T R A N S C R I P T

LEGISLATIVE ASSEMBLY ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Tackling Climate Change in Victorian Communities

Melbourne—Monday, 28 October 2019

MEMBERS

Mr Darren Cheeseman—Chair
Mr David Morris—Deputy Chair
Mr Will Fowles
Ms Danielle Green
Mr Paul Hamer
Mr Tim McCurdy
Mr Tim Smith

WITNESSES

Mr Andrew Crisp, Emergency Management Commissioner, Emergency Management Victoria;

Mr Lee Miezis, Deputy Secretary, Forest, Fire and Regions Group, Department of Environment, Land, Water and Planning;

Mr Alen Slijepcevic, Executive Director of Bushfire Management, Country Fire Authority;

Mr Jamie Devenish, Manager, Emergency Management Planning, Victoria State Emergency Service;

Ms Sue Cunningham, Director, Victoria, Australian Red Cross; and

Dr Mark Norman, Chief Conservation Scientist, Executive Director of Environment and Science, Parks Victoria.

The CHAIR: Thank you and welcome to the first of the Committee's Melbourne public hearings for the Inquiry into Tackling Climate Change in Victorian Communities. I would also like to extend a welcome to any members of the public and the media present here today. This is one of several public hearings that the Environment and Planning Committee is conducting to inform itself about the issues relevant to the Inquiry. I will just run through some important formalities before we begin.

All evidence taken today will be recorded by Hansard and is protected by parliamentary privilege. This means that no legal action can be taken against you in relation to the evidence you give; however, this protection will not apply to comments you make outside of the hearing, even if you are restating what you have said during the hearing. You will receive a draft transcript of the evidence in the next week or so for you to check and approve. Corrected transcripts are published on the Committee's website and may be quoted from in our final report.

Thank you for making the time to meet with the Committee today. Could each of you please state your full name and title, and then we will commence, providing, I think, 10 minutes each for you to go through and present on behalf of your organisation, and the Committee may wish to ask you questions on any particular points that you are making. So we might start with you, Andrew.

Mr CRISP: Andrew Crisp, Emergency Management Commissioner.

Mr MIEZIS: Lee Miezis, Deputy Secretary, Forest, Fire and Regions at the Department of Environment, Land, Water and Planning.

Mr DEVENISH: Jamie Devenish, Manager of Emergency Management Planning at the Victoria State Emergency Service.

Ms CUNNINGHAM: Sue Cunningham, Victorian Director, Australian Red Cross.

Mr SLIJEPCEVIC: Alen Slijepcevic, Executive Director, Bushfire Management, Country Fire Authority.

Dr NORMAN: Mark Norman. I am the Chief Conservation Scientist and the Executive Director of Environment and Science at Parks Victoria.

The CHAIR: Fantastic, thank you. Andrew, did you want to kick off today?

Visual presentation.

Mr CRISP: Thanks very much, Chair. I will begin by acknowledging the traditional custodians of the land on which we meet and pay my respects to elders past, present and emerging. I guess the first point I would like to make is with regard to the people at the table here. We all know each other, and I think that is a really important point to make in terms of how we actually do work together in tackling whether it is this particular issue or broader emergency management issues.

I am not telling you anything you do not know in relation to what the state looks like and what it might look like in the future. We know it has a significantly growing population, increasing urbanisation, a fantastic diverse community that we have here in Victoria and then climate change, which is picked up there in relation to some of the impacts that we are seeing and have seen in more recent times. I will come back to those in a minute.

This is a Bureau of Meteorology slide that is publicly available, and I have seen it delivered in a number of different presentations. Years are along the bottom and on the axis it is showing variation in temperature. As you can see, there is the mean temperature—the average of night and daytime temperatures—and again, looking towards where we sit today, we are seeing an increase in relation to temperature. If you think about what we saw here in Victoria last summer, last fire season, the heat health alerts that are put out by the Department of Health and Human Services look at a similar model in that they look at the average of the maximum daytime temperature and night-time temperature as a prediction and then they will put out the heat health alert.

So last year we had 74 heat health alerts for the state. That was 19 more than the previous year and the most that has ever gone out. Also, when you think—

Ms GREEN: Andrew, was the preceding year the second highest?

Mr CRISP: No, it was probably four years ago. Then when you look at the other impacts that were on that first slide, so back in March 2018, last year, there were the south-west fires. Again everyone was talking about those fires in terms of them being relatively late in the season, but also the way that they burned overnight was something that we do not generally see in this state. Then in August last year, between March and August, we had fires down in Gippsland—Cape Conran—again, very, very early in the season. We thought March was late last year in relation to the south-west fires. In April this year we lost properties and 2500 sheep in fires at Mount Mercer and Bunkers Hill—so again, very, very late in the season.

We have also seen—and again people will think climate change, they will think heat and they will go to fire—severe weather events. In mid-December last year there was significant severe weather and flooding up on the Hume Highway. You might remember the footage around that where people were being rescued from the roofs of vehicles. In El Dorado, near Wangaratta, there was 203 millimetres. It was talked about as a once-in-150-year event.

Also in relation to water again when we think about climate, we think it was warmer. We had more heat health alerts, so more people were going to be in or near water. Last financial year there were 56 drowning deaths—29 drowning deaths between the start of December and the end of March. Also what we have seen over the last few months have been tornadoes. There was one just south of Bendigo and one just south of Yarrawonga only a month or so ago. The Bureau of Meteorology had a lot of interest in those particular events and they sent teams to investigate. It is not so unusual to have those during warmer weather, but in wintertime and cold weather they are saying it is quite unusual. So there is something happening.

Overall in relation to last summer it was our hottest summer on record and our hottest January on record. What does that mean for us? In terms of systems, with Emergency Management Victoria and working across the sector as a whole, it is always about safer and more resilient communities. Community-based emergency management is at the core of what we do, and there have been examples around how we have done that. In Harrietville there was the development of a community-based emergency management plan and active engagement with the community itself in developing a plan that best suited their needs. You only have to look in more recent times: last weekend with the evacuation exercise that was conducted in Powelltown again the community was at the very centre of the planning in relation to that particular evacuation exercise—

The CHAIR: Sorry, just on that, Andrew, can I just ask: in terms of emergency management plans, are those plans across Victoria well reflected in municipal plans and other local government planning?

Mr CRISP: The planning regime at the municipal level consist of the municipal emergency management plans, and they are actually audited by the SES. There is sort of a rolling program around those. They do identify local risks and how they will tackle those. Probably my third dot point was where I was going to go to

the planning regime. But in relation to that community-based emergency management approach that we see at the moment—I will touch on the legislation in minute—we are already seeing that put into practice, whether that is what has occurred at Harrietville and Powelltown and also up in Bendigo. The local government area works with neighbouring local government areas. They have formed their own cluster in relation to what they can do around community resilience and emergency management preparedness.

The community-focused planning reforms—the emergency management planning legislation was passed last year so we are in a process now where we are developing a new state emergency response plan. That is out for consultation at the moment. We already have an existing plan, but this new plan gives us the opportunity to look at new risks. Part of the development around that will be a new state emergency management risk assessment, which we have not updated in the last couple of years. The planning regime—what is new around that is a regional layer of planning, so there will be a requirement for regional plans to be developed. Again, there will still be municipal plans, but there is a greater focus on community involvement in the development of those plans. At the moment, as I mentioned, we are developing at the state level the state plan, and we are piloting a couple of areas in the region in relation to the development of regional plans. They will be worked on through the middle of next year. We have to start rolling out the municipal plans or start working on them by the end of next year to meet the time lines of the legislation itself.

Some other pieces of work that are happening at the moment in relation to how we support community and community resilience is Emergency Management Victoria has taken the lead on developing a 2030 strategy. A number of different organisations that work in our sector are working on similar plans, but we thought it was important that we actually look at how we pull this together across the sector as a whole. The scope for that has gone to the State Crisis and Resilience Council, so it is being sponsored by that particular body, which is chaired by the Secretary of DPC. We plan on that being completed the middle of next year and, again, we are working with the inspector-general for emergency management, who is also completing a piece of work this year in terms of where we are now, 10 years on from the Black Saturday fires. The IGEM's work will be completed by the end of the year, and they have actually undergone a significant community consultation process as part of their work. We will piggyback on some of that in relation to developing our 2030 piece, but we will still be going out for broader consultation around that.

As some might be aware, there is also the critical infrastructure and sector resilience networks, whether that is in relation to energy, transport, food—a number of areas where in fact there is a requirement for people to look at risks in relation to their various sectors. I found this quite interesting when I moved into this role 14 months ago and attended the first meeting. I remember when these networks were first established and people were talking about critical infrastructure protection. The reason they were actually developed, and the significant risk at that stage, was terrorism. Since I have come into the role and attended a number of forums in relation to this particular sector it is climate change that they are talking about in terms of one of their most significant risks.

We have also been looking at some operational initiatives. I mentioned before about the south-west fires. Night fire suppression—what more can we do to tackle fires at night? A project was started a few years ago here in Victoria. Last year in effect it was operational where two helicopters were used for night fire bombing. Again, it was said to be one of the first in the world, particularly in terms of hover fills. There have been other examples, particularly in the US, where they have used helicopters fighting fires at night but they go back to an air base to fill up and then go back to fight the fire. Ours have been hovering, filling over dams and other water sources, to continue working on the fire. It proved to be quite effective last year. We are still going through a period of evaluation, and for this year we will still run the same model in terms of two helicopters and a support helicopter but, again, looking at how better we might be able to use those resources. The CSIRO provided some evidence and support to us last year that we might be better off, rather than continuing to fly on a fire at night, starting very, very early the next day. So we will continue to work our way through that, and if there is a need to look at growing our capacity around that, we will certainly do so.

Surge capacity opportunities are also a significant issue for us in relation to severe weather and particularly fire when you consider that at the State Control Centre last year there were more than 13 000 shifts. Again, it requires a significant input from invariably Emergency Management Victoria and DELWP as departments. So, again, we have gone out across Government departments in the lead-up to this summer about how we can

access additional resources to better support activities at the state level but also at regional control centres as well.

More broadly in relation to research there is the Bushfire and Natural Hazards CRC, which has been undertaking research around climate change and the impact on emergency management; AFAC itself; Alen will speak in terms of what the CFA has been doing; and the Bureau of Meteorology. So again we have been looking at how we pull together academics and practitioners to inform our thinking around emergencies more broadly.

I know this is very much state-focused, as it should be, but there is also an issue in terms of what we are seeing—look at the fires we have got at the moment in northern New South Wales and that we had in Queensland last month. Speaking to our counterparts in Queensland, they are seeing Victorian fires in Queensland that they have not experienced previously. That is predominantly to do with very low or no humidity. So Victorian fires in Queensland. Northern New South Wales at the moment, I was talking—

Mr FOWLES: Sorry, can I just clarify: when you say there are Victorian fires in Queensland, you mean Victorian-style fires, presumably.

Mr CRISP: Victorian-style fires, yes. They are not quite travelling that far!

Mr FOWLES: And what makes for a Victorian-style fire?

Mr CRISP: Talking to Mike Wassing, who was formerly in the CFA down here and has been the acting chief up there—and Alen can better speak to this in terms of the fire itself—simply he put it to me, as a non-fire person, that there is the expectation that humidity will have an impact on fires. But he was saying very low or no humidity, which means that there is obviously the ability for fires to burn a lot more furiously than they would previously. Alen, did you want to—

Mr SLIJEPCEVIC: Especially when you look at what is happening in the rainforest and the wet vegetation over there. It is burning really furiously, so it is replicating what we are seeing here in terms of fire behaviour.

Mr MIEZIS: Behaviour we see in dry forests.

Mr CRISP: So while the focus is on Victoria, this is also about national and international trends. We saw that earlier this year here in Victoria when we had 750 firefighters and incident management team specialists from every state and territory, other than Tasmania and New Zealand, that came in to support us. We know that Tasmania had significant fires, and they were taking a lot of resources, again from New Zealand and other states and territories. So again, the work that we need to do nationally is in terms of how we prioritise those resources that we move around and ensure that we have a robust model in terms of our decision-making.

Obviously there is the international element to this, and some people have already asked questions around it. This year we will again have two large air tankers. We will have two of the air cranes coming from the Northern Hemisphere. What impact will the fires in the Northern Hemisphere, particularly what we are seeing in California at the moment and what we have seen in the Amazon more recently, have on those assets coming here? We have been in regular contact with those providers, and we are being told that we will be fine, we will be looked after. But again, it is an issue for us to think about into the future in terms of those assets.

Mr FOWLES: To what extent is the overlap between Northern and Southern Hemisphere fire seasons increasing?

Mr CRISP: It is shrinking; we know that. Talking to Coulson, that provide some of the aviation out of the Northern Hemisphere, they are seeing it obviously as a business opportunity. They are looking at how they can increase their assets to support both the Northern and the Southern Hemisphere.

The CHAIR: Can I just ask: in terms of the point that my colleague was just making, what efforts or work are Australian fire engineers doing in terms of creating our own fleet and our own assets so we are less reliant upon what might be happening in other parts of the world at a time when we might be facing these particular challenges?

Mr CRISP: One part is that demand will drive the business and we will see more of those assets available to us. New South Wales has purchased their own large air tanker. That has been working very, very hard in the last couple of months on the Queensland and New South Wales fires. My recollection is that it has already dropped about 1.4 million litres of retardant while it has been working on those fires. I recall in the media I think it was the Queensland Premier who called on the Commonwealth to think about what more can be done at their level for a fleet that could support the country as a whole. It is certainly an area that we need to have some further discussion about.

The CHAIR: I am just thinking it through, too, in terms of funding models. Obviously our various fire bodies one way or another are funded in part through fire levies and the like. Should we be looking at potential ways to extend that for aerial coverage?

