

**REPORT ON PROCEEDINGS BEFORE**

**STANDING COMMITTEE ON STATE DEVELOPMENT**

**BENEFICIAL AND PRODUCTIVE POST-MINING LAND USE**

**UNCORRECTED**

**At Jubilee Room, Parliament House, Sydney, on Monday 21 October 2024**

**The Committee met at 10:30.**

**PRESENT**

The Hon. Emily Suvaal (Chair)

The Hon. Wes Fang (Deputy Chair)  
Ms Sue Higginson

**PRESENT VIA VIDEOCONFERENCE**

The Hon. Mark Buttigieg  
The Hon. Stephen Lawrence



**The CHAIR:** Welcome to the fifth hearing of the Committee's inquiry into beneficial and productive post-mining land use. I acknowledge the Gadigal people of the Eora nation, the traditional custodians of the lands on which we are meeting today. I pay my respects to Elders past and present, and celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands and waters of New South Wales. I also acknowledge and pay my respects to any Aboriginal and Torres Strait Islander people joining us today. My name is Emily Suvaal. I am the Chair of the Committee.

I ask everyone in the room to please turn their mobile phones to silent. Parliamentary privilege applies to witnesses in relation to the evidence they give today. However, it does not apply to what witnesses say outside of the hearing. I urge witnesses to be careful about making comments to the media or to others after completing their evidence. In addition, the Legislative Council has adopted rules to provide procedural fairness to inquiry participants. I encourage Committee members and witnesses to be mindful of these procedures.

**Ms AMANDA WETZEL**, Director, Research Programs, Institute for Regional Futures, University of Newcastle, before the Committee via videoconference, affirmed and examined

**Mr MYLES EGAN**, Research Analyst, Institute for Regional Futures, University of Newcastle, before the Committee via videoconference, affirmed and examined

**Dr AGNES SAMPER**, Senior Research Fellow, Sustainable Minerals Institute, University of Queensland, before the Committee via videoconference, affirmed and examined

**The CHAIR:** Welcome and thank you for making time to give evidence at the hearing today. So that you are aware, one Committee member is online and there are a couple here in the room. Would any of you like to start by making an opening statement?

**MYLES EGAN:** Yes, I'll be doing that, thank you. I'd like to thank the Committee for inviting us to present the findings of our research looking into the feasibility of developing regionally integrated transitions beyond mining in the Hunter region. This project was sponsored by the CSIRO and delivered jointly by the University of Queensland's Sustainable Minerals Institute and the University of Newcastle's Institute for Regional Futures. It set out primarily to answer three key questions: Is there appetite within the region to develop a common stakeholder-led vision for post-mining land use and existing mining assets in the Hunter; what would be the process to build such a vision for the future use of mining assets, and what tools are needed to support that vision's development; and what data, information and knowledge exist about pressures on land, water and ecosystems in the context of mining closure plans, and where are the gaps in data and information.

Because our research was a scoping study, we didn't attempt to create any new data or information. Rather, what we did was examine what information was already available, how useful it was and what gaps would need to be addressed to pursue a common vision. I understand the Committee has been provided with a copy of the study's final reports, which will also be published on the CSIRO website, if that has not already been done. One key conclusion is that our research revealed a tsunami of data across a range of topic areas. Our analysis indicated that the volume of information available was, in itself, problematic because of the amount of time and effort required to source and understand it all and because, once understood, it is largely not decision ready. In short, the volume of information serves to mask major data gaps when it comes to having the credible, contemporary and consistent environmental, social and economic data needed to inform a post-mining land use vision.

Throughout the course of our interviews, it was also evident that many of the informants that we spoke to displayed the characteristics of a champion or talked about others as champions—that is, willing to go above and beyond the remit or influence of their roles to achieve a better outcome. This appears linked to an urgency to leave a positive legacy. It was also not specific to any particular role or demographic, which in our view demonstrates a willingness of people to commit to improvements in practice when it comes to post-mining land use in the Hunter Valley. The study also contains a series of suggestions for ways forward, which we are happy to discuss in today's session.

Before we begin, I do just want to clarify that we represent a selection of a project study team, so we may need to take some questions on notice for other experts to respond to at a later date. Notably, CSIRO's project sponsors Dr Jason Kirby and Dr Prashant Srivastava send their apologies. We do, however, have representatives from both university research institutes here today. By way of introduction, in addition to my role at the Institute for Regional Futures, I am also a lifelong resident of the Upper Hunter, where I have lived, researched and witnessed firsthand the ways in which mining shapes local ways of life, understandings of place and uses of land.

Ms Amanda Wetzel has provided evidence to the Committee at a previous hearing, so I won't repeat her background and expertise in detail today. As the Director of Research Programs for the Institute for Regional Futures at the University of Newcastle, she oversaw the Newcastle-based team's efforts and inputs into our research. Amanda's expertise is in strategic land use planning. Dr Agnes Samper is a senior researcher from the Sustainable Minerals Institute and the environmental centres at the University of Queensland. Agnes has been coordinating the project and final report delivery between the University of Newcastle and the University of Queensland teams over the past two years and has a background in geology.

**The CHAIR:** Thank you all for making time to appear today and for providing a copy of the research. It was very interesting to read and it is really heartening that it has been undertaken. I commend you all for your work. I want to start by looking at recommendation 2 in terms of the bridging studies that you've recommended be undertaken. In particular, you talk about the need for a policy analysis study to be conducted in partnership with the New South Wales authorities. What could the role of the State Government be in terms of initiating that or partnering in that?

**AMANDA WETZEL:** I'm happy to speak to that if the other two don't have anything to say to start with. In the previous session where I gave evidence, we talked about the number of agencies that are involved in delivering policy that's relevant to the mine closure database. I think the easy answer to that question is some kind of open forum where all of them are in some way bound to participate in the discussions that examine both the policy that's currently in place to deliver mine closure planning and the relevant aspects of transferring the ownership and the use of that land to something that is of use to the community, but also what the potential is to change those policies and the procedures attached to delivering them.

I think there's a clear gap that we've seen in our research between what government is setting out to do and what research tells us, necessarily, is best practice or emerging practice around the world. Some kind of ongoing dialogue in that space would be fantastic to allow for us to make small adjustments or large adjustments, and then to continually check in and evaluate the usefulness of those changes and to continue to make adjustments on the fly, if you like, to make sure that we're improving.

**The CHAIR:** In terms of the transition authorities that are being set up at the moment, obviously there's an issues paper that has been released that specifically mentions post-mining land use within the remit of those authorities. Do you think that model would be sufficient? I note that your recommendation 1 is around the importance of having researchers involved in those discussions. Would that be a dedicated position on the authority for a researcher or something broader? Is that what you're suggesting?

**AMANDA WETZEL:** I mean, that's certainly one model. I don't know if—I might look to Agnes if she's aware of any similar sorts of research placements, secondments or PhD placements that occur as a part of these kinds of arrangements. At the time of our research there were two proposed authorities emerging, both at the Federal and the State level. Rather than trying to guess what the structure of those might look like, where the wording for that first recommendation came from was that we wanted to make sure that, as a project team, we were keeping ourselves informed of progress in both of those spaces and also, as things evolved, to make sure that there was a seat at the table for research to be plugged into whatever the authority governance structure looked like and then the ongoing delivery of the authority's work. Agnes, I don't know. You may say no. I don't know if you're aware.

**AGNES SAMPER:** I'm not aware of any research study going on at the moment, but that's a great idea. I recommend a couple of researchers.

**The CHAIR:** Noting that you are obviously from Queensland, Dr Samper, I have a question around the Queensland reforms, which you mention in your scoping study that came into force in 2019. Mine operators are required to produce a progressive rehab closure plan that identifies the final use of all land within the relevant tenures. I wonder if you could update us on how this is going. Is this something that New South Wales should do and are there any learnings that are emerging from that from Queensland?

**AGNES SAMPER:** Being from Queensland and being a geologist and working in environment, yes, it's a great regulation that's been in place in Queensland. I recommend this as well. It gives planning and it gives vision for the mining companies but also the communities around the mining lands when this rehabilitation is happening. There are also constraints that are linked to the soil and the biodiversity preservation.

**The CHAIR:** Ms Wetzel or Mr Egan, did you have anything to add to that from the perspective of New South Wales?

**MYLES EGAN:** I would say that at a community level we do see that, when you try to have a conversation about transition—be it in the post-mining land use space or more broadly—it can be very hard to have that conversation without the material evidence of what that is going to look like. I think the more prescriptive we are being, the better.

**AMANDA WETZEL:** I might just speak back to the additional written evidence I provided after my last evidence hearing, which spoke a little bit to some of the key distinctions between what's currently in place in Queensland and what's currently in place in New South Wales and how I understand it. This is specifically looking at the strategic land use planning aspect. Agnes spoke to the soil and environmental aspect. Certainly, in Queensland, there is a requirement for mining closure plans to actually take into consideration or have regard to existing regional or local land use planning frameworks. When they provide their closure plan to the authority for compliance checks, then you would at least have some statement in there saying that they've looked at those plans and that whatever the final land use arrangement looks like is either consistent or not consistent with what those plans suggest.

That check is not to say whether they've got it right or wrong. It's simply a matter of process to make sure that they've at least opened up those plans and had a look and thought about how they might operate those. It's a step that we don't necessarily have here yet in New South Wales. I think that would be an important step to make.

Some of the other key things I think are great coming out of Queensland, which we have talked about before, is that they must publish their mine closure plans. There are opportunities that are tried and trusted pathways to allow them to progressively close and rehabilitate and relinquish their sites, which would allow for earlier access to land than what we have in practice in New South Wales at the moment.

**The CHAIR:** In terms of the study, you also discuss the need to provide confidence to entrepreneurs and investors and the need for an established and defined regulatory pathway for the assessment risk transfer and uptake. In all of your humble expert opinions, what is the best way to do this? Is it through a SEPP? What's the best instrument to use to ensure that pathway exists?

**AMANDA WETZEL:** It would be difficult to achieve the totality that you want through a SEPP because that's specific to the environmental planning legislation. Right now what we're dealing with are processes under two key pieces of legislation, one being the Mining Act and one being the planning Act. There would need to be changes or acknowledgements in both of those legislative frameworks that bridge that gap between the two. There are ways of doing that. For example, through the planning Act you could have the mining regulator as a statutory referral authority and acknowledgment of that process and any changes to development approvals. In the Mining Act, similar to what I described for mine closure plans in Queensland, you could have references made to "statements in those closure plans must have regard to any plans made under the environmental planning Act", whether that's by regional authorities, State authorities or local authorities. That's one suggestion. Unfortunately, there are probably 55 ways to get to the same outcome.

**The CHAIR:** I suppose the issues paper for the Future Jobs and Investment Authorities does entertain the idea of legislation. Looking at that as a possible opportunity, would that be a possibility and in itself suffice, or would there be a need for other controls and instruments, do you think?

**AMANDA WETZEL:** I don't think that the legislative change in itself is going to suffice in providing a clear tried and trusted pathway. Unfortunately, I think it's going to be individual sites or organisations going through that process, and then a culture of reflection and learning to pass on that perhaps we didn't get it right first time around but certainly we're committed to doing so. I know the Committee has already heard from the proponent from the BlackRock motor park resort. You'll hear later on today from Professor Roberta Ryan, who is also part of our project team for this research. She has been pivotal to that culture of learning and reflection around the BlackRock motor park's experience going through the process. Certainly there are a lot of takeaways that we can learn and improve from that wouldn't require legislative change. In fact it would just require us to have a slightly different approach to how we put that legislation into practice.

**The CHAIR:** In terms of the current planning system, my understanding is that there is a pathway in place already, obviously, to enable post-mining land use. If that pathway is in place, why is it, do you think, that so few mining companies take up that opportunity currently?

**AMANDA WETZEL:** It's difficult to speak for every mine site, but I think that the issues that are in place right now, with the process that we currently have, are that it's probably the longest pathway to get to the final outcome. By the time you get to the end—and I think there's a quote in the report somewhere that talks about this—mine closure plans are compliant with the current legislation. Whether or not those line up with what the contemporary vision for the future of a place looks like is not currently part of the compliance. It would be an opt-in process for mine sites to change whatever they had approved at the time they had it approved to align with what the communities want to see today.

The opt-in process is where the risk happens. The opaque nature of what that would look like, what it would mean, does it have a financial or an additional time cost to either the mining company or the potential future investor. Those are the questions that people are currently left wondering about. I think that's where the bang for the buck comes from, in terms of providing a tried and trusted pathway, a commitment to testing it out and a commitment to minimising the risk and being the first, second or third to fumble their way through that process.

**The CHAIR:** Mr Egan, in terms of the data gaps that you spoke about in your introductory statement, that is highlighted through the report. I wondered whether you or any of the others had a view as to who is best placed to try to fill some of those gaps. In particular, you talk about the absence of coherently organised and reliable information to facilitate a social and economic framework for mine closure. Who is best placed to do that work, and do you also have a view of how long it would take?

