as well. I mean, rain bombs up in the north of the state are different from coastal inundation of course, and you have to handle those things differently, as we have seen. But they are related.

The CHAIR: Jacquie and Tom, thank you for your evidence today. It has been really useful. We appreciate you taking some questions away to come back with. You will be provided with a copy of the transcript of today's proceedings shortly for review. With that the committee is going to take a short break for lunch.

Witnesses withdrew.