Mr CRISP: I have got Lee beside me, and DELWP plays a significant role in relation to aviation and the funding.

Mr MIEZIS: Obviously DELWP as a department does not draw on the levy itself. We are funded through re-current funding—so what we are funded to do is to maintain a base of aircraft in the state, which is about 50 aircraft. That pays for us to have them here. Obviously we use them in response, and we have an arrangement—in effect a Treasurer's Advance—where we draw funding as required to meet costs incurred.

Mr CRISP: I think in relation to whether a jurisdiction should purchase aircraft or not—or the large air tankers—it goes without saying that they are not cheap, and again you are locking yourself into a particular technology for quite a considerable period of time and not giving yourself the opportunity and the flexibility of what is out in the market. I must admit I am not convinced that that is the path to go, but that is not to say that we do not need these types of assets to support our community's safety.

Ms GREEN: Can I just say, I concur with that too. I think it is a bit too early to work that out. I was in Portugal and Spain and Greece in the middle of the year, talking to them, and they are just talking with their colleagues all across the EU because you have now got fires occurring in Scandinavia and wildfires in parts of Germany and Greenland, and they have no idea what to do. I concur with you, Andrew, that I think it is too early. Those massive air tankers can still only be in one place at one time—one fire.

Mr CRISP: That is exactly right. Look, they are very, very useful assets and they make such a difference, but again, if I could channel the chief of Forest Fire Management Victoria and others, a lot of that hard firefighting effort actually happens on the ground, as you know. Again, it is about the machinery that is actually used in support of those efforts. The other piece about this is: what more can we do in terms of mitigation? No doubt we might get to some discussion around planned burning, but if that window is shrinking in relation to planned burning there are mechanical means by which you can achieve the same outcomes, but there is a cost associated with that. It is that whole cost-benefit piece, particularly if we are focused on mitigation.

Ms GREEN: If I might, Chair, I have been concerned, particularly because of the smaller window of when you can actually do your planned reduction burns, but also what you were talking about—even when the fire is going and you want to do a back burn and all that sort of thing. How do we protect our firefighters from those sorts of things? So I am really interested in looking at technologies where you can actually do those without having a whole lot of firefighters exactly in that spot. So where are we going with technologies around that?

Mr CRISP: I think that is a really good point. I saw in one of these international fire magazines—it is probably early days—a sort of remote-controlled fire tank. Again, what is drone technology going to look like in five to 10 years time? So yes, we are very conscious of that, and part of the 2030 strategy's key theme is going to be around technology.

Mr SLIJEPCEVIC: Can I just add something on the aircraft? When we are talking about the overlaps with the northern hemisphere we are talking only about the largest, because we have a substantial fleet already here in Australia as well that we are utilising. So we are talking about the large air tankers—very large air tankers—and large helicopters.

Mr CRISP: So it is not as though we are not protected. Thank you, Chair, that is my piece.

The CHAIR: Thank you, Andrew, fantastic. We might move to the next one. Who wants to volunteer there? Lee?

Mr MIEZIS: I am happy to go next. Thank you, Chair, and thank you for having us here this afternoon. I will build on what Andrew has talked about and then really look at it through the lens of my department and public land management and what that means, both through a lens of climate change adaptation but also the work that we are doing with communities to reduce those impacts.

The department has quite a broad range of emergency management responsibilities articulated in the *Emergency Management Manual Victoria*. As part of the All Communities, All Emergencies operating model that the state has in place under the leadership of the Commissioner, we have direct responsibility as a department for fire prevention and suppression on Victoria's 8 million hectares of public land; flood management or floodplain management and flood; energy-related emergencies; dam, water and wastewater services; wildlife welfare; cetacean strandings; marine pest incursions and then wildlife affected by marine pollution. As a department, in a similar way to agencies across the whole of Government, we take a very integrated approach to the management of those incidents within the department and with our delivery partners.

If I focus in on public land and bushfire management in particular, the Secretary of the department has a statutory responsibility under the *Forests Act* to prevent and suppress bushfire in our national parks and our state forests and in other protected public land.

In doing that, we work under the brand Forest Fire Management Victoria, which you may be familiar with. Forest Fire Management Victoria really comprises forest firefighters and specialist incident management personnel from DELWP, but also from Parks Victoria, from VicForests and from Melbourne Water. Again, so while we have that direct responsibility for bushfire management on public land, we are part of the sector and very much support emergencies when and where they occur across the state.

In terms of our roles and functions, fuel management has been talked about. Fuel management is really the deliberate introduction of predominantly fire to really reduce the grasses, shrubs and the like that really fuel or feed a fire. Planned burning will not stop fires from starting. What it will do is really to assist firefighters in suppressing those fires by reducing the rate of spread. In addition, and as was identified before, obviously the window for planned burning is getting smaller. Our forest firefighters, though, do look for every opportunity that they can, and we work in a very flexible state-based model to make sure that when weather and other conditions are right for planned burning, we are able to allocate our resources accordingly.

Over the past decade we have treated with planned burning about 1.6 million hectares of public land, so roughly about 20 per cent of our public land has been treated by the deliberate introduction of fire, and then of course you have got bushfire that also impacts on that public land.

Mr McCURDY: Over what period, sorry, did you say that was?

Mr MIEZIS: Over the past decade.

The CHAIR: Is that about where you would like it to be? I noted from Andrew's presentation earlier that showed rainfall reduction, heat and all of that, have we tracked about where the department want us to be? I am just interested in that.

Mr MIEZIS: So we work towards a target, and it is a residual risk target. So I might just step back. In 2015, the Government's *Safer Together* policy came into play, which in effect replaced a hectare-based target with a risk-based target. That was important because it means that we are driven to achieve outcomes in terms of risk reduction as opposed to a level of activity across the state. Another way of saying it is that we are driven to be more effective rather than just to do more.

Ms GREEN: And those performance measures are listed in the Public Accounts and Estimates Committee?

Mr MIEZIS: That is correct, and reported on each year. Our target is 70 per cent, so a residual risk of 70 per cent. We are tracking at and have tracked below that. I think currently we are at 69 per cent. Now, the challenge of course is that we have treated about 1.6 million hectares of public land but we have got areas of forest that

are regrowing after those enormous landscape-scale fires that we have had, particularly through the 2000s. So it is an ongoing and continual challenge to keep a lid on growing bushfire risk whilst you have got shrinking windows for safe and effective planned burning. It is important, I think—and as we look at it, planned burning is not a panacea, but it is part of a suite of tools that fire services have and communities have to reduce the risk and impact of fires. While we have had a shrinking window for planned burning, we have seen an increase in mechanical treatments—slashing, mowing and those types of activities—which are not as weather-dependent but are much more temporal in nature. So while a planned burn could have an effect in reducing fuel loads for anywhere up to eight to 10 years, mowing and slashing tends to have a much shorter impact period of one to two years, so you are going back more frequently to do those activities.

The CHAIR: What about things such as predicting where fire might be and putting in firebreaks, particularly around key assets like major water bodies and the like?

Mr MIEZIS: Part of our risk-based approach is the application and use of a tool called Phoenix RapidFire. This was a tool that was developed by the department in partnership with the University of Melbourne over a long period of time, and we continue to evolve that tool with the Bushfire and Natural Hazards CRC. What that tool does is enable us to simulate fires across the state. In effect on a 1-by-1 kilometre grid we can simulate a fire start and then, under the worst conditions—we typically use the Ash Wednesday weather conditions to say, 'Well, what is the fire going to do? What is it going to impact?'. We can then use that to say, 'Well, where do we make the best intervention to reduce that impact?'. So we can use that tool not only to determine where we should do planned burning for the most effect but equally where we could, as you have identified, do fuel breaks, upgrade roads and those types of things.

Over the past couple of years we have done a lot of work in terms of upgrading fire access roads. Fire access roads not only get firefighters in and out of our remote forested areas quicker, they do in themselves act as breaks—both for the fire but also to do planned burning or back-burning off. So they are an important asset across the public land estate.

Over the past two years we have really upgraded about 3300 kilometres of access road. We have done a further 1500 kilometres of roadside vegetation management. And then to the point before that Danielle made: firefighter safety is first and foremost. So we do a lot of work in removing hazardous trees—fire-killed trees—which are quite prevalent across the landscape as a result of bushfires past. We have treated in the last couple of years about 1200 or 1300 kilometres of hazardous trees in addition to installing more bridges and crossings to get fire trucks in and out of the bush safer. So a lot of work that we target is not just relying on planned burning but looking at what are the best interventions we can make to ultimately reduce the risk of bushfire across the landscape.

I might just jump quickly to—and I have mentioned *Safer Together*—one of the key platforms of *Safer Together* was really working much closer with community and across land tenures to reduce the risk of bushfire. So rather than having a program that is focused on public land and a program through the CFA and local government that is focused on private land, how do we integrate our planning to make sure that we are using our resources to best effect and that the activities we take are the most effective that we can regardless of land tenure? That has involved a lot of work with community under a program that was an initiative of *Safer Together* called community-based bushfire management planning. This is a program that really aims to build capacity and capabilities of agencies to work with communities, and for communities themselves to understand and reduce the risk of bushfire.

So our approach uses much more of a community development approach to working with communities—ongoing conversations in local communities, working with community, bringing our expertise as fire agencies and that local knowledge that exists within communities together to really work toward the best local solutions to managing bushfire risk. We have currently got 22 communities involved in community bushfire management planning right across Victoria, each dealing with their own set of complex risks and complex issues.

Each of those communities is supported by a project officer that is either employed by CFA or by DELWP, and they really facilitate conversations within those communities and between those communities and the fire services, and that, we have found, is a really effective model for building resilience within the communities. We

talk a lot about how we have failed when we have made communities reliant on our fire services. We really need to build resilience and support within those communities. So we have really focused in the rollout of community-based bushfire management on those communities that both have extreme or very high bushfire risk, and importantly those communities who are ready to go through this process with it. It is quite an investment on behalf of those communities to participate.

What we have seen, though, through independent evaluation is that community-based bushfire management planning is a very effective approach to building community resilience in the communities' capacity to connect and build networks themselves and improving their capability to withstand disaster, their awareness of risk and ultimately their relationships with agency staff too. So we are looking now and working with the team at EMV about how we might extend that community development approach to bushfire management across a broader range of emergencies. I might leave it there, but am happy to answer any questions.

The CHAIR: I have a question. In some of your opening comments you indicated that you worked with Melbourne Water. I am just wondering: there are obviously a number of regional communities that are captured by the reservoirs that support their community. I will use Geelong as an example. It is a local one for me. A large percentage of Geelong's water supply is secured through the Otways.

Mr MIEZIS: Yes.

The CHAIR: Obviously the Otways is the Otways, and at some point in time it is going to burn.

Mr MIEZIS: Yes.

The CHAIR: And particularly if we believe what the forest scientists tell us—that there are significant threats there. If the Otways do burn, that obviously potentially puts a lot of pressure on Geelong's water supply. Is it time that we start to include some of these other communities and other water authorities rather than it being just Melbourne? Sorry, that was a long way to get to a very short question.

Mr MIEZIS: Melbourne Water has traditionally been part of Forest Fire Management Victoria and its predecessors because it manages quite a significant area of public land itself. So that is its direct involvement. That is not to say that we do not work with other water authorities right across the state. One of our objectives in thinking about and managing bushfire is to protect that essential community infrastructure, and obviously water infrastructure is part of that. So there is a real focus on identifying and protecting the catchments themselves for all fire services, but also working very closely with the water authorities. Andrew in his opening remarks mentioned the *Critical Infrastructure Resilience Strategy*. Obviously the water sector has one of those plans that each water authority inputs significantly into.

Mr FOWLES: To what extent does the multi-agency/multi-department thing help or hamper the efforts when it comes to managing these risks? I am thinking that fires of course do not respect state lines, geography or anything, but if a fire crosses over two water catchment authorities, it crosses over some DELWP land, some other Crown land and some privately held—multiple LGAs in any one given fire—to what extent does that add complexity, or risk even, to the work of all of you, I guess?

Mr MIEZIS: Andrew might like to comment on this. Having been around in this space for a long time, I think we learnt a lot through Black Saturday about what happens when agencies do not work well together across land tenures, and as a result of that obviously the role of the Commissioner and Emergency Management Victoria itself were born in response to that issue. What we have seen now is almost, I would suggest, a seamless approach to managing fires across those boundaries, where there is no parochialism in terms of what is public land versus private land or what is in municipality A versus municipality B. We have a very strong sense of what our roles and responsibilities are. Where those fires are significant, whether they are on public land or on private land, they are a class 1 fire clearly under the control of the Commissioner, and our resources simply swing in under that incident management structure.

Mr FOWLES: So that model is working, in your view?

Mr MIEZIS: Yes.

Mr CRISP: Lee has put it very well, but I would reiterate those comments. Again, 14 months in the job, and I spent a lot of time in the State Control Centre during the last summer and fire season, and again all the different coloured uniforms, everyone is in there playing a role.

Mr FOWLES: Great.

The CHAIR: Thank you. You were nodding in agreement?

Mr SLIJEPCEVIC: Yes, absolutely, no question about that. The response is working really, really well.

Mr McCURDY: Lee, in terms of land management and controlled burns that you were talking about, have you come across the firestick burning program the Indigenous people are doing? And my question is about the cool burning. Obviously this Committee is about climate change and variations in when we can and cannot do our controlled or planned burning. There seem to be opportunities there, but I just do not know whether that would be on a scale that is big enough for what we can get across.