**MYLES EGAN:** That is a question, I think—unless Amanda or Agnes would like to jump in—probably best taken on notice for one of our colleagues at the University of Queensland who has specific expertise in that data space to get back to you on.

**AMANDA WETZEL:** I would agree with that. There are some fantastic researchers in the Sustainable Minerals Institute team who can speak to both good practice and best practice and the social planning space, as

well as the governance space. It would also be a good question for Professor Roberta Ryan, who has extensive experience in that and how it's applied here in the Hunter.

**The CHAIR:** Thank you. I shall ask her when she is appearing later today. While we're on data—again, this may be a question for others. In terms of the mine closure data, I note you have mentioned there is no single source of authority to identify the current locations of current and historical mines. Who do you think is best placed to do that work in New South Wales? How important is that in terms of working out these regional linkages that need to occur?

**AMANDA WETZEL:** I'm happy to provide an opinion. I certainly wouldn't say I can provide the defining answer. One of the key issues that we ran up against, both in terms of where the data sits for mine closure planning but also in terms of where the data sits for economic or social data, is the level of trust that individual stakeholder groups might have in whoever that source might be. There were conversations that we had around, "A lot of this data comes from the mining sector itself or it comes from the Government." Sometimes both of those appear to be opposing sides. There was some level of independence provided through an organisation called the Hunter research foundation, which is also now part of the Institute for Regional Futures delivery model, whereby they were providing social and economic data updates on a quarterly basis to all stakeholders involved in this process.

However, when it comes to the mine closure plans, because of the Government's role in regulating and ensuring the compliance of those plans with regulations, I do feel like it's a very easy opportunity for the Government to simply provide whatever those closure plans are in their currently approved state as the single source of information for that. The question around that also needs to consider, though, what the accessibility of that data looks like. Dr Pascal Bolz, who unfortunately wasn't able to join us today—he was involved in the painstaking process of trying to collate all the spatial data. One of the aspects of his conclusions came to the fact that some of this information either isn't available or isn't available in an information that's readily used. Right now, for example, mine closure plans are available in a PDF format and not a GIS format, which means that there's that additional layer of time and effort taken to make sure that those are readily accessed and usable by stakeholders in this process.

**MYLES EGAN:** We touched briefly before upon the importance of giving certainty to investors and entrepreneurs. This is, in my view, a significant part of doing that. Because currently in an environment where we've got lots of disparate information that might be out there but isn't readily accessible or usable, that certainty just doesn't exist. Particularly in an environment now where we have both talk about mine closure in the short term—if you take, for an example, Mount Arthur at Muswellbrook. Whilst you've got other mines continuing to get their licences extended, you have this sort of conflicting narrative. Having sort of a clearer picture would definitely go a long way to providing that certainty.

**Ms SUE HIGGINSON:** I've got a couple of things primarily around biodiversity and the environment and the position we're in. Based on what we were just talking about and the conclusions around the need to update the land use cover datasets and the spatial data and get to that kind of—I hate using this term, but that single source of truth or, you know, the single source of the thousand layers of truths. In your work, have you identified any common theme around the reason we don't have that easily accessible, layered approach through tools, where—whether it is future investors looking for confidence or the conservation sector looking to try to better understand how we're going to make-up for the nature deficit that we've generated in the Hunter and so on. Is there anything you can identify in terms of a lethargy, or is it an unplanned coincidence that we just don't have what we all see that we really need?

**AMANDA WETZEL:** I'll kick this one off. Again, just stepping back into the sequential roles I've had here in New South Wales, it's not an uncommon situation to be in. What we're talking about right now is—we've been sitting on the cusp of major transitions for a long time. Unfortunately, we've panicked too slowly about it to put the necessary processes and procedures and portals and authorities in place until just now. I think there hasn't, in the past, been a specific government direction or mandate for us to be arming ourselves for this particular point in time. I've talked in previous hearings about how the Hunter Regional Plan is certainly one of the first definitive plans that does that here in the Hunter. I think, unfortunately, we're just at that point where this is the first time that everyone has been growing in the same direction and wanting to achieve the thing that appears so obvious to all of us.

The second layer of that step, though—or the second step in that—is to agree on what should be the data that's contained and brought together and coordinated and who has the final say on whether it's right, wrong, useful or not. That's where it starts to get really challenging because there are so many prospectives that would want to have access to the same information, but to understand it or use it in a slightly different way. That's where, as a project team—and Agnes can perhaps talk to this a little bit as well—we probably discussed five or six

different ways of bringing that information together and how that could be achieved, delivered, disseminated, shared, improved et cetera. The model for that needs to come from what works best for the individual places. An authority model for the Hunter would be structured and composed very differently to an authority model for other places.

Previous research that I know Dr Bolz was involved with included looking at an area in Queensland. They had a spatial framework where they brought together the information that they needed to make decisions about what the future land use opportunities and potential were up there. That was the model he was trying to replicate here in the Hunter, and it's where he got bogged down in a problem they didn't have in the Bowen Basin, which was that there was no information available up there. They were having to create it or source it themselves. Whereas here, the first dive he took into the spatial information that's available in the Hunter was, in a way, very overwhelming, because there's so much there but nobody has decided which layer is the layer that takes priority over other layers, or some of the information might have been created but it doesn't extend to the entirety of the Hunter, or it may have been created for a single issue—for example, the critical industry clusters that are attached to the mining SEPP.

They set out locations that are potentially useful for those industries, but they were created for the purpose of triggering enhanced assessments in the development approval process. They certainly don't extend to every single vineyard that exists in the Hunter Valley. That's where the challenge comes from. I think the first step we need to do is agree on what the model looks like, and then we all need to take that next step of figuring out what information is best, available now, and what information do we need to improve upon to make it decision-ready.

**Ms SUE HIGGINSON:** In terms of the interviews that you undertook and all of the participants—I know it's reflected a little bit in what we're discussing now, in the need to develop a harmonised strategy and dataset on biodiversity investment across the region—I'm just curious about the theme around what some of the witnesses to this inquiry have presented over time, and that is how do we approach the biodiversity debt. That is how it was described by some witnesses—and the nature-deficit position we found ourselves in in the Hunter and all of those really valuable ecosystem services. What were the general trends and findings and observations you made that perhaps didn't make it into the final draft of the report?

**AMANDA WETZEL:** Agnes, did you want to speak to that at all?

**AGNES SAMPER:** Not really. I'm not sure I could answer. I could just talk about the ways that have been identified as pretty good and have been recommended to be updated. But in terms of consultation I think you would have some insight.

**AMANDA WETZEL:** Sure. Myles, please jump in if you've got anything to add from the interviews that you attended. Again, I think the challenge in the Hunter, when we speak of the nature deficit, is that there's been a progressive movement of mining and agriculture up the Hunter Valley. So there's places in the Hunter, specifically, that now are on the brink of localised extinction or may be the very last stands, and this is a challenge in any kind of planning situation, not just post-mining land use. In my role as the manager for regional growth planning at the department of planning many years ago, speaking to a representative in the conservation planning side of things, it commonly referred to the Hunter as the red flag capital of Australia, because we have such a scarcity of an ability to find like-for-like offsets for the impacts of our development. What that means is that, when we knock the thing over for the very last time, we can't go out and find exactly the same to protect somewhere else, which means that a lot of these projects will get to the very tail end before they realise that that's a problem.

There certainly is an opportunity for us to come back from that, with a deliberate effort to restore and regenerate our natural landscapes, and a great opportunity to do that at scale is on these mine sites, particularly those that sit next to each other. I believe, in the Upper Hunter, in the synoptic plan, which I provided a copy of to the Committee after the last hearing, they talked to an opportunity to create integration across adjoining mine sites to achieve that at scale. Once mining activities have ceased, there's other opportunities. There's a national initiative which I believe is called the Eastern Ranges Initiative looking at that sort of landscape integration. There are various programs run at the State Government level in terms of conservation and protection, and there certainly now is the private network trying to raise credits from a conservation planning perspective.

So, much like the post-mining land use, we need to have tried and tested pathways and a clear vision for what we're trying to achieve so that we can start to create agreements or partnerships when it comes to development sites looking to have an impact, sourcing other opportunities to protect and offset those impacts. Again unfortunately I don't have a single answer to make that work, but I think that certainly biodiversity planning at scale is something that needs to be considered as part of post-mining land use and then the transitions authority sort of space.



**MYLES EGAN:** I would echo that: rather than looking at this as single sites and single issues to be addressed on each, looking at how we look at the whole board.

**AMANDA WETZEL:** There's an opportunity there in the place strategy approach that's laid out in the Hunter Regional Plan. But I think the only way that that opportunity can be seized is if the place strategy is looking at the totality of that regionally significant growth area rather than individual place strategies being prepared for mine sites as they close.

**AGNES SAMPER:** Just to add one element, if you wanted integrated biodiversity corridors, you would have to look at the whole region. That's one argument, talking about the whole region itself instead of just mine sites.

**Ms SUE HIGGINSON:** Through the regulatory or the design and then enforcement and how you measure the outcomes of that, is it that all of the current post-mining plan holders, for want of a better term, or the consents that provide for post-mining—are you suggesting, then, that there needs to be an assessment based on what are all of the current obligations of all of the individual sites, you bring them all together and then you overlay how you avoid extinction or try to recover? Is that kind of the mechanism? From what you've seen and the interviews you've conducted, is there a willingness or understanding across the landscape of participants that that is something that could be achieved?

**AMANDA WETZEL:** Sure. The challenge is, as a first step, we didn't have mine closure plans to line up next to each other to show us where they may already have environmental corridors in place. Secondly, there are limitations to the extent to which mining operators can sit down and speak to each other about what the other is doing on their sites without being seen to be colluding with one another. But there are already dialogues and forums where mining operators do come together to talk about issues of common purpose and public value. I don't know exactly what it is that is produced in those forums, unfortunately, but I do know for a fact that several of the mining operators that I have spoken with, as part of this project and in other areas, have assured me that they talk about how our environmental corridors link up.

Unfortunately, that is again an opt-in. I don't know if there is any process for anyone to come across and say, "Well, that's not compliant", because there is no single source or plan that they must comply to. Right now, it is just us leading on as champions to make sure that they are doing the best that they can to make it line up. I don't know if that fully answers your question. There are some assurances there that it is taking place, but there is no guarantee that it is going to look like something that any of us have access to.

**Ms SUE HIGGINSON:** That sort of confirms the position that we need to have the design and the understanding about what information goes in, what the transparency level is, what the purpose is and where we are driving it to. That kind of comes back to those recommendations.

**AMANDA WETZEL:** Correct. But I guess one of the key challenges in the environmental space—and these are my layman's terms, so, Agnes, please correct me if I get this wrong—is that I think there were at least four or five different corridor spatial datasets that Pascal identified in the course of his bringing things together. Some of those are climate change corridors, others were based on stitched-together desktop studies, some came from State governments and some came from other sources. Our landscape, in terms of biodiversity, is changing, not only through the course of changes as a result of development and land use, but also as a result of climate change. One of the challenges not just in the Hunter but everywhere is how do we understand what efforts need to be made to create healthy biodiversity corridors and to make sure that those are able to shift, adapt and change as our climate does?

So bringing in good or best-available climate data in that space is also very important. But there is also a level of acceptance that needs to come with how we might again have to be adaptable in how we plan for those corridors. That in itself can be problematic, unfortunately, from an investment perspective, because most investors don't like the large, blurry, fuzzy lines of "protect this area". They want to know exactly where their development footprints can be, how they can conduct themselves and what activities can take place on their sites.

**The CHAIR:** While we are talking about biodiversity more generally, I wondered if you had a view around the current biodiversity offset requirements that are implemented as conditions of a mine's consent here in New South Wales, and whether they create barriers for post-mining land use at the moment?

**AMANDA WETZEL:** From what I understand, we didn't look specifically into the current Biodiversity Offsets Scheme, certainly not in any detail as part of this project. It would have just been one of those broad areas where we could have looked and said that there's a lot of ambiguity in this space, and it would be something as part of a scoping study that we would recommend looking at in more detail later on.

**The CHAIR:** In terms of the planning instruments in New South Wales, did you come across or did you look at how many SEPPs or regional environmental plans there are that actually interact with mining operations in New South Wales? Have you got any comments on those in terms of their impact of post-mining land use?

**AMANDA WETZEL:** Again, we didn't do a detailed study into individual SEPPs because we took more of a system approach. We were aware that there are multiple SEPPs but that there are also variations across local environmental plans that would also play a role in what post-mining land use looks like. Because we were looking at this more strategically, we tended to focus more on things like the Hunter Regional Plan or local councils, local strategic planning statements or any area plans that they might have. Again, I guess the purpose of this as a scoping study was for us to take a quick look at what's there. At a glance, it appears to be very confused and often overlapping. Therefore, yes, we recommend further attention is paid in that space.

**The CHAIR:** In terms of the overlap, that is something that we've heard about previously in the inquiry, but at a top level in terms of the two different Acts that we have in play here. Taking your point about it being a scoping study, were there any particular areas of that overlap that you think the Government should focus on as a first step in trying to address some of these issues that have come out?