Mr MIEZIS: It is a really good topic to raise, and I might just answer your question quite fully. Last year my department worked very closely with the Federation of Victorian Traditional Owners Corporations in working to develop Victoria's and in fact Australia's first traditional owner cultural fire strategy, which was really born from: how do we introduce traditional fire practices or firestick burning back into country? That strategy was launched on 10 May this year, and it is a strategy that really aims to put a framework around this issue. We had seen a lot of traditional owner groups working independently, and the framework really helps us work and support them and equally learn from them in terms of how we use cool mosaic burning year-round to manage fire risk. We have had a number of burns done with and led by traditional owners now. In fact on the current 2019 to 2020–21 joint fuel management program plan, which is a joint CFA-DELWP plan, there are 41 burns across the state which were identified as traditional owner burns. We also as a department supported 30 Victorian traditional owner representatives to participate in the national Indigenous fire conference, so the firestick conference that was, I think, held up in your electorate earlier this year.

Mr McCURDY: It was, up at Barmah, yes.

Mr MIEZIS: And really that has been about building our capability and the capability of traditional owners to learn how we can best and most effectively use those traditional practices in reducing fire—not only reducing fire risk but improving environmental conditions across our public land.

Dr NORMAN: Can I just add to that. Beyond the traditional owner focus and that return of traditional practices we are considering and are delivering cool mosaic patch burns for ecological outcomes. So we are doing them around Yanakie Isthmus on the Prom to try and get the open banksia woodlands back. So the use of cool burn and mosaics is not something that is—backing up what you are saying, Lee—exclusively connected to traditional owners. It is being considered and is in some locations a shared journey of us doing that with Dja Dja Wurrung on the appropriate land, but we may be doing it without traditional owners where there is an ecological benefit or an additional safety benefit for community. So it is bigger in some ways than just being tied up as traditional owner.

The CHAIR: Can I just ask on this and I will throw to Danielle, just because it is on the same topic: have the departments and agencies considered employment opportunities for Indigenous community members to participate in this—it sort of occurs to me that there are some real opportunities around that—and what sort of employment strategies have you put in place to support it?

Mr MIEZIS: We have been coming at this from two ways. Firstly, it is building the capacity of the traditional owner corporations themselves. So since about 2015 we have been providing training and equipment to traditional owner corporations to build up their own capacity as fire managers. Certainly through programs like our Project Firefighter program, where we employ upwards of 600 seasonal workforces, we have designated Aboriginal positions through those and we have seen a significant increase in the number of Aboriginal Victorians participating in that program. We have also got through our Munganin Gadhaba Aboriginal inclusion plan a range of other strategies in place, which is really about increasing Aboriginal employment numbers within our organisation, whether that is in direct fire management or in the broader range of roles that we do.

Dr NORMAN: Again I would mirror that. We have got a 7 per cent target as a Parks Victoria policy. Also we are up to 53 Aboriginal staff now, but many of them have actually been employed with us for a long time and are leaders on our firegrounds. So Barry Coombes with Wurundjeri, Trent Nelson with the Dja Dja Wurrung—they are actually fully experienced firefighters and fire leaders and coordinators but are also representing their communities as elders. So there are some really nice synergies in that space, but it is very aligned with what DELWP is doing.

Ms GREEN: Lee, Andrew mentioned at the get-go population growth being a risk with climate change and all the different language groups. Given you have got the planning arm in DELWP so you would know where the population growth is occurring, I am also interested in population change and what the challenges are. What are the linkages between your area and the planning part of DELWP—not fire planning, but population planning—because, for example, Murrindindi shire tell me that apparently one in four people living in Kinglake now did not live there 10 years ago, and so you just have a quarter of the population that just have no understanding of what happened and, maybe even worse, an assumption that it cannot happen again so soon. How does that part of the department assist you with your work?

Mr MIEZIS: Yes, it is a really good point. I would say the planning group, in particular the demographers that exist that look at not only population change but demographic change across the state, not only support us in our planning for bushfire management but are drawn upon across the state. We know exactly those issues: how long have people lived in areas, what is their likely experience with fire and how would they interact? We have different cultures who have different reactions and responses to people in uniform. We need to be very cognisant of that when we work with those communities to build their resilience. I mentioned before community-based bushfire management planning. That really draws on our knowledge and understanding of those communities and how we best work with them to achieve an outcome.

We also use obviously that population change managing that peri-urban area, which is a real issue, particularly when we are getting larger populations on the footstep of our large forested areas. How do we work with them? Not only how do we work with those communities more effectively but how do we target some of our fire prevention activities, such as controls around camp fires? We know where the hotspots are—pardon that pun—for human-caused ignitions of fire, so were able to target that. So we draw on that information in understanding how we best engage with communities, how we target our prevention activities, how we do long-term strategic planning and think about positioning of resourcing and those types of things. Not only does our department do that but the sector uses that knowledge too.

Ms GREEN: Obviously I represent an area with that rapid population growth, and I particularly worry that we have got so many people who have moved from Sydney, for example. You might assume that if they were from outer suburban Sydney they will know what to do, but if they are inner suburban or people who have moved from overseas and different cultures, I wonder. We were in East Gippsland last week and I saw just a brilliant booklet. If we have got a copy, Nathan, or we can find it online, maybe we can circulate it to the people who are before us today, because it was just one of the best resources I have seen for householders. It was about what to do when you are building your house for climate change adaptation and protection, whether it is insulation or protecting from flood, and what to do to protect from fire. It was just a really good comprehensive booklet. I had not seen one as good. It then got me thinking about at an individual household level—because we cannot assume everyone watches TV anymore and all the different channels that people are getting—when they move into a new house is that the time? Do we actually say to local government, 'We want you to give each household some information about where they live and what the overlays are', or even if there is no bushfire management overlay but they might still be at risk of grassfire, just very simple messages on what they need to do? Have you thought about that?

Mr MIEZIS: No. I think it is really important. Certainly we are working closely with local government in that area. Another part of our portfolio, the Councils and Emergencies project, which has been an important one auspiced by the State Crisis and Resilience Council, is one that really drives how we connect through local government into communities through the provision of information. It is not just the provision of information, but it is an important part. How we continue that follow-up is important too.

Ms GREEN: You know, is it in tenancy documents? Is it in sale of land documents or occupancy certificates when new homes are built? I just think with the rapidity of population growth, we should be trying

to really target those messages into particularly the areas that are inside the urban growth boundary but on grassy plains.

Mr MIEZIS: I think they are important measures.

The CHAIR: Just to follow up along the lines that Danielle was just discussing, we have got areas like the Otways and the Surf Coast—

Ms GREEN: Bass Coast.

The CHAIR: the mountain regions, the Bass Coast—these areas where there is—

Ms GREEN: I think they are called the top 50 fire-prone areas in Victoria. There is a number that you use, isn't there, Andrew? I cannot remember.

The CHAIR: Yes. So I am sure some of these areas were identified by the bushfires royal commission as hotspots, but they also happen to be areas that we all want to travel to during the summer season. The Surf Coast and the Otways, the population probably trebles, if not more, with people that are not particularly familiar with the landscape. I am just wondering what planning or what future public policy might look like in terms of educating those itinerant communities around bushfire risk. What sort of work has been done?

Mr CRISP: It is a really good point. I was nearly going to bring it up in the last discussion, because when you talk about community we need to talk about the mobile visitor tourist community at the same time. I was down in the Grampians only a few weeks ago with DELWP reps and Parks, and it was a surprise to me that those people that run small accommodation facilities, there is generally a three- to five-year average that they are actually in those roles. I sort of thought it would have been people long term providing information, but that is not the case, so you get that churn there as well. We have a rep from Tourism Vic on the state emergency management team, Stuart Toplis, and I have been talking to Stuart a lot about this—about what more can we do about some shared responsibility in terms of those people that do run various accommodation facilities and the messaging they are pushing out. But then as we know a lot of the time now it is Airbnb, so you actually have not got someone that is physically in the premises. That does create some challenges for us, and then you look at some of those places you have mentioned in terms of significant visitor numbers in coaches and the like, whether that is the Great Ocean Road or some other fantastic parts of the state. There is certainly work that we are doing around that at the moment to try and get some better messaging out and try and reinforce some of these safety messages.

Ms GREEN: Andrew, can I make a suggestion? I volunteer as a disability guide up in the alpine environment and my son was a member of the brigade at Mount Hotham. Obviously their risk—well, their building risk is year-round—is more structure fires in winter when they have those extra 6000 to 8000 people in those beds there. I actually think that they do it pretty well, particularly the way that CFA has operations officers that are based in those resorts. I think there are similar things that are done in some of the coastal areas, but I reckon that maybe looking at what they do and that messaging might be useful in the summer wildfire areas.

Mr CRISP: It is interesting when you talk about communities and community resilience, and again, Anglesea—that is a community that works very, very well with Parks and the CFA and other organisations where they have actually developed their own plans around this. So, the primary school there, I remember I went down there not long after moving into this role. We had to go through a day where I had to learn a bit about a fire so I could put on some gear and go onto a fireground, so we were going to be taught about fire danger ratings and the fire danger index. It was grade 5 kids from the local primary school that came in and taught us. This is a program that has been running down there for a few years. It is probably one of the best models I have seen, and when we talk about community resilience and where we should be focusing our efforts and our energy, you do not give up on any section of the community. And they have got a partnership with Strathewen at the same time—

Ms GREEN: I was going to say Strathewen.

Mr CRISP: which works really, really well. But also for that community itself they know that if something happens down there they are not going to let anyone out, because they are going to get stuck on the road. So have they got a plan about how they will keep their community, including visitors, actually safe. So along the coast there is some really good work happening with local government.

The CHAIR: On that very point, given it is practically in my backyard, is that something that the Parliament might look to roll out more broadly?

Mr CRISP: For me, I have seen some good models but I think it is one of the best models I have seen, particularly when it comes to young people, because these kids are teaching their parents and they are teaching their parents' friends, and they are being taught by CFA in school and by Parks and others basically not to be afraid of fire. You know, fire is part of Victoria, so it is about: how do you work with it? What I see down on the coast I think is a really good model.

Mr SLIJEPCEVIC: Certainly, just to make a comment, it is much easier to engage communities when they are already educated. So if we can put more programs into the schools, the better outcomes will be later on. So it is the best investment.

Dr NORMAN: And I think there is something also about it being a multi-agency collaboration. Because the Grampians is a good example in that a large proportion of our visitation is now South Asian day visitors who are doing the 3-hour drive each way because they want the selfie shots amongst the amazing geology. That is going to be totally immune to a community engagement, so we need the digital interface, we need the physical signage and we need the community members who have the language. I think it is about a common messaging. There is lots of collaboration and communication in this space, so it is just trying to find all the sectors.

Mr SLIJEPCEVIC: Just to make a comment on the Otways and the Surf Coast: it is absolutely fantastic, but we have been investing there for more than 10 years now. It is a fantastic relationship between the agencies and local government and they build a rapport with the community, so there is a lot of trust there that has been built and fantastic work that has been done as well.

Mr HAMER: Look, obviously we are in a state where there has been a lot of learning from major fires over many, many years and a lot of programs that we seem to have in place, which we are talking about. I want to just ask about what else can be done. I think we are just starting to touch on that now in terms of some of the education programs and broadening that out. I would just like maybe your thoughts on what might be other programs—or it might be policy directions—that the Committee can take on board to understand where else could be the next focus.

Mr SLIJEPCEVIC: To me, we have been talking about the shared responsibility for beyond more than a decade now, and for the shared responsibility to actually work properly we need to have the community and the agencies that understand the risk to own risk and then own the decisions that are made to mitigate that risk. So we need to get to that point where everybody owns the risk and the decisions made about it. And that is why *Safer Together* is a really good policy for us, because actually one of the fundamental parts is to get the communities into decision-making with us.

Mr DEVENISH: And I think certainly those community-based approaches. So Andrew in his opening remarks spoke about community-based emergency management and a couple of the townships that have gone through that approach, and Lee spoke about the community-based bushfire engagement and those 21 communities that are developing their own goals and solutions. I think if you can put them at the forefront of it—and I think Sue will probably have some examples as well in her work—anything that can be that ground up planning where the agencies are kind of supporting them in their goals and solutions is probably best.

Mr HAMER: And what would be the barriers to that at the moment? Is it having champions in that particular community? Is it funding?

Mr CRISP: Yes, or education.

Mr SLIJEPCEVIC: All of the above.

Mr CRISP: Yes, I think it is all of the above. Again, we should learn from the examples of Anglesea and the Surf Coast and what they went through to get where they are at the moment. There is so much good work happening across the state, but one of the issues is about: how do you identify where that good practice is actually occurring?

Mr DEVENISH: And replicating it.

Mr CRISP: Yes, and how do you do that? So at EMV we have been doing some work with FedUni and another body I cannot recall at the moment in terms of developing My Community Portal so we can actually feed all these good ideas into somewhere in the centre, so to speak, and then others can actually access it. So there is good work and we definitely need support in terms of some of these initiatives, but how do we better share that and look at adapting it for other communities?

The CHAIR: I might just ask—this Committee can make all sorts of recommendations; sometimes they will be taken up, sometimes they will not—what would the cost be of establishing some form of best practice model and then having that model deployed as largely as possible across some of these communities that are at risk?

Ms CUNNINGHAM: I could offer a few points from the Red Cross perspective. We are obviously a very volunteer-driven organisation, so I would actually say I do not think the costs are necessarily that substantive. We would have a range of programs already running that help support communities prepare for disasters, if you like. We have a Pillowcase program, which is going into schools to teach kids about preparedness. They take a pillowcase of the stuff they would pack in the case of an emergency and generate those dinner-table conversations with families. So I actually think that there is a relatively low investment cost. It is more about having the sustained and committed funding to be able to extend into those communities.

Ms GREEN: I like what Andrew was saying about having a portal because I think it is going to work where communities can actually choose the best fit—idea—that suits them, rather than going, 'Oh, we've seen Anglesea works; we're going to roll it out to all of you'. I think it works better if people could see a whole lot of examples and then go, 'Oh, that community is most like mine; we'll grab that one'.

Mr SLIJEPCEVIC: Some things that we have seen working with the community is that they like it when we come as facilitators rather than offering solutions, so when we bring the community to talk and they come up with their own designs on things. That works far better when it is targeted. But it is resource hungry because we have to spend a bit of time facilitating.

Ms GREEN: You have talked about the various communication channels that we use. I think one of the elephants in the room that I would be interested in your commentary on is how you are going with the Federal Government with expansion of mobile phone towers, because I have got to tell you, of all the areas where I fought fires on Black Saturday in the Kilmore East complex, I think I know of only one mobile blackspot that has been rectified since then. I tried to put forward to both major parties at the last election that they needed to make a commitment as a bipartisan thing to say, '10th anniversary: let's resolve every mobile phone blackspot where there were fires in 2009', and then have a program to work through. I think it has been one of the substantial reasons why Victoria had got out of being in the Federal program, because Victoria was not getting a good deal. But do you think we are actually making any progress now? That is the thing I think that is the most frightening: you can have the best messages in the world, but if you do not actually have the mobile phone towers so that people can get the message out, it is not going to matter.

Mr CRISP: Look, it is incremental. I know only recently I signed off again in relation to priority areas for funding to address blackspot issues. But, you know, it is incremental. It is not the big-bang approach, that all those high-risk areas are being funded at the moment.

Ms GREEN: Well, is it something that we could do in terms of this Committee to identify maybe a recommendation that—and I am not trying to put words in your mouth—

Mr CRISP: No, no.

Ms GREEN: but I just think, as someone who has been living this for a long time, it is an endless source of frustration for me that it is not a higher priority. I know for Cathy McGowan, the former Independent Member

for Indi, that was really her thing. But still at the southern end of what was her electorate, which is Kinglake Ranges, there has been very little change—and I note there were I think 80 or 100 people sheltered in the Kinglake West fire station. I mean, we are not even protecting those volunteer firefighters there because there is no mobile phone coverage.

Mr CRISP: Yes. Look, communication is critical—

Ms GREEN: Almost 11 years on—it is shocking.

Mr CRISP: in terms of emergency workers and for the community itself. Again, when I have the opportunity to speak in the media about preparedness, I always talk about accessing good information to make good decisions. Well, you have got to be able access information in the first place. Again, there is significant coverage—we know that—but there are still gaps and I think anything that can be done to ensure that we do not have those would be positive.

Mr DEVENISH: Good afternoon. I must say SES is really grateful for the opportunity to be part of the panel this afternoon and to contribute to do the Inquiry. I should note that our CEO, Stephen Griffin, sends his sincere apologies.

Really briefly about us: VICSES's mission is to partner with communities, Government, other agencies and business to provide timely and effective emergency management services, to build community preparedness and disaster resilience and to contribute to risk prevention.

In relation to climate change, the DELWP climate change adaptation plan of 2017–20 refers to the current climate change projections that whilst Victoria could face reduced rainfall it will be faced with an increased risk and frequency of more intense downpours, sea level rise and coastal hazards.

SES is what we call in the emergency management sector the control agency for five different hazards—for flood, storm, tsunami, earthquake and landslide—and SES acknowledges the climate projections and the increasing challenges that they bring. With those five control hazards, SES is essentially responsible for emergencies that equate to 74 per cent of the economic cost of natural disasters here in Victoria; that is according to the Australian Business Roundtable for Disaster Resilience & Safer Communities report, released in November 2017.

And those challenges, I think, are evident across two main areas: firstly, in meeting community expectation and adding to that service delivery need in emergency management volunteer response; and secondly, they emphasise the importance of community resilience building and, in the SES's case, vital delivery on the *VICSES Community Resilience Strategy*—and both of those two areas are heavily reliant on the capabilities and the leadership of our volunteer workforce.

In relation to service delivery, SES services the entire state of Victoria. We are a community-based organisation. We are part of our community, with a 5000-strong dedicated volunteer workforce. Our people are working on the front lines of emergency and disaster response, supporting their communities 24 hours a day, seven days a week, 365 days a year.

In addition to those five control hazards, SES is also unique in that it provides multiple specialist services: the largest road crash rescue service in Victoria as well as land-based swiftwater rescue; supporting other emergency services with searches, rescues and crime scene support; and of course support for our colleagues around fire, ambulance and other things. So our volunteers and staff are highly professional, highly trained and dedicated to that organisational mission.

And the service delivery strategy at SES has a focus on, I guess, some modern approaches to their operating structures and delivery models to meet the changing local service delivery obligations. It gives consideration to how communities and the risks they face might change over time. Our communities are changing through population growth or decline, an ageing population in some areas, and then the nature of volunteerism is significantly changing. There are innovative approaches that are required in some areas to deliver sustainable services into the future, and support for our people will be paramount to ensure that they continue to have the leadership, the capabilities and the flexibilities required.

In relation to community resilience the Victorian SES was proud to be the first SES in Australia to launch a community resilience strategy back in 2016, and we have recently renewed that strategy through to 2022. At the strategy's core is the capability of our local volunteers to foster those connections with communities. SES volunteers—no different to some of the other agencies on the panel—possess a locally trusted and respected 'power of localness'. They are local leaders within their community, making them really well-placed to foster those connections required and generate the required behaviour change and action within local communities. The strategy aims to build on community-based approaches to develop those local goals and solutions to increase behaviour change and community preparedness action and drive risk mitigation.

It has been a significant shift with our engagement programs, so with something like FloodSafe, it is working with our communities rather than potentially the historical approach of talking to them about the risks they face. There is more work to be done to continue to build that capability and build the further momentum. Over 140 SES volunteers have now undertaken community engagement facilitator training, and through those better engagement practices, a stronger focus on community connectivity and building the capacity and capability of our local people to have the skills and tools in place we will better meet our resilience goals and the future need.

More so, we are re-imagining what it means to be a volunteer for SES, and attracting broader and more diverse community members to volunteer with the SES who might possess the skills and interests to take up more of these community preparedness and local resilience building roles than in the past. The strategy has also got to focus on collaborating with our community and partners in strengthening those relationships and partnerships and developing a more resilient Victorian community that knows what to do before, during and after an emergency, and reduce the broader consequences.

The last thing I want to touch on is another way that SES ultimately supports community resilience—by facilitating a risk assessment program called CERA, which stands for community emergency risk assessment, which we do on behalf of the sector with those municipal emergency management planning committees. The community bit at the front is a fraction misleading, in that there are often a couple of independent community-type members on these municipal emergency planning committees, but we would like to do more to make it a genuine community-based tool. It is essentially an all-hazards risk assessment that works collaboratively across that municipal committee with our key partners towards, I guess, a sector-wide approach to risk assessment at that municipal tier. The use of a consistent tool like that assists in the shared sense of purpose, to improve consistency in risk assessment and then ultimately in effective planning. It allows for some meaningful comparisons across the state on the likelihood and consequence of different hazards and risk profiles.

The SES is continuing to invest in that tool to support the current reform of emergency management planning that Andrew touched on and to enhance CERA to better factor in the community values at the start, the broader consequences and the cascading or compounding emergency scenarios. In its current form it kind of goes through hazard by hazard and the likelihood and consequence. So we are doing more to get it into a more modern cloud-based platform and to better factor in a more systemic risk profile.

The CHAIR: I think I understand how the majority of the other agencies are funded. If my memory serves me correctly, the SES has a reasonable levy provided by local governments. Is that right?

Mr DEVENISH: The State Government now, generally, and then our volunteers will often top that up with a lot of local—

The CHAIR: Fundraising.

Mr DEVENISH: tin rattling and fundraising and whatever, but yes, predominantly through State now.

The CHAIR: I am just thinking: in terms of the evidence that Andrew was presenting earlier around a drier climate but more intense storms more often—and I am just wondering from the perspective of the work you do and the SES—what does that mean in terms of the need for volunteers? Does it mean more volunteers?

Mr DEVENISH: We can always do with more volunteers. I think the nature of a volunteer workforce is always going to be challenging but it has a significant number of benefits as well. We can always do with more volunteers. We have got areas around Melbourne and some of the regional centres where we have got waiting lists, that have plenty of capacity. But I mentioned the changing nature of rural and regional environments as

well, where you have got ageing populations and there is a real reliance on already busy people doing more. So we are certainly coming up with some of those more innovative, non-traditional approaches, where you have got kind of a hub and spokes, where a busier unit more in the regional centre might provide a lot of the admin functions for the smaller spokes in some of those smaller areas and things like that.

The CHAIR: There has been a lot of conversation around the need for surge capacity in terms of firefighting. Is that replicated in terms of the weather events that you are more likely to be involved in—you know, flood and storms and that—so that we need to think about building that surge capacity to deploy into areas that have been affected by a storm?

Mr DEVENISH: No doubt, and I think we have certainly seen in particular riverine-type flooding where we have not only sent, within our state, people across to different areas but had support from other states as well. I think, building on the previous comments, the sector is certainly far more connected in the last decade to do that. If more could be done—the more capacity, the better, I think.

Mr FOWLES: So the climate change impacts—we have obviously spent a lot of time hearing evidence and talking about bushfires today. The metropolitan SES's bread and butter is branch removal, essentially. Do you have a view about the things that the service needs to be doing and its preparedness for an increase in wind and rain-type events as opposed to bushfire?

Mr DEVENISH: Yes, I think certainly in a preparedness sense the more we can do to build that shared responsibility ethos and have community take their preparedness actions—to be cleaning gutters and removing overhanging branches and things like that—certainly makes our job easier in minimising the response impact. And developing collectively those goals and solutions, so working through Lee's department and the catchment management authorities in prioritising, I guess, floodplain management strategies and collective mitigation actions that have the drainage solutions, the levees, that makes our job in responding to the number of jobs that we get so much easier.

Mr FOWLES: So for the leafy middle-ring suburbs that Paul and I represent, do you find that there is a communication challenge around that—that people do not view arboreal tidiness, if you like, through the prism of climate change or emergency services?

Mr DEVENISH: I would agree with that. I think certainly we see it comes back to that resilience-reliance discussion from earlier. I think we certainly see in some of the metropolitan footprints that there is a reliance that 'Someone else will come and fix that; I'll get a text message if I need to do something and someone else will fix it', compared to some other areas in the state where I would describe them as far more resilient because they have to be. So I think there is certainly an aspect of that.

Mr FOWLES: So that being the case, what would you suggest to us as the reps of the Parliament here to help counter that?

Mr DEVENISH: I think it is just about finding opportunities for community to participate in it wherever possible. There is a recent example, and it is really fresh: rather than taking preparedness action, one of the latest bits of research out of the US and post that Japanese earthquake and tsunami is about the benefits of even knowing your neighbours. So you do not have to get up and clean your gutters and be trimming stuff and spending your weekends taking preparedness action or preparing for climate change. As you say, someone in the outer suburbs with busy things, it is difficult to get them to move to that behaviour change straightaway. But to celebrate even knowing those that live around you, where if it was to be a single tree down on a house and our crews were to turn up, if the neighbours were even able to tell you what bedroom they sleep in, those seconds can make a real difference. It is the same in a house fire and the same, I guess, in a large-scale community event. So that story out of Japan in 2011 when the earthquake went off and most coastal communities had around half an hour before the tsunami was going to hit, that is a pretty modern country; it had good alerting systems and good warning systems in place, and essentially anyone along that coastline that was immobile or vulnerable or slow to move—aged—unless a neighbour threw them in the car as they were heading up the hill, they essentially perished. So even something like the benefits of knowing your neighbours and promoting things like Neighbour Day and things like that I think can have a real difference where they are not traditional preparedness actions, but they still make a difference in terms of the outcome.

Mr FOWLES: I presume you cannot just knock on the door and say, 'What bedroom do you sleep in?'.

Ms GREEN: If you asked me that, Will, I would think that was a bit creepy.

Mr FOWLES: But what things happen in SES's experience? I guess the peri-urban is probably not a bad example here of where communities feel like they live in the city and stuff just gets sorted, but in actual fact there is some vulnerability there. What sort of things other than Know Your Neighbour Day have actually been successful, do you think?

Mr DEVENISH: I think any of those. To say that those community-based approaches or things like CFA's Community Fireguard or whatever cannot work in metro or peri-urban environments would be an assumption. I think they still can, but there is a different sense of community. There is often a community of interest rather than a pure community of place. But I still think it is achievable in terms of developing your own, whether it is even in an apartment complex, and you can develop your own goals and solutions to deal with the risks you face.

Ms CUNNINGHAM: In support of Jamie's comments and in terms of what the Red Cross does in terms of its disaster preparedness training, we very much focus on four steps: one is get in the know; one is very much to get connected, in terms of connecting out to neighbours; one is, of course, getting organised; and one is getting packed. So everything that Jamie has said is very much what we train for in terms of our emergency preparedness.

Mr FOWLES: Is there any data around that?

Ms CUNNINGHAM: That is absolutely best practice. Yes, and there is a research base that sits behind that our RediPlan guide, those four steps and what the impact can be, particularly from a psychosocial perspective. We are trying to minimise the impact of trauma from disasters and so actually connecting to neighbours and knowing your community absolutely can apply anywhere.

Mr FOWLES: If I could ask the Secretariat to get that research and include it in our report.

Ms GREEN: I was thinking about some of the things that the others had said before about children educating people, and there was that recommendation from the bushfires royal commission that specifically said the state should be developing education modules. Thinking about what you were saying about how it is hard to attract volunteers, I think this whole climate emergency thing is actually setting—you know, the conversations. I am really feeling quite frustrated because I just think that it is making kids bloody panic. I think rather than saying, 'It's great, yes, that they are talking about it', and being on the left of politics there is nothing wrong with protesting; however, if you move back to that education side of things, a number of my schools' VCAL students have done projects with the men's shed and other community organisations and have been getting some education and some knowledge in the local community.