**AMANDA WETZEL:** I think one of the key findings from the contextual scan was that regional land use planning and suitability was a largely under-studied point, especially in the Hunter. Again, the idea that we're probably only two versions into the current regional planning framework that exists in New South Wales—there have been, sequentially, previous plans that have attempted to provide direction in the space that overlaps with mine sites but we're only at a point in time where we have, for the very first time, a strategic direction that everyone should be looking at what post-mining land use looks like. But we don't yet have a legislative mandate for mine closure plans to have regard for those future-focused plans.

So another word that was used in the recommendation, I believe, is to try and get to a point—this might actually be in the gap analysis—where mine closure plans and local governance or regional governance plans have a clear integration of foresight for a region. Foresight itself is based around scenario planning, so we know where we can have some kind of forum where we're all able to look at what potential alternative futures are available to us and then which of those are best available or are the best next step for our communities to be working together.

**MYLES EGAN:** Just briefly, sticking to overlap but stepping back from a regulatory perspective, whilst our research obviously clearly showed there is an appetite to be doing something in this space, it's worth noting that there is certainly not a single perspective in the Hunter Valley on what that is—what we should be doing in the post-mine use land space. Whether that is looking at new economic uses, whether that is greater biodiversity or whether it is something else, I think it's worth noting there is not yet a single, unified perspective on what post-mining land use in the Hunter should be and what is technically possible, economically viable et cetera.

**AMANDA WETZEL:** Very good point.

**The CHAIR:** Yes. As someone who lives in the Hunter I certainly echo that point, but what witnesses have told us along the course of this inquiry really reflects that point as well, Mr Egan. In terms of the regional plans that you mentioned—so we're only sort of two versions in—have you any suggestions with regard to how we can better—"enforce" is a strong word—provide more sort of stronger guidance and frameworks around the actual implementation of those plans?

**AMANDA WETZEL:** It's a good question. I guess I'm most familiar with the Hunter Regional Plan so I can't really speak to what other plans in other mining areas in New South Wales set out. The directions in the Hunter point very strongly to the scale of effort and post-mining land use opportunities that are available in the Upper Hunter. It mentions, but doesn't necessarily provide, a stronger direction for other parts of the Hunter in terms of overcoming the legacy of mining or the other scattered mine sites that do still exist. The regional plan from version one to version two was very different. Version one was very action focused, and there is a whole series of actions and what both State governments and local governments will do; whereas I think the current version of the regional plan only has less than a handful of actions.

I think the pendulum might have swung too far in that direction. It doesn't necessarily require an update to the regional plan but some sort of official government policy about how the Government is taking that action forward and what the place strategy program looks like for the Upper Hunter. In my view, again—and this is just my opinion—I think it would be really good to clarify whether the place strategy is a single place strategy for the entirety of that regional growth area or whether the Government is expecting to produce a series of sequential place strategies as mine sites come up into their closure period because each of those programs would look very different and would have vastly different outcomes for the Hunter.

There are approaches. There could be an addendum to the plan that provides some of the broadbrush preferences or priorities. Things like the environmental corridors, if we can come to at least some high-level agreement, could sit across the space there, but that would need to be done in conjunction with current mine site operators to make sure that we are not just painting colours on a plan that will never actually eventuate in real life. I think the proof in that strategic direction will be in some kind of visible and ongoing strategic planning action to underpin that and to have stakeholders involved in that process so that they can clearly see how things are evolving.

**The CHAIR:** In terms of the regional environmental plans as they are at the moment, to what extent would you say they impact the rehabilitation strategies for mining sites in specific regions of New South Wales?

**AMANDA WETZEL:** I'm not entirely sure how the process works. It would depend on where the mine site's approval sits. Some of these may have been approved by councils, depending on when they were actually initially brought online, and some of them may be approved at the State level. It's something that I wouldn't be able to give a single answer to. But I guess certainly it would depend on what sits inside of that approval and what authority that that approval needs to go back to to achieve its compliance.

**The CHAIR:** In terms of the planning system that we have here in New South Wales—and you have talked sort of about the multilayered approach that there is and the need for that strategy to sort of inform post-mining land use—as it is at the moment, does the planning system have the capacity to support multiple different types of land uses at former mine sites?

**AMANDA WETZEL:** Gosh. There are a few aspects of the planning system. I think there have been changes made in recent years to improve how we approach strategic planning, and in that case we have the regional plans that are in place statewide. They link to councils' individual local strategic planning statements. Again, that brings in another piece of legislation, which is the Local Government Act, that sits across a couple of these things too. The integrated planning framework that councils must abide by in doing their local planning interacts with the planning Act, and then in the post-mining land use space that interacts with the Mining Act. Gosh, this is fun.

I'll answer your question from two different directions. The strategic planning direction is that there is, in theory, a great line of sight from State level down to local level in trying to set directions for how we strategically use land going forward. One of the problems that we have is that the timing cycles of refreshing these plans don't always line up. Sometimes you might have an area-specific plan. This is particularly true in regional areas, including the Upper Hunter, where councils don't always have the budget to refresh these plans regularly. An area plan might be 10 years old and the regional plan might be one year old. Which one will take precedence and which one is based on best available information? Because at the regional level we don't always have regard to very site-specific issues, so a regional plan may inadvertently broadbrush an area plan out of place.

So that's one problem that we have. It's a problem of how we put our framework into practice. I'm not saying that's necessarily a problem with the way that the planning system is set up, but it is an issue that can arise as the planning system is put into practice. Then you've got the issue of whether or not our land use zoning plans reflect what we would want to see happening on mine sites in future. Certainly, again, the planning system is set up to allow us to make those changes as we need to, but whether or not we have the resources or the direction and the priorities into our work plans in place to make those changes occur at the time that, say, investors or mining operators want to see it happen is a completely different story. We have the ability to change the land use zone on any site, but whether we have the money and the studies and the timing right, that probably is something that someone might challenge.

**The CHAIR:** Interesting. Do we need to rebuild a planning instrument to ensure that this work can be done or is it your view that we have the structures in place, we just need to better use them?

**AMANDA WETZEL:** My view is we have a complex planning system but we have multiple tools available to us under that system that we can utilise. I think one of the complexities is which tool do we use or which combination of tools do we use. I don't think there's fundamentally something missing in the planning system per se in terms of the theory of the toolbox that we have available to us. But, certainly in terms of the coordination and the transparency and that clear direction forward, I think that it is something that we would be better focusing our efforts on to utilise the system that we have rather than saying we need to scrap the whole thing and start again. If we look at some of the changes that were made in Queensland, a lot of those were very slight adjustments to the actual legislation, but there's a whole series of guidelines and practice and protocols that are set up there that I think add that nuance to how to best use the system, or how the system will be used in certain circumstances.

**The CHAIR:** I'm looking to my colleague to see whether you've got any further question before we finish up.

**Ms SUE HIGGINSON:** The report is great.

**The CHAIR:** The report is actually really great.

**Ms SUE HIGGINSON:** Really helpful.

**The CHAIR:** It's a very helpful first step.

**AMANDA WETZEL:** Thank you.

**The CHAIR:** Did you have any final thoughts for us based on what we've covered, whether there are any gaps in what we've covered in terms of our questioning or whether there are any particular points that you would like to leave us with, in the five minutes we have left?

**AMANDA WETZEL:** I'll let Myles and Agnes go first, if you like.

**MYLES EGAN:** I feel like we've done a very good job covering off on the key points. I would conclude by summarising that yes, there is appetite in the region. It's just about working through some of the ambiguity and the overlap, and the abundance of information that we do have and understand what is useful to us and putting that to best use, I guess.

**AMANDA WETZEL:** Agnes, anything?

**AGNES SAMPER:** I think Myles has summarised everything. I agree with Myles.

**The CHAIR:** You've provoked a final question from me. I'm interested to hear in Queensland, Dr Samper, in terms of the work that's been done there, did you have something similar to the transition authorities that were set up, or the Future Jobs and Investment Authorities?

**AGNES SAMPER:** I'm not aware of this. I can take the question on notice and provide further information. I have to obtain information.

**The CHAIR:** It would be interesting to hear how the Queensland reforms were informed and rolled out and what we can learn from that.

**AGNES SAMPER:** Sure.

**AMANDA WETZEL:** There is the mining commissioner up there. Agnes, have you had any overlap with them?

**AGNES SAMPER:** Not personally. I'm happy to consult my colleagues at the institute and take the question on notice.

**The CHAIR:** There's a mining commissioner, like a statutory authority?

**AGNES SAMPER:** Yes.

**The CHAIR:** Similar, I suppose, to what is envisaged within the Future Jobs and Investments Authorities. They will have an advocate, which is a similar sort of statutory role.

**AGNES SAMPER:** Yes.

**The CHAIR:** Was there legislation that informed the creation of that role, do you know? I'm sure a quick google would also answer my question.

**AMANDA WETZEL:** There is. I touched on it briefly in the follow-up to my last question on notice as well. I gave a little bit of comparison to that there.

**The CHAIR:** Thanks, Amanda. Clearly, I have not read that, but I will undertake to do so now. I appreciate you providing really fulsome answers to the questions on notice as well as a really comprehensive report.

**AMANDA WETZEL:** Great, and thank you again for making the time. I know it took us a little while to get the full report there. We were just at the tail end of having that approved internally, so we were glad to make the timing work.

**The CHAIR:** We were very excited to receive it. Thank you all once again for making time to appear. Our Committee secretariat will be in touch with you with regard to answers to the questions that were taken on notice. Thanks again for all the work that you do.

**(The witnesses withdrew.)**

**Ms TARA DEVER**, Wiradjuri Woman, and Chief Executive Officer, Mindaribba Local Aboriginal Land Council, sworn and examined

**Mr DYLAN DYER**, Indigenous Initiatives Manager, ServeGate, sworn and examined

**The CHAIR:** Welcome and thank you for making time to give evidence to the inquiry today. Would either of you like to start by making an opening statement?

**DYLAN DYER:** No.

**TARA DEVER:** I've probably got a couple of words.

**The CHAIR:** Please.

**TARA DEVER:** As the CEO of Mindaribba land council, first of all, I want to acknowledge that we're on Gadigal country. I am the fifth generation of a coalmining family. I have 10 years in mine rehabilitation in the Cessnock coalfields and was born in Muswellbrook, so I want to connect myself to this space. I think that this inquiry has the ability, through robust conversation, consultation and investigation, to implement what—New South Wales could be the most successful State in working with the past and moving forward into the future really successfully if the outcomes of this are well and truly listened to. That's where I'd like to start, thanks.

**The CHAIR:** Thank you very much for coming and joining us here today at this hearing. I wanted to start off the back of our previous witnesses, who were part of a research study commissioned by the CSIRO that looked at post-mining land use in the Hunter and some of the challenges. One of the key challenges that they identified was the lack of First Nations data and integration within the post-mining landscape. In terms of how we address that, I wanted to ask what your thoughts are. As a State government, what is our role? What recommendations would you make to us to help to address that as this first gap that they have identified?

**TARA DEVER:** I'm not surprised there is a gap in First Nations consultation in this space. That has been the process from the beginning. I think that one of the areas that needs to be looked at is the fact that we were not consulted with in the beginning. We are only now consulted with when there are legislative requirements—maybe to tick a box on a mine plan or some cultural and heritage work to be done. That is when we are spoken to. Most companies will tell you that, yes, they have robust relationships with Aboriginal groups and they will name the specific groups. What you need to have are robust relationships with everyone and with the traditional owner groups. Their connection to country, spiritually, since time began, is important. It is incredibly important in mine rehabilitation.

Those stories from that cultural landscape are not gone. They are still there. They need to be able to tell you how to implement and care for that country moving forward. But there are more Aboriginal people, due to legislation in this country, that are not on country and that are moving around, and those people also have voices. There needs to be holistic broader consultation and then engagement, not just to say, "We spoke and now off we'll go and we won't engage those people in work and there will be no procurement or it will be too hard", but to actually get the voices there and find out what the outcomes that are needed by the communities really are, not what mining companies or other people or local government—there are lots of groups here in this space. It should not be what they think the outcome should be but what Aboriginal people are telling you the outcomes required are. I hope that answers that question.

**The CHAIR:** In terms of the evidence base, there was a research paper cited in this report by the CSIRO that talks about the fact that most negotiated agreements—Indigenous land use agreements between traditional owners and mining companies—do not deal with mine closure issues at all.

**TARA DEVER:** With the resource regulator, when they are working through—I have done this when I worked in the mining industry. I started this process. For me, as an Aboriginal person, it was a real shock to work out that what happens with the right to negotiate process for native title is that the native title claimants will put in their bids, basically, and say, "I'm here. I need to be consulted with", and then the company chooses. It's a popularity contest. The company chooses who they wish to work with and that's it. That's who they choose to work with. Those other people that have come to the table are never consulted with in that space again. They are consulted with in different ways in relation to culture and heritage, but they are not consulted with in relation to any of that. When it comes to mine closure, that will be done totally as part of the planning process with consultants in the company.

**The CHAIR:** In terms of the work that you have been involved with, Ms Dever, are there any examples that you can provide to us of successful stories and what has made them so? Can you also suggest for us as government in terms of how we need to strengthen—

**TARA DEVER:** Successful consultation?

**The CHAIR:** Yes. Well, let's use the term "successful" loosely. There's probably a broad spectrum of what's occurred. Tell us the good and the bad.

**TARA DEVER:** As the CEO of Mindaribba, I can say that we've had different agreements with mining companies over time that have not been successful. We've had agreements where we have had land that has become part of a mining lease that then was left unremediated when the Act changed and the mining company closed down. We have that land sitting there—historic mining land that is sitting derelict in the Cessnock LGA. We've had other agreements where there has been trickery, where we may have had to bring in a registered training provider, but we had to set that up ourselves. If you're talking 20 years ago and an agreement that may still be there, that trickery has then left the community without jobs and without any option because of that trickery. That would be in the Maitland LGA.

We have had another—probably the only successful one has been with a third mining company. We did have some jobs that came out of that. However, I cannot say from my knowledge of the valley, apart from mining itself patting itself on the back and saying, "Haven't we done well", there is no measure by Aboriginal people against the company to say this was good or this was bad. This is a group of people that work in a certain area, a particular area, that then say, "You've done great", but the Aboriginal communities are not the ones measuring that. They are measured only by their peers and only by their industry, and I think that is a problem.

**Ms SUE HIGGINSON:** Yes. Thank you very much for being here and the evidence so far. In terms of that conflict, along the way, the mining company decides which registered Aboriginal party they're going to deal with. Is there another way that First Nations communities, organisations, corporations, landholders, cultural authority holders—those voices—would be able to determine who the mining company should be dealing with? Have you ever seen that and how that plays out?

**TARA DEVER:** I've not seen that in the valley, to be honest. It's not actually part of the regs, so it wouldn't be something that is allowed to happen. Do Aboriginal people know who the right people to talk to are? Absolutely. We know who the right people are to talk to.

**Ms SUE HIGGINSON:** Is your evidence that the system at the moment actually prohibits that from happening because the regs actually provide the mining company with that kind of power? Whether it's expressed or whether it's just the practice, that's the way it plays out.

**TARA DEVER:** Yes, and I think what happens is there's that process and then it is very easy to simply work with that group alone. That becomes much easier, and that's what most people are looking for. That becomes easier, so you just keep plugging whatever that is. You don't get anything new or any more people engaged because "This is easy and we'll only talk to the people we have to", the registered RAPs at the beginning with the culture and heritage, and then whoever the traditional owner group is, which is harsh. I'm working on Wonnarua country. There are Wonnarua people who have connections since the beginning of time that are not in this space of mining. They're simply not given the opportunity to give their voice because they're not going down that road where they're submitting to being a determined native title claimant. They're not doing that but they're still knowledge holders. There's some that are and some that aren't, and I think that's where the legislation misses the point.

**Ms SUE HIGGINSON:** Have you seen any role on the part of the regulator or the consent or determining authorities that assists, or do they enable and facilitate this kind of division that happens?

**TARA DEVER:** From my experience only in moving into the native title space—and I am not a native title claimant. I work for a land council, so the land rights Act is very different. What I have seen is it's very superficially, "No, this is it. You do this. You pick. You move forward."

**Ms SUE HIGGINSON:** In terms of getting better outcomes for post-mining land use and the best opportunities for First Nations communities, we would need to be going down a very different system and a very different pathway and structure and a much more inclusive—and obviously, from what I'm hearing, a process that is based on self-determination, where First Nations people say, "Hey, we want to be dealt with in this way on these terms with these conditions and then we'll be able to work on better outcomes." Is that what I'm hearing?

**TARA DEVER:** Absolutely. I've put a lot of thought into this over the last few days and the only time I have seen valid, robust outcomes in any space is to have that not led by government—to have that not led by local government, not led by State government, not led by the companies. My suggestion would be that you need to look at a commissioner. There needs to be a commission. It needs to be regulated and put there so they can't be removed—but to have an independent commissioner to do robust consultation not just with Aboriginal people but whole communities broadly, with the companies, with everybody and then go, "How does this look?" Whether that is university campuses or whatever the industry post-mining looks like, I think you need that independence.

Because the way the system is currently, there is no independence in it. There are people with money. There are voices that are strong and highly educated and they will be the only voices that you will hear in the space because it either costs too much to try to get to that point where you have the words to come up against those other people—I really think independence in driving what these communities look like in the Hunter Valley post-mining has to be in place. That may be on an LGA scale, where the commissioners then are working on individual LGAs and how they link, but I believe it needs to be independent and solid to bring us into the future. That's the only way we'll get Aboriginal voices and good outcomes—is to have independence.

**Ms SUE HIGGINSON:** There are the mining companies that have been—

**TARA DEVER:** And I'm not anti-mining.

**Ms SUE HIGGINSON:** Sure. I probably am. No, I'm really not. There are the mining companies that have exploited, taken and they're the ones winding up. With the new participants that are looking to potentially take advantage of some of these sites and look at the post-mining land use, are you thinking that in that context again this is a different system? This system that you're talking about now—that would be required for any new proponent?

**TARA DEVER:** I think the people who are in the game now—there are people extending their mining operations now. They've said, "We've got this much material." They're extending their mining operations. I think everyone falls under this. Like I said, I worked for 10 years in the Cessnock LGA in the rehabilitation of derelict mining. One of the outcomes here is even looking at other opportunities with historic mine sites. That has another whole issue. Because what normally happens—and it has happened in my experience—is people with less money go into the base space thinking they'll make money, but the cost is the same as what it is for the big boys further up the valley that have 1,600 hectares of whatever. The cost shouldn't be there. If you're looking at rehabilitating historic mine sites or there are little bits of material there to get out, which might be a seam under an old tailings dam—that is real; people are chasing those bits of coal—there needs to be SEPPs that support those people to do that, so that work can be done and proper rehabilitation happens.

But also, there needs to be this space for everyone. If you have got grass and trees to get it back to what it was before you mined and your operation has gone for 100 years, guess what? That land had already had it. Getting it back to "had it" isn't valuable to the community. You need to get it back to what it was prior to farming. The agricultural industry did destroy lots of land pre-mining. It needs to be either back to those biodiverse spaces or it needs to be definite industry that will fill these regional towns, whether that's university campuses, government offices—whatever that is that moves to towns to then bring families and new ways. That needs to be there. But there's an imbalance in how the industry operates currently.

**Ms SUE HIGGINSON:** I'm really curious when you refer to Aboriginal land that has mining legacy issues on it. Is that what you are suggesting in the Cessnock area—

**TARA DEVER:** There's land all over Cessnock that has legacy issues.

**Ms SUE HIGGINSON:** I realise that, but is it land that has been granted under the Aboriginal Land Rights Act?

**TARA DEVER:** Yes.

**Ms SUE HIGGINSON:** Have you got an audit? Do we know how much?

**TARA DEVER:** There is land that is being looked at to be rehabilitated now by the Resources Regulator and adjacent to that is quite sustainable legacy issues, so that side is now being looked at to be rehabilitated. When there are serious rehabilitation issues, the land will not be handed over. But in that there are issues also. When there's no mining lease and that land is sitting there with the Crown and there's no EPL licence, whatever runs into the waterways is not reportable. Nobody cares. There's a gap in that as well. I'm not here to talk about all the gaps, but—

**The CHAIR:** No, I think it's very important.

**Ms SUE HIGGINSON:** It's really valuable. It's really helpful. At the moment, what we should have an audit or an understanding of is how many areas of Crown land which have been granted, so Aboriginal lands that have been granted, but lands that are still sitting under assessment that have mine legacy issues, because that's a fundamental injustice if there are lands sitting there unable to be properly handed back in accordance with the law.

**TARA DEVER:** And the problem is in the standard of rehabilitation, so when that land may have had a company in there that rehabilitated to grass and trees, depending on what legacy issue is there, the grass may grow and the trees may grow, and it'll be ticked off. But then it will all die and it will fall over and you will get

those issues. The Cessnock LGA has numerous areas. Everywhere in some way is affected. There have been positives as well. The soft footprint of historical mining in the Cessnock LGA meant that there were grandmother trees left, that regrowth has occurred in areas where pit props were taken and we have incredible biodiversity now in that LGA. But, I think, in relation to all of this, protecting that biodiversity and cultural sites, because that soft footprint was on the top and under the ground was where the mining occurred, the problem now is going to be how do we protect that and work with that.

Because we have people popping up all over the place going, "You know what? We could turn this into a race-car track"—and actually that industry doesn't work when it's next door to critically biodiverse areas, which is there because of the mining industry in reality, otherwise Cessnock would have all been farmed and it would have been farmed poorly. If it wasn't for the mining industry, it would have been farmed poorly and that's all it would be now—paddocks that are poor. Because it was chopped down and used as pit props, we now have what we have in that Cessnock LGA. But we have got these issues that are there and, unless you went in and tested the soils and did that in every spot, there'll be places you won't know need remediation and there are other places that are very obvious, like the Neath pit top and tailings dam. There are those areas.

In the space you're doing and trying to deliver someone to manage these outcomes, you need to look at the Upper Hunter as part of that. But you need to look at the areas of Cessnock and Wallsend where some of that has happened and work out—that person needs to drive what industry is sustainable and how much of one industry you could have in the space, or someone will think up something good and everyone will want to do the one "something good", and everyone will want to leave their infrastructure behind. Not all infrastructure is valuable. Some is useful; it's not all valuable.

**Ms SUE HIGGINSON:** You mentioned the Wonnarua. I've seen quite a bit of material and spoken with members of the Plains Clans of the Wonnarua—and the continuing struggles and fights around, as you mentioned, the continuing of mining and those extensions over some of those areas that are of real cultural heritage significance, including that combination of the frontier battles and wars and the European heritage as well as the First Nations heritage. With the continuation of mining, are you seeing that there is a strong enough consideration of how to move forward protecting cultural heritage, or will this become more about how do we deal with—

**TARA DEVER:** I don't believe the legislation in New South Wales is robust enough to protect culture and heritage. I can't speak for the Wonnarua. I work on Wonnarua country every day. I was born on Wonnarua country. I have every respect for Wonnarua country and Wonnarua people. However, I can't speak for them. You need Wonnarua people to speak for them and their country. But I do feel that the legislation is the hardest thing to work with in this State. Whether that is with mining companies, who really have their hand forced to do the basics—with civil construction it is all really difficult with the current legislation. We've been working really hard in this State to have the legislation improved for culture and heritage for a very long time.

**Ms SUE HIGGINSON:** As we're contemplating post-mining land use, we've also got to consider how much—

**TARA DEVER:** The cultural landscape and those stories coming into that space because they're not gone. Even if someone did put a big hole in the middle of it, they're not gone.

**Ms SUE HIGGINSON:** Recognising the view of the failing of the current system for allowing mining, we've got to consider that failing system in a post-mining land use system as well.

**TARA DEVER:** Yes.

**The CHAIR:** In terms of the New South Wales legislation not being robust enough, you mentioned the discussion that has been had around cultural heritage for some time. I wonder if you've got any suggestions that are specific to post-mining land use around that framework, whether it's the EP&A Act, whether it's SEPPs. How do we make sure that that is first and foremost in what we're doing here and that we integrate it properly?

**TARA DEVER:** Tricky. I'm wondering if this is a question I should come back with.

**The CHAIR:** Feel free to, yes.

**TARA DEVER:** I think there's a lot to go—that's a really big question. That would be one I'd really like to come back on with something robust.

**The CHAIR:** In the guide framework that you've laid out for us in your submission, you've got stage one, stage two and stage three. At stage one you've got identifying community, which we've spoken about a bit already today. In terms of identifying the right community stakeholders, you mentioned the role of an independent commissioner. Would you see that as being something that the transition authority—we're setting up these Future Jobs and Investment Authorities and there will be an advocate that sits at the top of that. It's a statutory role. Is



that something you envisage, or should we have a separate, independent commissioner, not just for post-mining land use but for everything that we're doing in New South Wales?

**TARA DEVER:** My personal opinion—and Dylan may have something separate—is I think you need that independent commissioner. From my experience, the last 10 years in my role, those other spaces get corrupted by the many personalities and the many things that go into them and we end up quite voiceless in spaces. I feel that the only time I have found there to be robust, broad consultation and engagement, and moving forward with good outcomes, has been under independent commissioners, whether that's been an independent commissioner for Crown land, whether that's been the Sydney city—those commissioners. Commissioners just seem to get jobs done.

**DYLAN DYER:** I work for a charity, majority Indigenous-owned—in fact, one of the board members' signature is on, I'm going to say, 90-plus per cent of land usage agreements in the Hunter Valley. My focus with that is trying to build the capacity of community. I've spent 15-plus years trying to find ways to facilitate small business, particularly Aboriginal small business, into the mining industry and the civil construction industry. I think if you look at the last 30-plus years of mining you could count the amount of sustainable Aboriginal businesses on one hand that the industry is working with—and today I'm being generous in saying that. If we are going to think that the future is anything different to the past then I think we're kidding ourselves. For 30 years, there isn't that sustainability.