But also addressing you saying that you have got a shortage of volunteers, it is also about empowering young people to take the next steps. I wonder whether maybe engaging with VCAL across the state—because with a lot of those kids, people just make the assumption that it is the kids that are not very smart, but often it is the kids that are very hands-on and solution based. When you look at the wise elders of the community, whether it is the local CFA, SES or the men's shed, you could be having them, the men's shed, the SES as well and the Red Cross, working with VCAL students on some specific projects and going, 'Okay, let's look at some climate resilience'. I live in Diamond Creek, so it might be, 'Okay, we've had some flood events in Diamond Creek', so you could get the kids as part of their project working out the maths stuff, the water table and what will happen and where it will go. And then someone who is more community services orientated could say, 'Okay, what do we do about people with disability?', and then the culturally diverse community. What do you think about something like that?

Mr DEVENISH: Yes, I love it. I have heard of some models like that, but pockets of it, similar to the Anglesea and Strathewen in schools. I have heard of some grassroots examples, but how you—

Ms GREEN: I think it is those year 11 and year 12 students or even the year 9s that start feeling a bit disengaged, or there might be the cohort that are feeling quite frightened and helpless about the whole climate change thing, and then you can say this is something cogent and tangible I can do.

The CHAIR: Just to pick up on some of these other themes, the Committee has been to the Gippsland Lakes, and those communities are quite aware of—to one extent or another—the risks around sea-level rise and land-based water movements and the like, though I suspect those communities are far more aware of bushfire risk. And it occurs to me that on a number of occasions Lakes Entrance has experienced severe flooding. I know Barwon Heads on a number of occasions over the last 30 or 40 years has experienced significant flooding. I am just wondering, given that these events might become more common in some communities, what sort of planning has been done in terms of managing it as an emergency? I am not talking about putting in the bigger drains and stuff like that that we might do over a sustained period of time; I am talking about the risk of flood. I am just wondering what your thoughts are.

Mr DEVENISH: It is probably best picked up, as I touched briefly on, in our role in facilitating that CERA—that risk assessment tool at the municipal planning tier—in that it kind of goes hazard by hazard. What are we most worried about across the municipality? What does the data say? But then also the strength in it is the conversation in the room about the multiple agencies that play a role. There are a couple of community reps. There might be a significant number of mitigations and preparedness-type actions in place for bushfire, but that might flesh out that they have also got a significant flood risk, and that is where they can focus some additional effort. So I think that is obviously on a municipal scale. It comes back to that question before about community-based approaches and how we better get the township-type-scale goals and solutions feeding into the municipal approach and then of course feeding up to regional and state tiers. But I think that is one way where that sort of thing is addressed.

Mr MIEZIS: If I could build on that, the Victorian Government in 2016 invested about $21 million in supporting the implementation of a Victorian floodplain strategy and the development of nine regional floodplain strategies. Each of those regional strategies includes a prioritised work plan to address flood risk, and those strategies are really being used by both State and local government to guide investment, ensuring funding is allocated to where the priority is and where the need is. Flood studies are really the starting point for understanding flood behaviour and flood risk at a local level, and this flood study process includes modelling of rainfall and of run-off. Over the past three years we have had seven local flood studies completed, with a further 31 of those studies underway. So they are really examining, to the point before, whether existing planning schemes, flood mitigation, infrastructure, municipal flood and emergency management plans and total flood warning systems are really aligned to where the flood risk is, and certainly local councils are where the accountability for implementation and maintenance of those measures rests. Really the flood studies are one way in which we can really test the resilience of those plans.

Mr CRISP: Can I pick up on a couple of points Jamie made. In relation to volunteers more broadly, a couple of weeks ago I met with Anthony Carbines, the parliamentary secretary with responsibility for volunteers, and again there was a commitment last election to develop a volunteering strategy. I have been going around a lot in my role talking to volunteers from all the different organisations, so definitely contributing to that piece of work. It is a challenge in some areas. Only a few weeks ago I was down in Port Campbell talking to a small group of people that were volunteering for at least two organisations, one for three organisations, whether that is CFA, SES, lifesaving, and we were talking about how we attract younger people into volunteering. They are talking more in terms of their local community. Again, it was interesting because I have experienced it before where it is basically a group of old blokes sitting around the table talking about what they think young people are thinking. I keep saying, 'Well, we actually have to go—

The CHAIR: You have to go and ask them.

Mr CRISP: and ask them'. So they were going to go off and do that. So I think there is an opportunity to do a lot more of that in terms of what are the opportunities for young people. For me, one organisation that does it very well—and it is probably because you can see the pathway—are people that volunteer in terms of the ambulance roles, because a lot want to be paramedics and then see that as a pathway through. I think there is a bigger piece for us that we need to look at doing. If you run a CFA brigade as a captain or you are a unit controller at SES or in some other volunteering role, you are running a small business. I think there is a real

opportunity. I am not saying the CFA and other organisations do not do it well, but I think we can look at how we can actually structure education for people across the sector to then provide pathways into various roles in the future.

How do we do that? I think that is a really important piece for us. Also with volunteers, some will say, 'Pay us when we do a job'. 'Well, you are not a volunteer', and you actually offend some people when you say that. However, I do not think any volunteer should be out of pocket. If I use the Port Campbell example, you have to drive to Camperdown. Sometimes there is a vehicle available to do that, so whether there are not subsidies around petrol, car registration and a whole range of other things, I am just saying there is this piece of work and we want to feed into that.

Can I just finish on a couple of others quickly. We have not really touched on it, but the mental health and wellbeing of paid employees as well as volunteers, particularly in the SES where they do a lot of road crash rescue, and what that actually means. Again, there is more work happening around that, but that needs to be a focus for us. Again, there was talk about the municipal plans. I had the opportunity to go to the States just for a week a little while ago, and what California does is actually develop catastrophic plans for their earthquakes and for wildfires. We have got very good systems and processes, but we adopt a generalist approach, and it works. It works very, very well. But there is an opportunity, because you touched on it before, about developing those catastrophic plans.

Ms GREEN: Just given I have had a fair bit of history in this area, I think that again that issue of reimbursement, tax deductibility and things like that is probably something that does need to be raised at a federal level. I think there are more people now saying that maybe we need a volunteer reserve so you can have more reimbursements. Just by way of history, it was Minister Holding, I think, that was the first emergency services minister to raise it at a MINCO at a national level. We can have great plans in Victoria, but I think it is more those out-of-pocket expenses. With employers, they can recoup some of their payroll tax and things like that, but I think it is more people trying to claim it against their tax and things like that. My sense with volunteers is that they do not feel as insulted then and it really is just recouping some of their expenses rather than being paid. But I think it is something that has got to be a national approach because of the surge capacity and the stuff of going interstate and all that sort of thing. Victoria can take a lead, but I think we need to get a national approach to that.

Mr HAMER: Just back to Jamie, and you might take it on notice and get us some information. It was just about the number of call-outs and how they may have increased. Obviously it is not all climate change-related. Population may be a big factor, increasing urbanisation means changes in run-offs et cetera, the impact of flash flooding may be worse and it not being purely related to climate change. Do you have any statistics about how it has changed over the last 10 years and maybe some forward forecasts?

Mr DEVENISH: Yes, we have certainly got the data. I have not got it with me, but I can tell you that what we call our requests for assistance calls into 132 500 is kind of on a slightly upward trend. Whether that is purely—

Mr HAMER: But that has not been accounted for population or wherever; it is just pure numbers of call-outs?

Mr DEVENISH: Correct.

Mr SLIJEPCEVIC: I can tell you a story just on the fires. Twenty-five per cent of the increase in fire numbers can be attributed to climate change.

The CHAIR: Sue, and then we will head to the centre of the table. Did you want to make some introductory comments?

Ms CUNNINGHAM: Yes. Thank you for the opportunity. I would also like to acknowledge the traditional owners of the land upon which we are meeting today and pay my respects to elders past, present and emerging. Many of you hopefully already know that Australian Red Cross is the world's largest humanitarian network and has millions of volunteers operating across 192 countries. We have operated for more than 100 years in Australia and have significant experience and expertise in emergency risk reduction, response and recovery

across Australia and the Asia Pacific region. Our strategic goals include helping 3 million Australians prepare for and recover from disasters, and responding to significant emergencies 100 per cent of the time.

Our main focus is always to support the human side of emergencies—for example, by reducing their psychosocial impact. We do this in Victoria using around 1000 volunteers, and that can increase to 4500 volunteers we can access nationally. These are dedicated volunteers who are trained to provide practical as well as psychosocial support, which basically fulfils our responsibilities under the Victorian emergency management legislation as well as our core fundamental values of humanitarianism and volunteerism. From both our research and experience we know a number of things. We know that climate change is resulting in more extreme weather-related disasters, meaning that demand on services will continue to increase. We know that the impacts of emergencies on people's lives are significant, complex and long lasting. There is a range of research on this, including the *Beyond Bushfires* 2019 report that talks about the 22 per cent increase in mental health issues for those that were impacted by that particular event.

We know that different extreme weather events have very different impacts. We have talked a lot about the impacts, for example, of fires and storms, but of course the drought and heatwaves also are significant climate events. We also know that these different climate events have different impacts in different communities; for example, the impact of the urban heat island in metropolitan regions. Unfortunately we also know that disadvantaged people are more vulnerable to the impacts of climate change as they have the least resources to respond and recover and often also have existing financial and economic and health disadvantages that are exacerbated by extreme climate events. We also know that the current cost of responding to emergencies is high and expected to increase, and we know that the social costs can exceed the direct costs, as in the case of Black Saturday where there was $3.1 billion of direct cost but $3.9 billion of social costs associated with that event. We also know that there is a significant cost of doing nothing, as evidenced in a range of recent reports, and there are considerable benefits—economic, social, health and ecological—to doing something.

In that context Red Cross makes some observations and recommendations to this Inquiry that there are a number of steps that could be taken to help us adapt to our changing climate. Firstly, we should take a human-centred approach that recognises and protects the value of social capital. For example, heatwaves and drought both have detrimental but different impacts on social and community connections in that it is critical for both our health and the economy that we invest in keeping our communities connected. Second, we should undertake place-based research to better understand the human impacts of climate change, including research that explores the health and wellbeing impacts of both acute and chronic climate change events such as prolonged drought. Community-driven and locally relevant climate adaptation plans should be developed which address the differing impacts of climate changes in different communities but also of course draw on the needs and strengths of each community. Local communities should be at the forefront of all climate change planning and decision-making.

We also need to prioritise the support we provide to the most disadvantaged and isolated to the impact of a changing climate, including those living in remote communities, Aboriginal and Torres Strait Islander peoples, migrants and those living in poverty, which of course is one in 10 in our Victorian context. We should also recognise that Aboriginal and Torres Strait Islander communities are uniquely impacted by climate change due to both their entrenched disadvantage and the cultural and spiritual connection they have to the land. We should equip and prepare communities to be resilient and capable of adapting to the increasing number of disasters and extreme weather events. In addition to connecting our communities, resilient communities need resilient infrastructure, including energy-efficient homes that are comfortable, healthy and safe to live in during extreme temperatures, as well as timely, early and useful information about local risks and ways to mitigate those risks. Finally, we should build the resilience, capability and capacity of the multiple sectors that are responding to climate change, including the health, community and emergency management sectors, so that we can collectively strengthen the community capability by supporting those who provide the support as well as those who need it.

In summary, we know we cannot prevent natural disasters arising from our changing climate, but we do know that we can reduce the harm and impact these events are having on the people in the communities they live in by ensuring we take an evidence-based, place-based approach which recognises that community connection,

social capital, resilient infrastructure and a collaborative cross-sector approach are foundational to creating climate resilient communities.

The CHAIR: Thanks, Sue. I do have a question around the mental health issues that you have spoken about. Sometimes I think we as a society are pretty good at responding to the immediate emergency challenge, but I do wonder whether we are not particularly good at picking up the pieces and supporting communities and families post the emergency. So I am just wondering from your perspective how we might best support communities that have been affected. I do not necessarily mean that it might be in the week or two after the event, but it might be potentially over years and decades. I am just wondering what your observations are, what this Committee might recommend to the Parliament and to the Government about how we might better support communities post the emergency events.

Ms CUNNINGHAM: My first comment would be it certainly is in relation to decades. We are still providing support to people who experienced the events of Black Saturday in quite an active way, and of course it was the 10-year anniversary recently and we were involved in supporting a range of individuals through all of those commemorative events, so they certainly do take their toll.

I think the answer is always prevention rather than cure. So one of the six defining characteristics that the International Federation of Red Cross has identified in relation to what creates a resilient community is about creating connected communities, for example. So it is about that preparatory work early on to connect communities—the comment before about knowing your neighbour and that ability to actually find ways to connect is key.

The *Beyond Bushfires* report, which was a 10-year longitudinal study that looked at the impact of Black Saturday, had clear findings that people who are connected with their community are more resilient to climate change than those who are socially isolated and that people living alone were at a higher risk of poor mental health outcomes but the risk was reduced for people who belong to local community groups. So connecting into your community and creating connections prior to the event is perhaps what I would suggest is the best way that we can support people post the event, as well as providing of course ongoing support for people because the long-term impacts such as drought really do have huge impacts on mental health.

The CHAIR: I was going to follow up with a drought-related question. Some of our landscapes, farmers would say, 'Well, one in every four or five years you would expect to have a poor season'. That seems in some communities now to be—that statistic has changed. It might be as many as two out of four seasons. That kind of ongoing change I suspect means businesses are less economically sustainable. That means more periods of intense family stress and the like. Is there more that we could be doing to help support those communities, to help those communities be more resilient to those economic challenges that come from more drought more often?