The way the industry has worked is once a year somebody thinks we should engage with a local Aboriginal business. We find some low-skill work fencing or maybe picking up steel in a back paddock. None of it is critical work. That business is engaged. The contract runs for three or four months. The business employs more people than it should, but the opportunity is there, so people are excited. The same as any small business engaging with a large corporate, there are issues, just in communication. Small business is very hands-on, very touchy. Corporate procurement is built on efficiency. It doesn't want someone calling them every day. Small business is very keen to do right, so wants to do that. That, in turn, creates problems internally. Subsequently, we come to the end of the job, whatever it is, and the business is told, "Thanks very much, we'll call you when there's something else." That's it. Then there's a 12-month gap and someone else has an idea—"We should engage in small local Aboriginal business"—and this process is repeated. It has been repeated since I've been engaged in this space. Subsequently, the sustainability and the capability that should be built is not being built.

That is the extent of engagement and the problem that I see is, as we're moving in this new frontier of renewable energies and rehab, we don't have the businesses and the people with the skills that are needed to take active roles for the opportunities in the future. Over the last four years I've been engaging with the mining industry to say, "Let's do something," with New South Wales Minerals Council, "Let's do something." Let's build rehabilitation. Let's build carbon farms. Let's actually move towards building the skills that we need to fill that gap. The current feedback I get is, "Not now, Dylan. Not now. We've got the whole community to consider, not just the Aboriginal community." I've engaged with every mine through the Hunter.

We are not going to build the skills that we need for people to take critical roles or build critical business in the Hunter. I don't want to see what's happened in the last 20 or 30 years just be repeated and the community get excluded from this transition. Subsequently I went to large global rehab companies who potentially are going to get the work, thinking, "Okay, if I can't get an audience here, I'll go to the people who are going to do the work." I'm getting the same feedback. And as a charity I don't want anything. I'm not sitting here saying, "I want to be paid for this work." I'm saying, "We need to do something different."

**Ms SUE HIGGINSON:** Is part of your suggestion then that there needs to be a mandatory obligation through the framework, a requirement, that we've got to do this and we've got to do it right? I think, Ms Dever, that's perhaps where an independent commissioner comes into it. One of the things I'm reflecting on is we seem to have provided a regulatory framework that is very good on proponents telling them exactly what they want to do if they're going to destroy cultural heritage and they're going to engage with Aboriginal parties to destroy cultural heritage. It's almost like why can't we provide these clear requirements with measurable outcomes for genuine participation and economic opportunities for First Nations communities, or do you think we'll just get to a point where it's happening, and we can make it happen. It doesn't sound like it from your experience.

**DYLAN DYER:** Procurement is built on efficiency. Engagement isn't easy. A lot of corporates are looking for ways around the system—so, APAC, IPP. It's easy to circumvent and there are no penalties for misrepresenting an engagement with a local community.

**Ms SUE HIGGINSON:** That's what I mean. Are you suggesting that there needs to be a system that has "These are the entry rules. If you don't comply, there are penalties around that."

**DYLAN DYER:** Penalties or profit, dare I say. I was talking to a native American company—their corporates get paid 5 per cent for actually achieving their targets. The penalty has to come with someone who's regulating it. We could have a big stick, but who's going to wield the stick and what are the penalties? I feel like a corporate needs to field those penalties because at the moment it's circumventing the system. I read stats that say, "12 Aboriginal businesses employed", "8 per cent Aboriginal employment". I should know somebody. I don't know a single business in those stats. I don't know a single employee in those stats. I think that's just the state of the market, which is really difficult because we're not going to build the capacity that's required to get to that point where an Aboriginal business has 20, 30, 40, 50 or 100 employees that can make a significant difference in the community. I think we just need to look at the past. We haven't done it today. What makes us think we're going to do it in the future?

**The CHAIR:** I want to ask you a follow-up question on this report as a beautiful segue after this. There is a final recommendation in this report that the CSIRO has commissioned on the feasibility of developing regional integrated transitions beyond mining in the Hunter region, and I'd recommend it to you. The final recommendation to the CSIRO relates to the importance of empowering First Nations in decisions around post-mining transitions. It goes on to say that this would require specific skills and capabilities and First Nations research partners, all of which the CSIRO can access. I am interested, in particular from you, Ms Dever, in what comments you would make on that, particularly around the specific skills and capabilities and any gaps that might be there.

**TARA DEVER:** I haven't read the report, and I would like to. Just in that saying, "We could provide that"—that there should be Indigenous people and we can provide that—the first thing that says to me is: Where are you providing them from? What country are they coming from to work on this country? Who are they? Where the capability is not sitting where the mining company is operating, it is sitting somewhere else, and those people are coming onto someone else's country, possibly, if that's not where they're from. What we want to do is improve the outcomes of Aboriginal people where these companies are operating, where Aboriginal people are living side by side with this industry and then, as the industry closes, those people are skilled up or educated up or whatever that is to then take on roles that can be looked at with new industry that comes into the space. Not everyone in every community works in mining, nor wants to, but it's a big thing to say, "We can bring the people in." I would say, "Where are the people from country to work on country", just to start with. But I would like to look at the report and comment.

**The CHAIR:** In terms of the regional plans that currently exist, we've got the Hunter Regional Plan, which is the second version. How well do you think that integrates—or does it integrate—with the local communities, given what you've just said about the importance of making sure you're engaging with the right community?

**TARA DEVER:** It's probably one I should come back on, but I'm not going to. I think the consultation with the regional plan is there, but it's so high level—

**The CHAIR:** It is, yes.

**TARA DEVER:** —that normal everyday folk don't actually get to engage and have their say. Even from the perspective of the land council, we have so many things that come across to be commented on. Mindaribba has six LGAs. There are so many things to read, to comment on, that sometimes things escape you because there's not—and often consultation with Aboriginal people happens right at the end when someone goes, "Oh, we haven't spoken to them." By the time people are knocking on the door to speak with us, there's a timeline that is really tight and, "You'll need to talk to us for 15 minutes, look at the document and write a submission. If you can get that done in the next seven days, that would be great." We're all working and doing things as well. That's actually not, you know—and I think often in these spaces people think for some reason we're just sitting there sending smoke signals, waiting for people to come and talk to us. That's not the case. We are busy. We are busy in many facets of many areas.

**The CHAIR:** Have you any suggestion for how that could be improved? Much of the discussion that we've had along the inquiry has talked about the issues that are faced with site-specific mine closure plans and the need for more of a regional approach. I'm interested in how we ensure that the voice of First Nations people is, first and foremost, part of that regional approach, if that makes sense?

**TARA DEVER:** I think a regional approach is valuable. I still think the independence in a regional approach is actually critical. I think there's a rhetoric also that people say it's hard to work with us. It's actually not. We're people, just like everyone else. Some people get along; some people don't. When you invite different people to a room, they don't all like each other, and they don't have to give their opinions. I think if you leave something so long that you don't have time, then it's very easy to say, "That was too hard because we couldn't gather people."

In a regional capacity you give nations of people that opportunity to come to a much larger table because their country is a much larger table. If you were, for instance, looking at Wonnarua country, that is a vast area. That allows those traditional owners and knowledge keepers to come to that larger table. It allows land councils and others to come to specific areas that I think then it cuts down on. But I think in relation to those companies working themselves, there needs to be that regional look. If you end up with a bit-meal approach, we end up with poor outcomes.

This has to be a holistic approach so that, yes, someone might say, "I don't think this should go back to grass and trees in my rehab plan. I know I said 40 years ago that's what was going. But if they're going to leave infrastructure, what's it for and what's the plan and when does that user move in?" That regional look at that, and that overseeing person that isn't connected to anyone then can go, "Well, that won't work for here and this town because we already have this, this and this." If it's going to be Newcastle-centric, Newcastle-centric doesn't help the regions. If people are sitting in universities and in places in Newcastle, that does not help Muswellbrook. That does not help Gunnedah. That does not help those regional areas where there are other infrastructure issues. We need to be moving people from those city-centric spaces out.

**Ms SUE HIGGINSON:** This idea that it's hard to work with diverse Aboriginal groups and organisations, it's been terribly convenient—

**TARA DEVER:** Very convenient.

**Ms SUE HIGGINSON:** —in their development consent and that process. It's something that—

**TARA DEVER:** It's convenient, not.

**Ms SUE HIGGINSON:** We've just got to make sure that there's no scope for that kind of harmful—

**DYLAN DYER:** The same with procurement as well; the same thing: "There's none out there," or, "They didn't have the right capability," or something like that. But they all make up the tender. They're all part of a tender approach, but when it comes to engagement, "No, I don't know. They were too hard to talk to." It's gone on long enough.

**Ms SUE HIGGINSON:** In any post-mining land use framework, whatever we're doing, we just need to make sure there are clear safeguards to make sure that just cannot happen. It can't be brought into this new regime—as you say, enough is enough—almost setting up to not succeed.

**DYLAN DYER:** Absolutely.

**Ms SUE HIGGINSON:** We've got to make sure in a post-mining land use or beneficial land use that we're not allowing for that.

**TARA DEVER:** That it is truly beneficial to all, in all communities, because it's a very easy rhetoric to say, "Oh, I tried."

**Ms SUE HIGGINSON:** And then everybody wonders why we're just not doing as well as we can and we keep talking about how, if we had First Nations knowledge and their voices in here, we'd be doing much better. Every time we do, the evidence is really clear: We are doing much better on achieving good outcomes.

**TARA DEVER:** That's right. The people that engage early and continue to engage get good outcomes. It's that piece of string, again, to where they sit. First Nations consultation in their processes of their timeline, how they measure its importance in the beginning, and then where they sit at, further down. That's why we're getting poor outcomes. From an industry that really has 150 years, I don't see positive outcomes probably anywhere except the port. There are positive outcomes for the port. We sell coal, it goes out, we make money. Otherwise, yes.

**The CHAIR:** In the minute that we have left do you have any other final thoughts or suggestions while you have us?

**TARA DEVER:** No.

**DYLAN DYER:** No, I think I'm done. I think we've just got to watch what's happened in the past and make sure we don't repeat it in future. If we don't try anything different from what we've done, we will get exactly the same thing. That doesn't seem to be acceptable, in my books.

**Ms SUE HIGGINSON:** Thank you for your very clear evidence.

**The CHAIR:** Thank you both for making the time to be here in person. We really appreciate it. It's lovely to have you here. In terms of questions that were taken on notice, Ms Dever, our Committee secretariat will be in touch with you with regard to answers to those questions and the process. Thank you both, once again.

**(The witnesses withdrew.)**

**Mr FIN ADAMSON**, Development Manager, ZEN Energy, sworn and examined

**Mr TONY McFADDEN**, Chief Executive Officer, SADA Dunbier Group, sworn and examined

**FIN ADAMSON:** ZEN Energy is working on the Western Sydney Pumped Hydro project.

**The CHAIR:** Welcome to you both. Thank you for making time to give evidence in the inquiry today. One of my colleagues is online and others will be joining us in the room. Would either of you like to start by making an opening statement?

**TONY McFADDEN:** ZEN Energy and the SADA Dunbier Group are grateful to the Chair, Committee and the parliamentary staff for the opportunity to appear and present to you about the plans to repurpose the former coal industry land in south-west Sydney. Our proposal is to transform disturbed land at Nattai, previously used as a coal washery, into a large-scale renewable energy project that will make a contribution to New South Wales' clean energy commitments. The project embodies the State's vision for successive land use, transitioning from coal to renewables, in a direct partnership between a long-running local coal company and Australia's first electricity retailer to commit to science-based targets to limit climate heating.

Our project, if approved, marks the beginning of a new chapter. The future purpose of the site is clear: to move from our coalmining past to our clean energy future. The Nattai area, including Burragorang Valley, has been coalmining country since the early 1900s, with the last operational mine closing in 2001. The washery site serviced local coalmines and product was then exported. Re-processing of coal reject on the site continued until 2019 and rehabilitation has been occurring since. Our proposal will transform the site into an upper reservoir for a 1 gigawatt pumped hydro scheme connected via underground tunnels to Lake Burragorang. WaterNSW has granted ZEN access to Lake Burragorang and the surrounding area it manages to conduct feasibility studies through its Renewable Energy and Storage Program. The critical studies, the planning approval process and important community engagement are underway. The timeline from here indicates construction commencing in 2027 and then being operational early next decade.

We are pleased to say that early engagement with the Gundungurra traditional owners—their representative bodies and also individuals—and with the local and coal communities as well as with Wollondilly's State and local representatives has been positive. But we are also clear-eyed that there remains a long way to go. We have already committed to a significant community benefit scheme and that it will be the traditional owners and the local community that decide how we best use these funds. The project will benefit the State's economy by strengthening the electricity system, enabling the timely closure of New South Wales coal-fired power stations, contributing to growth in Western Sydney and helping reduce consumer energy prices.

It will also deliver significant benefits for the local community, including \$66 million in community-shared benefits, an estimated 1,500 construction jobs and 80 ongoing operational jobs. ZEN and SADA Dunbier Group are committed to the future of this site hosting a critical pumped hydro scheme because its unique features support this particular technology: A secure and significant water source already exists; an upper reservoir will be contained on already cleared land; it is close to existing transmission lines; and the geology is known and is stable. Thank you.

**The CHAIR:** Thank you for your submission. In the submission you have noted that it is very early days and over the next year further studies are necessary to establish the feasibility of the project. Do you have any update on any of those studies for the Committee?

**FIN ADAMSON:** Certainly. We've just completed our mine subsidence study, assessing the stage of the mine workings underneath where we're proposing to put the upper reservoir. There was a 1½-metre-high coal seam that was about 400 metres below where we're proposing to put the upper reservoir, so we've been doing studies to assess and a lot of interviews with former mine workers and managers to understand the state of those underground workings, and to inform where we would seek to cross those mine workings with our tunnelling machine and the placement of key infrastructure underground. We've also been preparing all our specialist reports for a scoping report submission as part of our planning submission. We have now brought together most of our key desktop studies for the scoping report submission we seek to make in the next month, potentially, as well as continuing to test and optimise the scheme layout and size.

**The CHAIR:** The upper reservoir, just for my benefit, that's the pit void or the previous pit void? Or tailing—

**FIN ADAMSON:** It's the former washery. Coal was mined at the base of the Burragorang Valley cliffs and conveyed up to the top of the cliffs, which is about a 400-metre change in height. There was a wash plant

there that processed coal. Reject was placed up at the clifftops. We're proposing to repurpose those areas that were cleared for the storage of coal reject for an upper reservoir.

**The CHAIR:** Apologies, you did say that. In terms of the subsidence studies that have been done, are you looking at using the pit void or has that been grouted?

**FIN ADAMSON:** Most of the void is second working, so it was collapsed as the coal was extracted. Where we cross, we're seeking to find an area that is still open so that we can pre-grout it for when we tunnel through it. But it's fully sealed up; there's no access to any of the mining infrastructure underground at the moment. The rehabilitation that's occurring onsite is now just the surface of the washery site itself.

**The CHAIR:** I'd be interested in your interaction with the planning system, as we've talked a lot about that with different witnesses. Is there still a current mining lease on the site? Has that been relinquished?

**TONY McFADDEN:** Currently we're working with the Resources Regulator. We're working under a section 240 notice. Previously there has been a coalmining lease, CCL740, on the property, and now we're working under a section 240 notice with the Resources Regulator yearly compliance. To date we've been fully compliant and they're very supportive of the process and have been on the journey with us with the idea of repurposing for pumped hydro.

**The CHAIR:** In terms of barriers or issues that you've come up against with regard to the planning system in terms of enabling that post-mining land use, I'm just interested if you could identify any of those for us.

**FIN ADAMSON:** We've had very positive discussions with the planning department. We're probably slightly different than some of the other witnesses you've had in that the mining has ceased on our site, so we're not running in parallel to existing mining and a new use. With activities ceased, it's in a rehabilitation phase and we're looking at what's the ultimate best use for this site for New South Wales and all the benefits that other uses can bring. We've had very positive discussions with the department of planning on this particular use. We acknowledge we're in a very sensitive setting and there are numerous planning challenges that we need to work through. But the engagement with both the planning department, WaterNSW, National Parks and a myriad of other State agencies that we need to work through has been very positive so far.

**The CHAIR:** In terms of the conditions of consent for the lease, is there anything with that that is particularly contentious or would be difficult to reconcile with your planned future use of the land?

**FIN ADAMSON:** We've had a workshop or meeting with the New South Wales—I can't remember the acronym; it was RASP—

**TONY McFADDEN:** RASP, yes.

**FIN ADAMSON:** —I can't remember what it stands for—where we spoke through a potential timeline clash. The existing mine closure plan runs until 2027. We were seeking to understand if we could put a moratorium on that as we finalise what the scheme design and layout is so that we don't rehabilitate a section of the area that we then come in and do something completely different with for the purpose of the upper reservoir. They've been very helpful in working through with us on what I think we'd call a pause on a certain section of the site whilst we determine what the ultimate footprint would be of the upper reservoir. Our understanding is that through the planning scheme and the EIS that we go through, that will then supersede the mine closure plan, but we're still seeking confirmation of that from both the department of planning and the Resources Regulator.

**The CHAIR:** You've taken on the site in terms of the responsibility for the rehabilitation at the same time as your vision for what's future?

**FIN ADAMSON:** Yes. ZEN and SADA Dunbier Group are in this as a joint venture together. ZEN have brought in and they're taking on the responsibilities of the site for the rehabilitation obligations.

**Ms SUE HIGGINSON:** Just for clarity, ZEN's project is one of the identified pumped hydro projects that the State has green-lighted to be looking at?

**FIN ADAMSON:** We've executed a development agreement with WaterNSW through their renewable energy storage program. We haven't been called in as a critical State-significant infrastructure project, which you may have been referring to.

**Ms SUE HIGGINSON:** Yes, that's what I was referring to.

**FIN ADAMSON:** We haven't been called in for that yet. That's something that we're in discussions with the department of planning for to understand if that's a pathway we can use, but it hasn't occurred yet.

**The Hon. WES FANG:** In relation to other enabling infrastructure that might be required to facilitate your project moving forward, how far along the pipeline are those matters? Are they potentially going to be risks into the future? For example, with any pumped hydro you need the ability to connect into the grid. What discussions or work have you undertaken to connect your project to the grid? Is there a requirement for something like a transmission line to be run? How would you do that? Do things like section 10 decisions for other mining projects perhaps put some of those projects at risk, knowing that ultimately they can be knocked on the head because of ministerial discretion for no particular fundamental reason?

**FIN ADAMSON:** Certainly. Our project is unique for pumped hydro—a large renewable infrastructure project—in how close it is to Sydney load centre. Fifteen kilometres east of our project site is a line that runs from Bannaby up into Sydney west, a 330kV high transmission tower, and 25 kilometres to the north-east is another 330kV line. We've done studies on connecting to the existing infrastructure without any augmentation projects required. We're also looking at what it would mean for our project if other parallel projects were to occur. We're charging ahead on no augmentation required and what does that mean for our project. That sets our size as a 14 gigawatt hour storage, of which gigawatt 14 hours could work, or maybe slightly less as we do more detailed studies.

If further augmentation of transmission comes through, that would allow us potentially to go slightly bigger than a gigawatt, so we're in discussions with Transgrid and AEMO to understand what other projects are in the pipeline. There is the Sydney ring south project, which was in the AEMO ISP. If you're not energy nerds like me you might not have read, but it's a big, long document the AEMO publishes every two years that identified a new substation connecting the two lines I mentioned before to each other. Transgrid are now running a RIT-T process to understand if that's the best solution to bring more energy into Sydney from the south of Sydney.

**The Hon. WES FANG:** Will that potentially dissect your project so that you might be able to be involved in either part of or attachment to both of those transmission lines?

**FIN ADAMSON:** Through the RIT-T process we'll participate as a proponent to advise Transgrid, who have run the process of what our project is and what it could be with various options that they look at. That's just commencing. We haven't had the opportunity to provide that feedback as a submission to Transgrid. But, as I mentioned before, our intent is that we don't want to wait for projects outside of our control; we want to keep pushing ahead because we think this is a required project for the State. If it comes through, that might mean we re-look and re-check what we do. It doesn't fundamentally change the impact of our project because the impact is the size of the water storage, which is 14 gigawatt hours. It's more how big the generators are that then connect from it.

**The Hon. WES FANG:** In relation to the other part of the question that I asked where there's potential risk in relation to not the post-mining land use but any approvals that are required for enabling infrastructure, such as transmission line connection, even though it might only be 14 or 26 kilometres, I think you said, between the two points, we've seen certain mining projects where similar sized or similar length transmission lines have been rejected. Does it provide you any cause for concern that it may be a similar circumstance, that you've invested all this money to look at generation and renewable energy aspects of the project itself, but the enabling infrastructure might get rejected similar to the way that it was for a 13-kilometre transmission line for a mine?

**FIN ADAMSON:** We would put the enabling infrastructure within our planning submission. So it's not that there'll be an EIS process run for the project and an EIS process run for the enabling infrastructure; it will be one and the same. Certainly there is a lot of investment that goes into a complex pumped hydro project that is all at risk. There are many things that could end the project's life before it reaches construction, and transmission connection is one of them. We are confident—and we are continuing to invest—that this is a project that is deliverable and connectable to the grid.

**The Hon. WES FANG:** Obviously you've had conversations with the State Government. The State Government was, for example, supportive of the McPhillamys mine where they had met all the State approvals. But have you also, in parallel, looked at any issues that may exist from a Federal perspective? Have you continued those discussions at a Federal level, given that it was ultimately the Federal environment Minister that kiboshed that excellent project? Do you have concerns that while we're having this inquiry at a State level, the Federal Government seems to be less supportive of development and it may be impacting this project?

**FIN ADAMSON:** We will and are engaging at a Federal level on species that are listed under the EPBC—the Environment Protection and Biodiversity Conservation Act—that we may impact through the operations of the turbines and during construction, in particular freshwater ecology species. Macquarie perch are present in Lake Burragorang. In parallel to our engagement with the planning department and the scoping report we're preparing for the State planning department, we're doing a similar process with the Federal Government.

**The Hon. WES FANG:** You haven't come up against any Indigenous issues or impacts with your project or the enabling transmission lines?

**FIN ADAMSON:** Our project is in a very sensitive setting. Whilst the upper reservoir is contained on a washery site, we do need to connect to Lake Burragorang. We've tried to take a very early engagement approach with the Gundungurra people who are part of the ILUA agreement between the New South Wales Government and the Gundungurra people. We've had a full day workshop on site with them and have attended a couple of their follow-up meetings. They're aware of the project. They're talking to us in depth about what we're proposing to do. They haven't formed a view that it's a good or a bad thing, but it's something that we're talking about and we'll continue to work with them on. In parallel to that, we're also talking with the New South Wales Aboriginal Land Council and the Dharawal people.

**The Hon. WES FANG:** You're looking at this from not just one land council perspective. You're looking to engage with many because, for example, I keep coming back to McPhillamys, but that's where we have the greatest concern. The local land council there seem to be supportive of this project, yet it was another Indigenous land group that were in opposition who made the approach to the Federal Government. How do you ensure that you've covered off all bases in relation to all connected land groups so that everybody is on the same page and you don't risk the same situation?

**FIN ADAMSON:** Under the Act we need to do a call to registered Aboriginal parties who have declared an interest in our project. The Oven Mountain pumped hydro project did that last year. It had about 60 Aboriginal groups that declared an interest. I can't remember the exact figure, but they then worked with a significant number of those groups during the cultural heritage impact assessments and the cultural heritage management plan that was ultimately developed. So it's another risk for the project but also something that we think is crucial for the project to succeed, which is to have broad support because of the sensitivities that it has. It's going to be something that we work through over the next couple of years.

**The Hon. WES FANG:** Does it concern you that you can go through this work only to have the Federal Government issue a section 10 notice in relation to your project, which destroys all the years and, I would suggest, millions of dollars of work that you've put in to ensure this project will develop 14 gigawatt hours of pumped hydro renewable energy power into the grid?

**FIN ADAMSON:** It's a risk and there's a number of risks that concern me for the project. We're early days in getting the project through its development phase. It is a risk and it's something that we will invest in and bring the right people on board to help navigate our way through.

**Ms SUE HIGGINSON:** I think you've already said this, and I apologise because I was a little bit late, but how much energy is the project intending to generate?

**FIN ADAMSON:** Fourteen gigawatt hours, and at the moment a gigawatt by 14 hours. Snowy 2.0 is 2.2 gigawatts for 200-odd hours in terms of duration, so we're half the generation capacity and obviously a shorter duration.

**Ms SUE HIGGINSON:** In terms of the contribution to the overall ambition, that is a significant contribution, as I understand it.

**FIN ADAMSON:** Correct. The new 2034 target that Minister Sharpe announced last week was 28 gigawatt hours, so this project alone could be potentially half of that.

**Ms SUE HIGGINSON:** If you can answer, at what point does it become a decision that you feel you're on the path of no return, or have you already passed that point? I know we're talking about risks and unknowns and all of those things. For all intents and purposes, it looks like you have taken a very good risk approach to the project. But is there a point where you say that there is a point of no return, or is there a gate or threshold where, if you couldn't get through, you'd have to say that's where the gig ends?

**FIN ADAMSON:** I might answer that in two parts, if I could. ZEN have acquired control of the site, so ZEN are in. We are in and to unwind it now would be very tricky and challenging for us because we would then have to rehabilitate the site and, with the support of SADA Dunbier Group, we'd get there. But it's not something that we do every day. We are very keen to progress this project as fast as we can. However, complex mega projects, such as pumped hydro projects, need to go through a number of gates to make sure that they still make financial sense and the benefits stack up. Until the tunnels are started, the project may not stack up, given various changes that could occur or other technology that could come along. We are in, and we see a great future for the project, but until we're on site digging a hole then we're not 100 per cent in, I guess.