Ms CUNNINGHAM: Again creating that community connection. We have recently commenced a drought program in East Gippsland supported by BHP Foundation, and yes, there are absolute incidences of increased family violence, more alcohol, drug-related, economic—all of those sorts of issues you would expect in a drought community—and again creating connection inter-community. So, for example, when times are tough you do not drive into town because you are saving on petrol, you do not have time to drive into town and you start to lose that community connection and some of those community events and the sporting events. So having support to help maintain present community activity is a really great way of helping create that more positive mental health and that connection to community.

Ms GREEN: I just wanted to congratulate Andrew and the others of you that raised it as an issue because I think, particularly having been a CFA volunteer, that there was a lot of denial about it, and I would say that particularly we have got the royal commission into mental health recommendations coming out late next month and I would really be hopeful that all of you would look at those and think about how it would work in relation to supporting your staff, your volunteers, but also the people that you deal with.

I think in relation to CFA it has just been pretty typical, sort of like the ADF in that for a long time male-dominated organisations denied that any of these things were a problem and everyone bottled them up, but what we are doing at the moment is we have funded a number of projects—I am saying 'we', the Government—and

they are community-based mental health and wellbeing programs, and the feedback I have been getting is that by and large most people are first responders finally dealing with stuff from Black Saturday, and it is just because they have been so busy dealing with recovery and continuing to protect the community. So it is pretty tragic that it is such a long lead time, and I know of firefighters from Ash Wednesday that still have not dealt with it, so thank you for being enlightened.

Mr CRISP: So when we talk about community resilience, if I bring it back to kids, again, it is great that the Government is supporting the breakfast program at a significant number of schools now, but Foodbank Victoria put out their report a week or two ago and one in five Victorians do not know where their next meal is going to come from. Again, if you want to talk about children and the future and learning, you know, if they have not got food in their belly, they are not going to be too focused on their learning, their education. Then, as we know, it is just a downwards spiral from there.

What Sue said, I have read the research and it is true—more resilient, stronger communities will better deal with the shocks of an emergency. But at the same time we are learning, and if you look at the Bunyip fires, what more can be done to promote community post a fire or in recovery? The Victorian Council of Churches Emergencies Ministry have had people out on the ground—they have doorknocked 300 homes in the last few weeks. That community recovery committee is working really well. It is building a stronger community. They are now opening up the hall for dinner on a Wednesday night; 75 people turned up last week. So it is the before and it is also the after, and we are learning in terms of the after as well.

Mr FOWLES: So what impacts have you noticed within your organisation in terms of the demand on services or other things in relation to climate change, and what things have you done yourselves in response to it?

Ms CUNNINGHAM: So we run a range of programs that are existing and emergent. I mentioned RediPlan before as our sort of free disaster preparedness training, so I guess that is the anchor point for climate change. We also have a program called RediPlan for Communities, which we piloted in 2015 actually working with communities, as we were discussing before, to actually try and build a community-led, community-based approach to community resilience. We have just launched our drought program, as I mentioned, which is to work with drought-affected communities on a needs-based assessment to work out how we can provide psychosocial support and support their sort of mental health and wellbeing.

Then in Victoria we are now starting to look at a couple of South Australian programs that are running that are more targeted to climate change. One of them is using a network of volunteers to call vulnerable Victorians during heatwaves to start to look after isolated and disadvantaged people in the heat event because, as we know, heat really is a silent killer. Before the Black Saturday bushfires there were 379 deaths related to heat in that period, so that is a really important program.

The other really fabulous program I have just become aware of that we are starting to look at is we have this program called Climate-ready Communities, which is very much a community-based, action-based toolkit where we can sit with communities and get them to identify their local risks, their local strengths. I was just thinking before with Danielle's comments about maybe we can adapt that to the school environment as well, but we are looking to see whether we could explore working with communities not just in the emergency preparedness space but actually engaging communities in conversations about how to become a climate-ready community.

Mr FOWLES: And are there things we can do to assist in that work as a Parliament or a Government?

Ms CUNNINGHAM: I hate to sort of go back to funding, because we would look to have these as volunteer-led programs, but ultimately I think across the state and regardless of who the beneficiaries are it is actually about having that sustained and ongoing program in place to sort of support that. At the end of the day the work we have done with communities and RediPlan is driven by the grants we have had from the national disaster resilience grants process and I think CFA and others. So however we achieve it, it is systemically being able to sustain it and to be able to make it accessible to those communities that need it rather than it being a little bit piecemeal. Because we do hear, 'We've done this on the Surf Coast' or, 'We've done this in the

Grampians region', but I think it is the systemic ability to work across the whole state that is possibly something that is worth investigating.

The CHAIR: We have in Victoria since the 1970s a desire to effectively remove all deaths on the road. The TAC at the moment is running a campaign, *Towards Zero*. It just occurred to me the statistic that you read out—I think 390 lives were lost through heat-related illness in the lead-up to the Black Saturday fires. Should we as a state look to have a similar target around heat-related injury and death as *Towards Zero*?

Ms CUNNINGHAM: That is probably outside my sphere of expertise to comment on. I was actually working at Ambulance Victoria at the time of Black Saturday, and yes, the extreme impact that heatwaves have on the community is certainly quite significant. Just in Europe this year the French authorities are reporting close to 1400 deaths because of the June–July heatwaves, and I think in the Netherlands they had another 400. So I do think there is very significant potential danger associated with heat. The Bureau of Meteorology forecasts for Victoria are that we will end up with Adelaide's weather, in terms of there will be more heat periods, hence our trying to connect with more vulnerable Victorians to avoid some of those deaths.

The CHAIR: Andrew, you wanted to—

Mr CRISP: Yes, Chair, not to say that it is not something we need to maintain a focus on, however, I think to a certain extent heat is actually one of the success stories of learning from the deaths. Then a couple of years later there was another summer where we lost 200 in a fairly short period. Now when we see the forecast I will appoint a state controller for heat. We make sure that DHHS, ambos, hospitals are all linked up in relation to heat and our messaging with local government, and we are looking at the homeless. So there is a lot of good work. We were well and truly on track for that over the last summer, and yes, there was some increased work for ambulances and for hospitals but it was nothing like we have been previously. Again, that is not to say that with the trajectory that we are seeing that we do not need to maintain a focus in relation to heat.

The CHAIR: It just sort of occurs to me that people who are dying of heat-related health issues, they are probably poorer people, probably older people and probably isolated from their communities. They have not got someone who will pick them up and take them down to the local shopping centre which might be air-conditioned. They are at home and isolated and clearly very distressed, and ultimately they die. I am just wondering: is there more work we can do to educate the community around looking after people in those kinds of circumstances so that we do not have anywhere near as many dying with these heat-related events?

Mr CRISP: One death is one too many, but we are not seeing anywhere near the numbers that we did because of all the mitigation that we are putting in place now around heat. How do we stop parents leaving their kids in cars? That just amazes me as well. That is not to say there is not more that we could be doing, but the vulnerable persons register with local government—just speaking to Sue today, we were talking about piloting a Red Cross project, so it is not that there are not things we can be doing, but I would suggest that it is not as dire as we did experience 10 years ago.

The CHAIR: Okay, so we have learned a lot and we have done a lot?

Mr CRISP: We have, well and truly.

The CHAIR: Are there any other questions of Sue? No? We might move on to Alen, and then we will finish up with you, Mark.

Mr SLIJEPCEVIC: Thank you, Chair. I will try to minimise duplication because you already heard from four people, so in the interests of time, CFA's responsibilities are outlined in the *Country Fire Authority Act* and EMV, so I can make a statement.

CFA strongly supports the science on human-induced climate change and the impacts this will have on bushfires in Victoria and the implications for the communities. In terms of the science in the latest publications, and there are plenty of them over the last six months, human-caused climate change has already resulted in more dangerous weather conditions for bushfire risk in recent decades for many regions of Australia. There is obviously a trend towards more dangerous conditions during the summer and an early start to the fire season. For Victoria for example, between 1972 and 2002 we had about 66 days in each fire season where the forest

fire danger index was about 25—so very high or above. In the period between 2002 and 2017, so a 15-year period, that number went from 66 to 94 days. So it is quite a significant increase for that reasonably short period of time.

In terms of the fires, obviously there will be more dangerous fire weather conditions and future projections say that we will have an increase in pyroconvection conditions. Normally on TV you see the big cloud of smoke going up to 10 or 12 kilometres in the air. Most forest fires last season were PyroCB fires, apart from the one in the west of the state, and we have not seen that before in Victoria. In terms of investing in the research, and Lee touched and Andrew touched already on some, we are continuing to invest in research to better understand the impacts of climate change on bushfires, what that will in turn mean beyond the resource requirements into the future, fire weather and then the planned burn windows and how planned burn windows will move with climate change. We have a research scientist who is a contributing author to the next Intergovernmental Panel on Climate Change in the Australasian chapter for Working Group II. We are reasonably lucky in Victoria that we have a really good climate change scientist working for us now as the Manager of Research and Development in the CFA.

Through *Safer Together*, which Lee mentioned quite a bit, we are investing in a project to create climate change projections up until 2100 so we can actually have a far better indication of what will happen. That is essential for us to determine the implications that climate change will have on our operational activities, management, communities, biodiversity and everything else that we are managing. With that information, obviously we will have more information so we can plan better how to mitigate the effects of bushfires more effectively but also how to provide information to communities so we have that shared responsibility far better embedded in the work that we are doing.

I will not repeat comments about the community-based bushfire management programs, but I can just list some of the examples where communities have taken us on the journey to climate change as well. Fryerstown recently organised for Professor Stephen Pyne, who is a fire historian from the United States, to come and speak to local communities at the Bendigo Writers Festival, specifically with climate change and its impact on fire behaviour as the topic of the talk. The coastal CBBM communities of Lorne and Wye River worked extensively with Justin Leonard, who is a scientist with the CSIRO, to understand a number of fire-related topics, including climate change and its impact on fire behaviour, house construction and survivability, and landscaping.

Tolmie is currently looking for a climate change expert or meteorologist to come and speak to the community specifically about climate change. This is a community initiative, not an agency initiative. Briagolong is a Gippsland CBBM community which is currently supporting the local primary school as they put on a production around climate change, the aim of which is to support young people to better understand climate change and the environmental impacts. We see that communities are really interested in what will happen with climate change and what will be the impact on them. So we really are trying to harness that and actually work with the communities as well.

In terms of the CFA, obviously we embrace *Safer Together* as a joint policy implementation, working very closely with Forest Fire Management Victoria. If I list some of the successes, we developed the joint risk assessments; we are utilising the same tools integrated fully; we produced for the second year now a joint *Fuel Management Plan*; and we have introduced the fuel management system now that will enable all of the activities that agencies are conducting to be displayed on one platform for the communities. The aim of it is to actually get the communities to see us as one rather than seeing us as separate entities.

Apart from that, we have a traditional large program of roadside burning that CFA brigades conduct specifically in the south-west and western districts—anywhere between 750 and maybe 2000 kilometres a year are done by volunteers in those areas.

I think through *Safer Together* we had a big emphasis on creating the capability and capacity of our people to engage in and facilitate discussions with the communities, and that has been a great success. We had more than 1000 individuals going to those programs from DELWP or Parks or CFA or SES as well, so it is a program that is working really well.

I think also here there is obviously on a national level the Australasian fire authorities council doing a fair bit of work on climate change, and CFA and other agencies are part of the climate change group that produced a position paper on climate change, and we are actively supporting it.

I just arrived this morning from the United States, so I am a bit under the jet lag, but—

Ms GREEN: Thank you for staying awake for us. That is above and beyond!

Mr SLIJEPCEVIC: I was there at a conference where they were talking about their initial strategy for dealing with the bushfires, and it is very interesting because we all think that we are different but all the issues are exactly the same. The conclusion of the work in the States is that it is all about the partnerships—partnerships between the agencies, partnerships with the communities. I have seen some brilliant examples that we can look at, and obviously they are learning from us and we are learning from them so it is about sharing, again in a partnership way.

But some of the things that I have seen were, for example, the partnerships between the state agencies, insurance companies and the real estate agents. They are actually providing information and advice to communities or individuals as they are selling real estate, but also properties that are not well prepared are not insured either. So it is a very interesting way of dealing with the things, which to me was very interesting to see.

But I think for CFA, the agency, we are now obviously taking the role of supporting the community in their efforts to tackle climate change very seriously. As the agency we have got the support of our board to create a comprehensive risk assessment of CFA to help us develop the climate change policy and procedures, so how we will, as the agency, reorganise to deal with climate change. Thank you.

The CHAIR: Thanks, Alen. I know Danielle is a keen volunteer firefighter, so kick off.

Ms GREEN: I was; I am not doing that anymore. Thank you very much, especially given you are going be above and beyond. Something that I have sort of had a concern about for some time is with the increased number of code red days and where the distribution companies can actually shut down the grid on those days. The Committee was in Bendigo and we saw a stadium that has solar panels on the roof. They can be used for community members not only to continue playing sport and be healthy in an increasingly hot climate but also for older people just as a place to go on those days and also potentially a relief centre. We have done a similar thing now in Diamond Creek. We just got solar panels and battery backup so it can be a neighbourhood safe place in the stadium but also a relief centre. They can have 8 hours of battery storage. Have you seen any other examples of that, and what do you see? The thing that I worry about is, first, there is the code red day and then you do not have water and people are overheated and whatever, but then when you get the fire, if you then do not have power to pump water, that is a concern.