**Ms SUE HIGGINSON:** Did you want to add something?



**TONY McFADDEN:** Yes. Early stages, but we work through the feasibility process and add value as we go along that process.

**Ms SUE HIGGINSON:** The Chair asked a little bit earlier about the relationship between the existing obligations on the land and the current intended changes to the land. Was the existing obligation of the rehabilitation for that already cleared area where you're planning to put the upper reservoir, I think it is, to regenerate the land to a standard that was—how do you describe it? I suppose it was all biodiversity-enhanced, high conservation value lands. Where does the point come where that switches off and this continues? I think the Chair was getting to that.

**TONY McFADDEN:** I think the critical part there is that the resource regulator appears to be very supportive. They've been on the journey with us and positive communication has added a lot of value. We addressed about 20 members of the RASP for the resource regulator a few weeks ago and briefed them on the project. We just need to keep them informed with updates as we go along, including in the annual report for the annual rehabilitation report which gives them a full briefing on where we're up to with the site. There is a bond in place with the resource regulator to cover the rehabilitation cost. That will remain in place until the repurposing of the site is locked in during that feasibility window.

**Ms SUE HIGGINSON:** I'm very curious to understand. What will the intention be? Transfer those rehabilitation obligations somewhere else? Or is the idea that they might be suspended in time until decades and decades further down the path, post pumped hydro? Obviously it is a very long-term project. I'm just wondering if there are things that you've seen that would be more beneficial or that have been beneficial to your planning pathway, in terms of those current nature positive outcomes, which this inquiry can learn from and understand—if you are willing to share that.

**FIN ADAMSON:** Back on the rehabilitation, there are a couple of ecological vegetation classes that we have to satisfy under the obligations before it was fully rehabilitated and handed back to the State. The site is progressing on some of the areas and some of the areas are already done, and then other spots are still to be completed and some spots are on hold as we firm up the design of the upper reservoir. It's hard to forecast what a future land use will be because it's so specific to the area, the economy and the opportunity that the land provides. I think you already heard from the Idemitsu Muswellbrook pumped hydro project. Just because there's a hole in the ground, it doesn't necessarily mean that it's a good energy project or there's potential for an energy project. Each site is quite bespoke.

There's already good re-use of some mine areas for other residential and industrial uses that have gone through a process of rehabilitation and repurposing. I'm not sure if there are specifics for our project to learn from, given the uniqueness of the site and the availability of water and a high cliff. The idea of having—mentioned before by the previous witnesses—a commissioner that looks at a regional economic base for both mining and post-mining land use seems like a good idea and would support bringing through longer term planning and enabling that earlier. That seems like a logical choice. Beyond that, I'm not sure if I can add much more than what you've already heard.

**Ms SUE HIGGINSON:** Assuming that the current rehabilitation obligations are to regenerate back to that high conservation value land, and then assuming you get a green light to not do that, what are you preparing for, in terms of your best practice, in the kinds of obligations that would be imposed on you? I think that's what I'm trying to understand.

**FIN ADAMSON:** It is a good question. We've certainly contemplated, where we will be removing areas of biodiversity, how do we offset or recover or improve habitat elsewhere, either on the site or on new sites or through the offsets scheme. I'll have to take it on notice, and I'll check with our planners, what the thinking is if the project was rehabilitated to a particular class of vegetation. But now we're not doing that—we're going to cover it with water—what do we need to consider? That's the question, isn't it?

**Ms SUE HIGGINSON:** Yes.

**FIN ADAMSON:** I don't have the answer. I'll have to take that on notice and come back to you.

**Ms SUE HIGGINSON:** Thank you. If you would be able to, I think that would be really helpful for us, particularly as a case study. One of the things that we've heard from witnesses consistently in terms of beneficial post-mining land use and repurposing, particularly for projects that will see further development and therefore mean biodiversity—a "nature deficit" is how we've had it put to us. It's a valid thing. There's this idea that we can actually get nature-positive returns, but how do we do that? With the Hunter, say, we've been looking at a regional scale. I'm very curious about what proponents are considering in terms of project specifics, and at the project-specific scale, especially for a project that could benefit the whole country—well, the whole globe,

obviously, if we're talking about energy generation and not generating more emissions. I would be very interested, if you are happy to take that on notice.

**FIN ADAMSON:** Yes, I'm happy to take that on notice, with a focus on—was it a focus on where the land was being rehabilitated to an EVC, how do we factor that into the offset requirements?

**Ms SUE HIGGINSON:** Precisely, yes. I think that's something that we have to grapple with in New South Wales. I'm sure there are some very clever people sitting around and working it out, but it's entirely open to the proponents' experience right now and that understanding of what you think is fair and reasonable and what the expectations are when you are doing these big projects.

**The CHAIR:** In terms of the biodiversity offset requirements that have been implemented as part of the consent for the previous mine, I just wondered if you had any comments about them and whether they pose barriers for you in terms of envisaging something post-mining?

**FIN ADAMSON:** Because we're proposing to change from the current mine closure plan to a new purpose, we'd be seeking to—I'm not sure what the right language is and Tony might correct me—essentially end the mine closure plan, do the EIS, deliver on the EIS and have the offset requirements covered through the planning permit, through the EIS for the project. I guess that's the query that Ms Sue Higginson had before, which is how do we account for land that is currently coal reject that would have been grass and trees. How do we cover that beyond—

**The CHAIR:** Yes. So you're opening up the entire conditions of concern and creating a new plan. That's the part I wasn't quite clear on. Are you aware of any conflicting legislative or policy objectives within our framework in State and local government and Commonwealth jurisdictions that are an impediment to post-mining land use?

**FIN ADAMSON:** I think the easy answer is that complex projects are hard to navigate through any planning scheme in any jurisdiction and certainly ours has its peculiarities that are going to be a challenge to navigate through. But what we've heard from all the agencies that will require consents or be referred to through the planning permit is positive and that there's a way forward and through them. I don't have any specifics to note now that would support other projects seeking post-mine land use type considerations.

**The CHAIR:** We've heard from a project that is not completed. I'm talking about Black Rock Motor Resort park. They are at a very different stage in their post-mining land use journey, shall we call it, than yourselves. You are more at the beginning. I'm interested in whether there is anything that you've identified at this point in time that you would suggest the New South Wales Government recommend or this Committee make recommendations to the New South Wales Government to address or streamline.

**FIN ADAMSON:** I'm not the miner in the room, so this may be a stretch—and, Tony, correct me if I'm wrong—but being able to segregate down a mining lease so that parts of that mining lease could be re-purposed while mining activities continue, if we hypothesised our project, if we still had mining going on within the same mining lease, then being able to split that could be beneficial. That could be beneficial for potentially other projects operating under one large lease, if they could split that and say, "This is an area that we would like to do another purpose on whilst we continue mining here." That could be a way to support bringing forward other purposes earlier. Tony, did I misrepresent anything there?

**TONY McFADDEN:** No, that's fair, but I think it needs to be on a case-by-case, site-by-site basis. Every site is different. Every site is unique. The site that we've got really supports the technology that we're proposing.

**The CHAIR:** I suppose we need a pathway that will support all of these different uses as much as we can, but the ability to cleave off and separate the mining when we're envisioning future use, whether that's three years or five years from the proposed closure, to quarantine that aspect—is that what you're saying—so that you have that capacity, without opening up the whole thing again?

**FIN ADAMSON:** That was my suggestion, yes. The other thing that could be of interest is that ZEN and the SADA Dunbier Group have a very happy commercial working relationship that is going really well for us. There might be other sites that are undergoing rehabilitation that can't find the right partner for what comes next. Having a process that agrees a timeline for rehabilitation and a process for who comes in to do the new purpose defined could be beneficial. Certainly ZEN have entered this partnership with a fair bit of risk that we have to then do rehabilitation. We think the opportunity is worth it and that the relationship with Tony and his company has been fantastic. But there are potentially other uses for other sites that the risk share doesn't work or they can't find the right party. Having a process that allows those future other users to engage may be helpful.

**Ms SUE HIGGINSON:** We did hear that there might be a site and that fear of who do you get in. With Zen and the history behind it in terms of the WaterNSW expression of interest process—I recognise that's pretty dated now—did Zen come up with this proposal, idea and concept in more recent times or was it—

**FIN ADAMSON:** It was through the WaterNSW Renewable Energy and Storage Program. There had been ongoing discussions between Ross Garnaut, one of our main shareholders, and another researcher about future pumped hydro projects in the State. The genesis of the project really was the WaterNSW Renewable Energy and Storage Program.

**Ms SUE HIGGINSON:** It was. Why, then, has it not had that infrastructure support like, say, Oven Mountain has had and the State Government has picked that up? Is it just a matter of timing?

**FIN ADAMSON:** Yes. We signed agreements with WaterNSW in December 2023 and then the announcement came April 2024. Oven Mountain has been around for longer than that, as has Lake Lyell, which was also called in as a CSSI project. They're ahead of us in their development timeline. We're hoping that our scoping report comes together and we submit it to the planning department and they see it as worth a recommendation to the Minister for Planning for CSSI. If not, then we think we still can move through a SSD pathway, but it will be trickier and potentially longer. It's the same engagement requirements and the same content that we would prepare for either pathway. It's just to potentially streamline through the CSSI.

**Ms SUE HIGGINSON:** I'm not sure if you heard the witnesses before, but I know the registered Aboriginal parties process is the way that the regulation requires it. We've learned so much but there's so much more that can and should be done to get better engagement and outcomes, and genuine consultation. I understand that maybe you already know that.

**FIN ADAMSON:** Yes. We're running, I guess, two workstreams in parallel. One is the cultural heritage impacts potential of the project and how we manage those, and the other one is the opportunities both in procurement and community benefits and engagement more genuinely with the local Aboriginal people. The Gundungara people we think are key to that as well as the Dharawal through the Aboriginal Land Council, but others could come up. I guess the difference in the energy sector compared to other industries is the participation in government tenders through the Long Duration Storage LTESA through grant access in the renewable energy zones. There's a strong focus on Aboriginal engagement and procurement. We want to do it because it's the values of our company and it's a line that we work closely with the Aboriginal landowners where our projects sit. But there's also the catch of the government tenders. If you aren't successful in those, then your project may not get up. The other difference for energy sector projects is success in those programs requires good Aboriginal engagement and procurement strategies.

**The CHAIR:** In terms of the site that you're on, when was the last coal extracted? Do you know?

**TONY McFADDEN:** Yes. The coal was in the surrounding areas with a number of coalmines in the local area, and it was transported up the cliff via a conveyor or trucked into the site. So the site is predominantly a washery site and has been washing. Coalmining in the area ceased in 2001. As part of the SADA Dunbier Group, since 2008 through to 2019 we've been reprocessing the reject, which was the waste material onsite, reducing the carbon from that landfill and then using the product through washing of that reject again to sell for the commercial return whilst improving the land formation for the future. That recycling and green program, reducing the carbon onsite by dredge and hydro mining operations on the surface, occurred from 2008 to 2019. In 2019 there were no resources left; therefore, we had done our recycling program on the site and since 2019 we've continued with the rehabilitation of the site.

**The CHAIR:** It's interesting to hear the timeline. It has taken 23 years to get to this point now that we're envisaging. Is there anything finally that you'd like to add or anything that you'd like to leave us with?

**TONY McFADDEN:** Thank you for the opportunity of coming in today.

**The CHAIR:** In terms of the questions that were taken on notice—I think there were one or two—our Committee secretariat will be in touch with you with regard to the answers to those. Thank you both for making the time to come in. It's been very interesting and very insightful.

**(The witnesses withdrew.)**

**(Luncheon adjournment)**

**Professor ROBERTA RYAN**, Founding Executive Director, Institute for Regional Futures, University of Newcastle, affirmed and examined

**The CHAIR:** Welcome to our next inquiry participant. Would you like to start by making an opening statement?

**ROBERTA RYAN:** Thank you very much for the opportunity and the invitation. I've had a hand in a number of the reports that have come before you. I'm happy to take questions on those, but I don't intend to revisit that. I was on the Royalties for Rejuvenation panel in the Hunter. I co-authored the structural reform paper that is before you, the executive summary, and a short summary of that, which is the story of the Lake Macquarie council structural reform that the CEO spoke with you about in her evidence. I also co-authored the regional economic transitions in New South Wales paper that was presented to you by the chairs of the Royalties for Rejuvenation panel. I'm also on the Hunter regional planning panel and have done a lot of work around the skills transitions and worked with the unions around developing the transitions in New South Wales skills paper.