Mr SLIJEPCEVIC: We obviously as the agency invested a lot in generators so we can secure power supply to our facilities. But also there are some fire refuges that we utilise in CFA facilities or in some schools as well that have backup power. But I think that is a good idea to increase the number of backup power supplies.

Ms GREEN: So are there any parts of the state that you can think of that are doing it well or—you have been in the US—other places?

Mr SLIJEPCEVIC: You have seen in the news the US is disconnecting the power now in California. It is not very well integrated. It is because there are a lot of parts of communities there that are vulnerable, that have issues that require power for oxygen or supply for other things. So it is quite a difficult issue to take on.

Ms GREEN: I suppose, previously wearing my tourism hat too, it has worried me that it could really impact on our tourist industry, especially in villages in the Dandenongs or the Grampians or down on the coast. But now we have programs where Government are encouraging solar farms and things like that. I really hope that that is a way of the future, and then it is feeding into that resilience, to say, 'We are still open for business', but also, in the event of an emergency, 'We are more likely to be able to keep you safe here'.

Mr SLIJEPCEVIC: Absolutely.

The CHAIR: Could I just ask, we have obviously seen the introduction of a raft of relatively new technologies into our homes—solar panels, solar heat pumps, things that firefighters historically have not had to deal with. We are now seeing large-scale deployments of those technologies. We do not see many electric cars around at the moment, but we know within 10 years effectively any fleet car is going to be electric. Obviously these new technologies bring some new risks to the table, and I am just wondering what work the CFA is doing around recognising those risks, training for those risks, training the communities you work within to understand those risks. I do not know what a Tesla battery means in terms of fighting a fire; I suspect it means something.

Ms GREEN: Or is it being the source of a fire?

The CHAIR: Indeed—all of those things. So I am just interested to know—

Ms GREEN: No offence meant to Tesla.

The CHAIR: No, no, no. I am just wondering what these new technologies mean for firefighting risk.

Mr SLIJEPCEVIC: I think, like with anything else, any new technology comes with the opportunities and with the risks. What we are doing with any new technology—introduction of those ones—is we go out and do a comprehensive risk assessment and then that determines how we will deal with the issue. Then we are working quite closely with the suppliers to address the issues or to create better training packages for our people, and then introducing those ones into the training program for firefighters.

The CHAIR: If you turn up to a fire and you see panels on a roof, that obviously gives a visual clue to a firefighter about the risk of a panel, but it does not necessarily mean you are aware whether there is a battery there in the house or in the garage or in the back shed.

Mr SLIJEPCEVIC: All of our first responders are trained in dynamic risk assessment, so they are all go through that mentally because we actually do not know what the risk is inside necessarily.

Ms GREEN: Probably easier to plan for that than the unexpected meth lab.

Mr SLIJEPCEVIC: Yes.

The CHAIR: Possibly, though I would hope they are not as widely spread through the community as hopefully ultimately solar panels.

Mr SLIJEPCEVIC: Absolutely not. It definitely poses challenges. Also, we are always seeking new technologies to help us combat the risk into the future as well. So we are working closely with universities on development of certain things. We developed crew protection systems for our tankers—it is the way that we will work into the future.

Mr FOWLES: I just wanted to know with that research you are doing—that sounds like really interesting and valuable research. What research is going on between organisations who would obviously have similar interest in the outcomes of that research?

Mr SLIJEPCEVIC: Obviously on a state level we are all sitting around a table and working together, so there is nothing that we do not know from each other because it is a seamless sharing of information. On a national level, we are sharing either through AFAC, through different groups, and as I said, there is a climate change group, or if we learn something new about fire behaviour, that is shared to the predictive services national group as well.

So we do a lot of sharing of information. I think that is the one thing that has improved significantly, not just inside Victoria but across Australia. We are far more open now to learn from each other and to share information. Ten or 15 years ago it was pretty hard.

Mr FOWLES: And a question for you that also affects SES and Red Cross. I am interested to know what you are doing in terms of volunteer recruitment. If we are seeing an uptick in events, we are going to necessarily need more volunteer hours, and I am wondering what strategies are you implementing, and are they working?

Mr SLIJEPCEVIC: There are the shared forums where we bring the volunteers together from all agencies and we discuss things that work or do not work in that space. So there is a lot of sharing of information. We do share the volunteers as well. There is a large number of CFA volunteers that are also SES volunteers.

Mr FOWLES: So what sort of things are being done at the moment to try and increase the volunteer pool in each of the three volunteer organisations here?

Mr SLIJEPCEVIC: We are always trying to recruit the volunteers in different parts. In some parts, as Jamie said, we are oversubscribed because there are is a large number of people and you will look normally in the urban areas or peri-urban areas.

In some other areas we are really depending on the size of the community. So as you know, in some regional centres it is reasonably easy to get good numbers. But if the population in some rural communities declines, there is a decline in the number of volunteers in those areas. There again, same as what Jamie was saying, we will look more into how we can support that. It could be, in the north-west communities, in the farming communities, that we put the aircraft there in the early parts of the summer or spring to protect the crops, so whatever comes up before the harvesting time we protect to actually support those communities.

The CHAIR: Jamie, you wanted to add to that?

Mr DEVENISH: Yes, I will just add that I think we are getting a little bit more flexible in what it means to volunteer for a traditional emergency management agency. So possibly in years gone by there was kind of this expectation that you had to join your local fire brigade or SES unit and you were a member forever and you built all your skills—in our case, in chainsawing trees, in laying sandbags and in cutting people out of cars—and there is this ongoing skills maintenance and an expectation that you are participating and you are responding.

The nature of volunteerism is really changing, and we know that there are more short-term, skill-based and role-based opportunities that particularly younger people are looking for. There are some great examples of us getting a little bit more flexible in providing an opportunity to volunteer. If that is in community engagement facilitators, which frees up those other busy people to do the more operational roles, or to be the treasurer or the secretary—kind of diversifying our volunteer ranks to be more appealing to a broader subset of the community.

Ms CUNNINGHAM: Can I just add, from a Red Cross perspective, that we have been doing exactly that, and we have actually been breaking records in terms of our volunteer recruitment lately. It really has been about tailoring the roles far more specifically and becoming a lot more flexible. So we are attracting young, diverse members to our volunteer base and just becoming very targeted in exactly what we are after for them, making them more flexible and creating a very different rationale. We run 10 staff in our emergency services team and 1000 volunteers. The ratio of staff to volunteers in the office is currently one staff to three volunteers. We are now moving to one staff to five volunteers, so we are getting volunteers to basically run that function.

The CHAIR: Can I just pick up on this theme a little bit? So particularly in rural communities, not so much regional, you will find that the volunteer ambo, the volunteer CFA person, the SES person and the surf lifesaver are the same person.

Ms GREEN: The Port Campbells.

The CHAIR: The Port Campbells of the world, the Birregurras, all of those smaller kinds of communities. And it seems to me that there is probably a massive duplication of training and the modules of training that these people are put through, and whether there has been any consideration given to having an emergency services package of training where you can get different competencies, that recognises that these people are often very time poor—they are leaders in their own communities and other fields as well—so that we do not overburden them, because I suspect generally volunteerism is declining. So we want to get the maximum out of them without kind of burdening them with hurdles that are just going to make it harder for them to be those community leaders across a number of fields.

Mr CRISP: It is a really good point, and that is exactly what we are thinking about and working on now. As I mentioned before, if you are running one of these areas, you are running a small business, so I think there are

opportunities to look at some common modules. Again, we have got the Victorian Emergency Management Institute up at Macedon. It is a great facility, but we need more. I have had some early conversations with Deakin. I have talked to other universities that have a regional footprint. What are more flexible ways of actually delivering some training and education? I see that as a critical piece of work for us as a sector, and EMV will probably take the lead around that, because again I think there is that opportunity. If we can provide articulated pathways into various roles, we are more likely to encourage volunteers into the system.

The CHAIR: And could that be articulated potentially into certificate-level training?

Mr CRISP: Yes, exactly.

The CHAIR: So that they can then take the skills they have picked up from being a volunteer into their private lives.

Ms GREEN: The CFA is all accredited—has been ever since Linton. That was the outcome of Linton.

Mr CRISP: There is opportunity to do more of that.

Ms CUNNINGHAM: We are actually active at the moment at Red Cross in a project called the digital identity project. That is trying to facilitate volunteerism across organisations. Additional to the training burden, there are all the police checks and all the other certifications, so we are actively actually piloting for our emergency services team something we at Red Cross are doing, Humanitech, which is a blockchain technology. We are trialling the digital identity project through that, which is trying to allow every individual volunteer to own their own credentials so that they can have transferability of those credentials across volunteering organisations, which will help facilitate and reduce some of that burden.

Mr CRISP: Which is a great idea, because I have spoken to some volunteers, and they say, 'Look, I volunteer', for example, 'with the SES, but I've got this skillset, so if there was some other emergency, you could use that skillset other than why I volunteer with the SES'. If we got that picture across the state, that would be an incredible advantage.

Mr SLIJEPCEVIC: I think most of the accreditation in emergency management comes from the public safety training packages. There are units and national certificates that the CFA, DELWP and SES award to people, so there are a lot of things that are already in place. We are changing our training packages to be more modular so they can be delivered at different times with people in parts, and we are putting a lot of stuff online now so that people can actually do it at their own pace and their own time.

Obviously there are always processes for the recognition of current competency or of prior learning so that we can credit people through that. You asked before what are we doing to attract people and maintain them. We are doing different recruitment now. Traditional entry into CFA used to be you would be on the back of the truck and then you progress through it. We are recruiting people for community work or something like that so that people do not have to get on a truck to be active and volunteer.

The CHAIR: For the local accountant who does not want to go and fight a fire but is happy to volunteer to run the books for the brigade.

Mr SLIJEPCEVIC: Absolutely. They would be a good secretary of the brigade. So there are lots of those. And even people that move from one part of the state where they are volunteers and go on holiday to Phillip Island, for example—they bring the gear with them and then they volunteer in that brigade as well in response.

Ms GREEN: Yes, I have done that up at the snow.

Mr HAMER: I had a question. This is I guess for all of the volunteer organisations with lots of volunteers. It is just about your gender balance, or not balance I suspect. I think I might know the answer, but I would just be interested to know whether that is what it is and if it is—

Ms GREEN: Is it getting better?

Mr HAMER: changing?

Mr SLIJEPCEVIC: I think it is definitely getting better. In some of our brigades when you go around—and I spend a lot of time going around the brigades and attending brigade dinners, sometimes with Andrew as well—it is definitely getting better. I do not have the figures here, but there are some brigades that would now have 50-50 in the operational firefighters. So there are some fantastic examples around the state.

Mr DEVENISH: Yes, and ours has improved out of sight. I think we are at about 65-35 now, the split, which is markedly better than it was even in the not-too-distant past. I think it includes 70 per cent of all of our units—we have got about 149 units in Victoria—have a female either as the controller or as one of the deputies. So the leadership roles the agency has worked pretty hard on shifting.

Mr HAMER: Yours is probably almost the reverse, I assume, is it?

Ms CUNNINGHAM: I will have to take that question on notice. I cannot give it to you.

Mr HAMER: No worries.

Ms GREEN: I have one more question for Alen, sorry. I am conscious of cutting into your time, Mark. Alen, when you raised the issue of the north-west and the grain harvest, it made me think about—because there has always been the practice of the burning of stubble after the harvest—the State Government funded a trial in the Pyrenees shire where instead of the burning it was all re-used as an energy source. Obviously it is going to decrease your risk—less burning, less depletion of the atmosphere—so with the work that you are doing in the grain areas, are they doing less burning of stubble and is there anything more that we can do, like that Pyrenees shire trial?

Mr SLIJEPCEVIC: In some parts of the state actually they are doing a lot less burning, because they want to protect the soil. So if they burn, when the wind event comes it takes all the soil and shifts it here into Melbourne. So in some parts there is a lot less burning; in some parts it is still the same level. We see that in the autumn during the burning season.

The CHAIR: Fantastic. Thanks, Alen. Mark, over to you. You are last. Sorry about all of that.

Dr NORMAN: That is all right. It is all very relevant. I am interested in us discussing the focus on climate change and community resilience as part of the Inquiry. I am just interested in that absolutely everything we have covered in emergency and disaster discussions is absolutely critical. For Lee and I we also have the sense of the entire state and the community resilience to large-scale changes. So we are seeing unprecedented changes across ecosystem transformations and massive species losses on terrestrial systems, in waterways, in marine systems, and I am just interested in delving more into that. How do we help communities cope with the fact that things are transforming so dramatically? New South Wales is what Victoria will look like within five years, probably. North of the Divide it is probably what they are experiencing already in New South Wales.

So how do those communities, or the youth that are so concerned about climate change, find a way to manifest meaningful engagement—not go into the despair or the mental health issues, which are huge at every scale? For us we are changing our approach. We are turning it more into contingency planning, worst-case scenario planning. There is that saying that says, 'The case is hopeless; we have to take the next step'. There is something in that mindset about starting to think, in the nature sense—and Parks Victoria is about nature conservation for the best of nature in Victoria—we have to change it to narratives around climate refuges, fallback positions and things that people can get on board with as a community engagement process that is something the youth can actually act on.

I think Parks- and DELWP-managed Crown lands provide a real opportunity in that space because we have got 130 million visitors a year to that Parks estate. We have got 22 000 volunteers engaged. We have got 17 000 junior rangers. We have got all these things that are contact points with a public that is crying out for this content, plus the visitor experience. Darren, you raised issues before, and Danielle and others, around impacts on communities, on coastal communities. We are seeing a shift in demographic moving from the hotter, drier waterways that are disappearing to coastal, cooler environments. So our visitation pressure or communities that are not good at managing smoke or fire or all those other things compound all these issues. But there is something in this space about how we build a shared narrative or a shared sort of hope approach around what you could collectively do to have an action.

There are four stages that we see. One is: you need to know the data is valid, and I think we are well past that argument. The next one is: how is that impacting? The New South Wales drought has completely killed the bogong moths that fly across Queensland and New South Wales to feed the mountain pygmy possums. They will probably be extinct in the wild in three years time. Now that stuff is happening everywhere. We have got staff that go out and used to see a hundred legless lizards and little native mammals, and they have not seen one now for three surveys. So I do not know where we break the line between emergency and disaster narrative and "this is the new normal"—or it is a new hostile normal, or it is a new catastrophic normal—and I do not know where we bridge that conversation in a way that brings the public with us.

We have started talking about, 'We need to put Churchill in the bunkers'; we have got to put multiple Churchills in multiple bunkers. So we write off five wetlands but two of them are the ones that we work collaboratively to not put fire retardants in the aerial bombing so that that is the last stand of the giant burrowing frog, but the public can join in that last stand of the giant burrowing frog. So there is a volunteer call to arms or call to action where there is a local pride in 'This is our Australian native flora and fauna' in places, and this is where we would all rally around.

I think there is something in that space, particularly around youth. We will not have problems getting volunteers if we say, 'We're all going to collectively de-weed and de-pest this environment to maximise the survival. We've done the heat overlays, the risk overlays, all the aerial bombing sites know this is a core habitat for this reason or this group', and we collectively work on it. We work very well as agencies together. We are all on the project control boards for the *Safer Together* programs, all those sorts of things, but there is something in the narrative development that needs to bring the public with us—that is, engaging, or an active outlet for constructive contribution—because our problem lies in the denial, despair. The telly is on, there is the polar bear balancing on an ice cube. Turn it off. Put on something else. We have got to find something that is a constructive 'I'm going to act. I'm going to do something'.

We do conservation action plans for each of 18 landscapes across the state. Increasingly we want the secret unit in the back of it that you go, 'In case of emergency, pull the handle—go and pick up the last remaining mallee emu-wrens'. The fires in South Australia completely eliminated mallee emu-wrens from South Australia. We still had them in the Mallee. They came and collected 40 of ours. They are thriving in South Australia now.

Now, if we did not have those campaigns, we would not have continued it. So there is something in this space about how we characterise and capture that imagination, but as one of the many tools to help the mental health issues of what is happening in Nhill or Dimboola or in those societies that are just collapsing at a huge scale. I am not saying that there are any clear answers, but I am very interested in how we can collectively help in that space as agencies, but I really do not know where emergency and disaster ends and catastrophic change or significant change goes.

Like, Tasmania no longer has giant kelp forests that covered 95 per cent of the east coast; they were as thick as mountain ash forests. Our mountain ashes need 25 years between burns to replace themselves. They are down to inter-burn intervals of four to eight years; we are not going to have mountain ash forests within 10 or 20 years. With Lee's support and Chris Hardman, Chief Fire Officer, we are aerially seeding alpine ash back into areas where it will not recover itself. So we are in this 'How do we act now? What is our contingency planning? What is the preparation for the nature end?'—and it is not just green hippie stuff. It is the power of the connection to communities or those communities valuing something.

We flew over the Holey Plains—Lee and I flew over the Holey Plains—where 6000 hectares went in one 43-degree burn day. The sedge wetlands were down to bare clay. There is some Wellington mint bush, the only place in the world this pretty pink plant lives. We got in there quickly and fenced around those areas, and the seeds seeded. The plants still exist. If you brought the community with you and they owned it, like Wollemi pine, and they are all growing Wellington mint bush in their garden, it is a constructive outlet for the Extinction Rebellion mentality.

I just think we can help in that space, and it is a conversation we are sharing and having already with climate policy people. Like Ramona is dealing with us and others. It is a really interesting one to have in this space.

Ms GREEN: Last week we had the most gorgeous farmer present to us and then we went and visited her friends' farm. She is part of the Landcare network, and I would say she is probably in her early 60s I think. She sort of said, 'It's really difficult, because we've got neighbours that think we're just weirdo hippies because they are still in denial'. It was two couples, and they sort of took us on the journey of how they had completely gone from traditional farming to going, 'Ah, we can't do business as usual anymore', and not only are they getting better average results for their farm products but they are protecting their land and it is regenerating. And they did say to us when we did the on-farm visit that it meant that it would keep the soil cooler so it would retain some of the species.

Dr NORMAN: And better water retention.

Ms GREEN: But the thing she said when she presented at the hearing was that, 'Look, there are opportunities'. And I just thought that she was still in that mode of like, 'We can; humans are resilient. Let's try and do something around this'.

Dr NORMAN: There is something about capturing the imagination of things—that you can have a crack. Whether it is just a plant on a veranda or on somebody's apartment balcony, there is a sort of 'for nature' component there that can be part of a campaign or mentality. But I think that we have got wholesale despair across everywhere north of the Divide and coming off the farms and the impacts that are going into those situations. This will not fix it or change it, but it might be an avenue for constructive outlets. If we only water one wetland but that is the one that becomes the jewel that we are saving, then it has been a kind of pre-war triage, which is the mindset that we need.

Ms GREEN: Or one mountain that you save the pygmy possum on.

The CHAIR: I live south of the Divide, not far from the Otways. Obviously the Otways and some of the alpine areas are cool forest locations. The dominant species are mountain ash and others. It occurs to me that those communities are also hotspots for holidaymakers and the like, and those communities also have substantial resident communities. I am wondering whether there is an opportunity for Parks Victoria and our rangers employed within those communities to be education officers for those communities about how resilient our forests are, the changes that people can expect and the conservation measures that can be put in place with the support of those communities for those special places that the Crown has recognised and has set aside that land. I am wondering whether there is a role for Parks Victoria in that and whether there is an opportunity to potentially expand that role, using the opportunity that perhaps communities north of the Divide might be going there for their holidays and engaging with them so that they can take some of those practical lessons back into their own communities. I am just wondering whether you have any comment on that, whether you would make any recommendations to us around that.

Dr NORMAN: I think it is a really critical role, and we have that interface with 120 million visitors a year so I think that we can certainly be a lead voice in that space, because the destinations they are drawn to are the best of nature or beaches or whatever, and that tends to be a lot of our estate.

The CHAIR: But are Parks rangers so busy running around emptying rubbish cans and not actually talking to and engaging with those communities in kind of a conservation sense?

Dr NORMAN: Through the strengthening of Parks Victoria we did get an uplift of another 53 rangers, a lot of which were community engagement officers. They have been brilliant and they have been doing that interface. We also need to help them so that they have got those four steps clean. We can say, 'This is changing, and there's lots of blackwood spontaneously dying in the Otways—they've reached climate tolerance, they're probably dying out'. We have to find ways to be constructive and go, 'So Parks Victoria is putting in more heat-tolerant peppermint to give us forest canopy to protect the understorey and those other things'. But we need all four steps: the facts, how it affects here, what we are doing as a Government and then what you can do that means something—and it might be volunteering, it might be giving money, it might be participating in flash mobs around this sort of 'You can't get youth to commit for 10 years' but they might turn up and do something at scale that is really constructive. It could be a flash-mob planting of heat-tolerant plants to put structure in for southern brown bandicoots or whatever it is. I think it is really core that we have to have those sorts of conversations, and I think it is a good idea.

Ms GREEN: Mark, I think there are the links into Parks Victoria but also the Landcare coordinators. A good suggestion we heard in Bendigo was someone proposing that we have got a really effective neighbourhood house network—we were in East Gippsland, and they have a really large number—and that goes into some of the very delicate sorts of areas, and they could be good repositories to try and support people's mental health. Because the Landcare coordinators do not always have a base, and you could make them sustainable neighbourhood hubs which could have that information. And maybe in the garden you could be propagating—

Dr NORMAN: And it is regionally so diverse. So you have got in the Otways the eco-centre, Earthcare at St Kilda and the Bunurong Information Centre at Inverloch. There are these pockets of real strength. Most of them are ageing, and they are worried that their Commodore 64 is going to fall over and the whole thing will stop. So we do need youth and energy in this space, but there is something in there about it not being an agency's sole responsibility, it is a collective responsibility. Recently DELWP has been holding forums for the environmental non-government organisations, and there were 12 agencies and NGOs represented. They were saying, 'How do we collectively take on climate change? How do we collectively have a shared message that could be delivered by the eco-centre in Apollo Bay and PV and DELWP and forestry?' and so on. So it is that common message.

Ms GREEN: But is it also a curriculum thing for our schools?

Dr NORMAN: Yes, and the department of education would be a really good one for you guys to talk to as well.

Mr HAMER: You touched on the plants in the Otways that have reached their heat tolerance. How prevalent is that across the state that you are finding that there are plant species that are basically dying out?

Dr NORMAN: In major transition, yes.

Mr HAMER: Yes, that are in a transition, and you would be looking at, I suppose, potentially replanting with other species from further north?

Dr NORMAN: I would say it is going to be more normal than not. We just did five staff roadshows around the state. At Warby-Ovens National Park out of Wangaratta the canopy is so see-through now that there is no cover for arboreal possums to move through. At Mount Macedon the eucalypts are spontaneously dying on the north faces. Even the fire we flew over at Walhalla for the first time burnt to the creek lines, the dry creek lines, on the south and east faces. That is unprecedented. We do not have the refuges that repopulate those recovery areas anymore, so I think this is going to become the norm. We have to change our mindset to say that we are preparing for a different new normal. It is not isolated all, and it is happening in marine systems and it is happening in the waterways. The sea level rise as you have seen in Gippsland Lakes is starting to salt poison Dowd Morass and some of those other places. This is big everywhere, and we have to change our mindset.

Mr MIEZIS: If I could just build on that. The Victorian Government is currently negotiating regional forest agreements with the Commonwealth Government. One of the key objectives for Victoria was to get better recognition of the impact of climate change on our forests. As part of that process we did a climate vulnerability study across 36 key forest ecosystems and 38 key forest-dependent species. What we found through that was that 25 of those 36 forest ecosystems are at high risk as a result of climate change and 14 of those 38 forest-dependent species—

Ms GREEN: Thirty six or 38?

Mr MIEZIS: Twenty-five of the 36 forest ecosystems, and 14 of the forest-dependent species were high risk. The remainder were largely medium risk. What we are seeing is quite a prevalent issue for us, and it will result in quite fundamental changes in those ecosystems.

Mr HAMER: And obviously if it is more than half there is probably not a specific geographic concentration, but is it pretty much not all areas of the state but very widely geographically distributed?

Mr MIEZIS: Yes. So this was a statewide assessment.

Mr HAMER: No, sorry, but in terms of those high-risk areas, were they distributed throughout the state?

Mr MIEZIS: Yes, right across state.

Mr SLIJEPCEVIC: It is really difficult now because when you are doing the assessment you are looking at what is happening with climate change—that is, how climate change will impact on different ecosystems and different species—but then when you overlay that with the fires that are burning that is when you have those flip things happen very quickly.

Dr NORMAN: And you said rainforests before. In the Tasmanian fires in 2015–16 they had 2300 dry lightning strikes. It lit 600 fires in rainforests that historically were always too wet to burn, and they lost pencil pines that have no history of fire tolerance ever. So we are starting to eat away at those ancient Gondwanan forests that are getting dry enough to burn now. One dry lightning event in Queensland had 170 000 dry lightning strikes in one storm system.

The CHAIR: Can I just add, and it was just mentioned a little earlier, that we have got some significant wetlands in Victoria—the Gippsland Lakes, the Connewarre wetlands, and there are probably others that I cannot think of—and the climate science is telling us that with sea level rise and the like they are going to significantly change. They are going to be more coastal and less inland water courses, if that makes sense. What will that mean for the bird species, fish species and those kinds of things, and what will it mean for those wetlands?

Dr NORMAN: We have got this happening in the Wimmera. We have got 12 Ramsar wetlands, the formally recognised ones, and two of them have recently had formal notification to the international body because they have exceeded levels of acceptable change. The Wimmera no longer has water running into it; it has reached that catastrophic state. So it is sort of like it will not even Lake Eyre very much—it will not do that boom of birds and critters. It is getting catastrophically dry. The other one is Gippsland Lakes and the salt incursion into those waterways. But that is going to be the new norm, which is why we have to change our mindset and say, 'There are eight wetlands in this area. We're letting six go. We're not going to put our resources into that, but for these two on the south side that are deeper and have a more guaranteed water supply we're going to do all our fox and weed control, we're going to do the overlay with these guys to make sure that it's seen as an asset as important as a hayshed somewhere else or something else that has got some asset value'. We are taking steps towards that; we are taking kind of baby steps towards that in some ways.

Ms GREEN: Mark was sort of posing questions, you know, 'How do we do this?', and I am glad we said we would have a roundtable. One of the stats that I have heard—for people that are not switched on to fluffy animals, legless lizards or whatever and have been a bit disinterested in all of that—when I say to people that it is estimated that by 2050 Shepparton will be too hot to produce stone fruit anymore and so we are looking at areas in the Port Phillip region—

Dr NORMAN: The flood of dairy industry from northern Victoria to Gippsland; the prices in Gippsland are going through the roof. Tassie and southern New Zealand.

Ms GREEN: Yes, but I think maybe for people that have not been switched on to the natural environment, a way that they might be hooked into it is through food. So that might be the way that you sort of say, 'This is how rapidly it is changing'.

Dr NORMAN: And the fish kills in New South Wales are a mix of environment and management. But you could say, 'Look at New South Wales—we have to think in that mindset'.

The CHAIR: Thank you for coming along. I found it, and I am sure my Committee found it, very informative, and we very much appreciate the effort you have made to come and present to us today.

Ms GREEN: Thank you for everything you are doing in a very, very difficult environment.

Committee adjourned.