I'm also currently working with Black Rock. Mr Palmer will have spoken to you about the workshops that we're running at the moment and they're going to be producing four or five issues papers to summarise the outcomes and lessons of that. I was also an author on the CSIRO report which you heard from my colleagues this morning, and I watched that so I'm aware of the material they've put before you. I just wanted to give you that background to say that I'm happy to draw your attention to any of the issues and any of those reports. I'm also the primary research lead on a piece of work called Regions Matter, which is a national piece of benchmark social research. Two tranches of that have been done by now. The third is in preparation, but it's really focusing on a regional Australia, what it is about regions, why people want to live and work there, and the key issues.

The first of Regions Matter—so it's a national piece of social research—focused on oversampled regions in transition. That included, of course, the Hunter, but the other five key regions in transition in Australia. The second—so we aim to do that every two years—some of which has been written up, focuses on the employment and skills issues associated with change in regional Australia. That's quite a good social research evidence base for the work you might be considering as well. That's just by way of my own background. I thought I might make 10 short points, but I'm very happy, of course, to take questions and respond to any questions or issues that you wanted to raise.

I guess my first point might be a bit controversial. Of course, the title of this inquiry is the beneficial use of post-mining land. I think it would be great to talk about the beneficial use of mining land and to think about the value of mining land from the exploration phase all the way through to the closure or potential closure phase. Reviewing a lot of the submissions and the evidence that's been before the inquiry, I think there's a thread around that that mining land is of economic, social and environmental value all the way through that process. Only thinking about it at the end means that we lose a lot of opportunities. For me, there's a way of thinking about this, which is how can we get beneficial uses from mining land and how do we think about the regulatory and legal changes required to make that possible right from the exploration phase? Because by the time we're trying to deal with it at the closure phase, there are a lot of hurdles to overcome. Of course, the Black Rock story is a case study of some of those hurdles.

Clearly it requires long-term planning and this needs to occur at a regional scale. The mine by mine by mine by mine issue—again, that came out in the CSIRO report—is problematic because we don't get either a regional strategic planning view on this or a look at the cumulative opportunities as well as the cumulative impacts that mining land can offer for us. We need to be thinking about this—and this is my second point—that this really needs to happen at a regional scale. The regulator and a lot of the mining legislation focuses per mine per mine per mine, and that means that, as a community, in the Hunter in particular, but in New South Wales more broadly, we don't get the benefit of looking at the overall picture in the way that land can contribute to the economic, social and environmental outcomes of our community.

You'd hardly be surprised to have me argue about the importance of evidence. I'm happy to talk a bit about what that kind of evidence is as a university professor. There's a lot of material already available. The CSIRO report makes that clear and my colleagues made that point clear this morning. It's not in one place; it's not accessible. So it's quite hard to do the analysis of mine closures. Where are they? There are mine sites we're not even aware of—abandoned mine sites. There's all sorts of stuff that really needs a government agency to be responsible for pulling all that together and making that kind of evidence available, and that evidence should inform strategic land use planning and other things. We can talk more about that.

In terms of, if you like, the legislative or the planning space, you've heard a lot of evidence around the EP&A Act and the sorts of things that might be thought about in terms of perhaps a refocusing of that to assist with the beneficial use of mining land, as well as the Mining Act, and then have those things brought together. I

guess there are a bunch of issues to think about and talk about with respect to the role of the NSW Resources Regulator and how much of these processes with respect to meeting the obligations under the Mining Act and the EP&A Act and the role of the NSW Resources Regulator happen in silos. For a proponent or for a council or for a State government who wants to do something with respect to beneficial use of mining land, none of these agencies are joined up or talking to each other, and particularly proponents who want to make an economic use of that land find themselves having to deal with them all separately, with different ambitions—not to mention, of course, the owner of the land in terms of the mining company.

That's a governance issue that is quite significant and can be easily fixed, and it would really make this whole thing go a whole lot smoother. You've heard from the unions and others around the importance of the investments in skills and the transitional authority models that we canvassed in that report. I'm sure you have talked about the importance of investment in skills and the involvement of the communities who are impacted directly, and that regional models need to be of those regions. There's that whole balance between us looking for statewide outcomes as well as regionally specific outcomes.

The other point, which I think doesn't get quite as much airtime as perhaps some of the others have, is around the importance of community education and community involvement. I think the regions matter. National survey work is part of having a baseline sentiment piece. But what is important around the community education piece, and one of the reasons for the work that Mr Palmer has done with Black Rock, is that he's very focused on providing those lessons and sharing those lessons because there's a lot for us all to learn from that as one case study. When I read the submissions that have come before this inquiry, communities are either focused on how do we get the best environmental outcomes and how do we hold the mining companies to account for their rehabilitation requirements, or we're in a position where we're talking about how do we mitigate the impacts of mining. In a way those are polarising positions and I think are unhelpful to think about how we can get the best out of the beneficial mining land use outcomes.

The other thing which I also think is a point which is very important, although I'm not particularly personally well placed to talk to it—and I think it is about the role of the NSW Resources Regulator—is the question around the risk profile. On one hand we've got, perhaps rightly, a government position that is incredibly risk-averse, where any use of a former mining site requires this extraordinary regulatory response and putting proponents and investors through this exceptionally complex regulatory process. Then on the other hand, at the other extreme, there is a significant risk of the State being left with residual mining sites for which there is no-one to take responsibility in terms of investing in how do you fix this up. We see it in the Hunter, but we've seen it elsewhere, and it's actually quite a significant issue internationally—as mining in particular locations becomes less profitable or the mining sector changes, we see bigger companies selling down to smaller companies selling down to smaller companies. Their willingness and capacity to manage the risk at the end of the mining process is diminished by the way the economics of that work.

I think it was referred to by Idemitsu and others in their transcripts, but I think we haven't got a way of fixing on this risk profile question. Where is a reasonable place to have this risk so that we don't end up with the State bearing significant costs if a mining company walks away? I'm not saying any of the current players are planning to do that, but we have mining sites that have closed in New South Wales and we don't know who owns them or we don't know where they are—so we've got something going on there—through to making the risk management of that site so extreme that a post-mining economic use of that site is almost impossible to navigate without huge investment. I think that risk point—as I said, I'm probably not the best to talk to that, but it comes up as a thread through all of the conversations. I don't know how short that was, exactly, but they were the points I wanted to raise.

**The CHAIR:** It was brilliant.

**Ms SUE HIGGINSON:** It was very helpful.

**The Hon. WES FANG:** Professor, thank you very much for appearing today. Just in relation to your opening statement when you talked about the title of the inquiry is perhaps not accurate and that we would need to be looking at the use of mining land whilst the mine is perhaps still active, how do we balance that and the benefits that it might provide against delays in projects continuing, given that anything other than a single use for the land would likely require multiple approval processes and, therefore, provide a greater risk for the proponent that one or all of those parts might be impacted by a rejection if it was to be a package deal? I think that is probably a good way to say it. If you understand what I'm saying—

**ROBERTA RYAN:** I do.

**The Hon. WES FANG:** —sometimes just going for the singular use provides a more streamlined approval process. We're already seeing how this post-mining land use is throwing minefields in relation to

approvals. Seeking a separate approval for land use whilst a mine is still active would seem to be perhaps a complication that many proponents will not be prepared to take.

**ROBERTA RYAN:** Yes. It's one of the vexed questions here, isn't it? It's part of, I think, requiring us thinking about this from the start, right at the exploration stage. The circles—I think it's on page 10 of the CSIRO report, the phases. I think we need to be thinking about the future potential land uses and the opportunities for other land uses during mining right at the start. The planning approvals process, as well as the Mining Act, needs to make that possible so that the mining companies are not putting their approval at risk every time they might want to consider a land use that is beneficial. Obviously, these things go for a long time. My colleagues this morning talked about the scenario planning idea. You've got to be thinking 30, 40 or 50 years ahead, at the point where a mining approval is provided, as to what might be the beneficial land use ongoing and at the end.

This is the key thing, I think. You've heard from the mining companies, and they can speak for themselves, but it clearly is a key disincentive for a mining company to seek to do anything that alters their initial approval because they don't want to put their operations at risk. They don't want to be in a position where "Oh, the environmental regulations under which we got approved 20 years ago are perhaps more stringent today, so we don't want to open up that approval." We've all heard lots of mining companies talking about the risk of opening up the approval and then being put into a situation that puts the key work they're doing, which is extracting or mining, at risk. That's part of that risk profile question.

I think we've got to find a way to not open up an original approval in a way that diminishes the capacity of the mining company to do its core business, but be open to the way in which that land can be used. We think about the placement of transmission lines as one, the battery storage stuff. Mr Rush—I think he was perhaps not the first but the second person to appear before the inquiry—talked in a lot of detail about what's happened in Muswellbrook and the way they've integrated existing mining. It's the same for power stations; I think he made that point. You don't want to be in a position where the risk is so great, the disincentives are so great, for mining companies that they're not open to the idea that this would be a great site for battery storage, or this would be a great site for transmission lines or, indeed, this would be a great site to do something with biodiversity because it won't interfere.

A lot of mining land—some of it's underground, of course, but a lot of it is not used, all of it, at the same time. There are no incentives in place except social licence and "good citizen" stuff, which a lot of the mining companies talk about. I'm not saying they're not genuine about that; I didn't mean to sound sarcastic at all. I'm just saying there's nothing that would say to them, "Oh, let's open up the approval so we can stick pumped hydro here, or we could put battery storage here, or we could do some biodiversity outcomes," because the last thing they want to do is open up an approval that's going to put at risk their current operations. That is a key issue that needs to be addressed and there's got to be a way—it's not beyond us to do it—where we don't put that at risk because that is a very vexing issue. When we talk about the lack of incentives for mining companies for beneficial land use, opening up an existing approval is right over there and the thing they don't want to do for really understandable reasons.

**Ms SUE HIGGINSON:** On that very point, if there was a mechanism that said a mining approval can be open, but in these circumstances no current obligations will change, that would provide—there could be.

**ROBERTA RYAN:** Absolutely.

**Ms SUE HIGGINSON:** At the moment my understanding is that the minute you open it up—

**ROBERTA RYAN:** Everything's on the table.

**Ms SUE HIGGINSON:** —anything is on the table, including requiring all sorts of things of the mining company.

**ROBERTA RYAN:** Yes, and obviously standards change. What we're able to do around the engineering side of this, the current environmental expectations, the community's expectations, are all on the table at this point. Somebody running a mining business, it's the last thing they want. And you can absolutely understand why that's central to them not wanting to look at beneficial uses, either during or after.

**The CHAIR:** Can I follow on with one more along this line? If there was, say, as opposed to opening up all the original commissions, there was a pathway perhaps for a modification that quarantined those existing conditions but created a pathway for the proponent to keep some of that existing infrastructure, or whatever the case may be, but add a public benefit test, would that be a—

**ROBERTA RYAN:** Yes. There has to be a mechanism to preserve the existing approval, but opening up whatever they might want to do or that might be beneficial to government or communities around that. I think there are communities in the Hunter, as elsewhere, who are very interested in biodiversity outcomes and there are

ways to get these things happening much sooner than waiting for the whole mining process to stop before we start to look at those things.

**The CHAIR:** We need to separate out the mining and processing, if you like, from the rehabilitation and the relinquishment. Would you have an idea around when that should occur? What's the lead time?

**ROBERTA RYAN:** I think it has to be built in at the start. The next mine that gets approved—

**The CHAIR:** Yes, which is all well and good for the future, but the Hunter is still going to be where the Hunter is.

**ROBERTA RYAN:** Correct, yes.

**The CHAIR:** I suppose it's a two-part issue. We've got what we do for the future, and we can put in all of these conditions. The other issue that we are saddled with is the reality of where these mines are at.

**ROBERTA RYAN:** Yes. Again, there has to be that mechanism through the planning legislation and the Mining Act that protects their existing approval for them to even be sensibly prepared to consider this.

**The Hon. WES FANG:** Just in relation to the approvals process itself, it's fair to say that we've seen the extremes, I would say, of the approval process where perhaps there has been no approval processes required to extract minerals from the ground all the way through to this multi-year requirement to seek multiple approvals from State and Federal governments and the ability for any number of stakeholders to create impediments, roadblocks, for approval processes for mines and other major infrastructure works as well as needs for things like environmental offsets et cetera. Is it possible that the regulatory framework is so complex and so onerous that the fear that these regulatory processes might impede a project will see the narrowing of the scope, which ultimately leads to a lesser outcome in relation to community benefit, community engagement, because it's easier to try to narrow the scope as opposed to having a wider scope providing more benefit to the community and also to the landholders and the company? How do we find that balance?

**ROBERTA RYAN:** Yes. Again, I think the question is at the heart of this issue. The mining approvals process rightly focuses on issues associated with environmental outcomes or impacts. A lot of study goes into that. It's obviously geotech and all those kinds of things that go with that. The employment of people is obviously important—high quality jobs and so on—in regional Australia. The approvals process generally pays much less attention to the social benefits. One of the disciplinary hats—I might be described as a social planner. We're moving into greater consideration of those issues and asking mining companies to make sure they locally procure all of those kinds of things, and that they fully appreciate and employ locally—prevent the fly-in, fly-out issues—and all those sorts of things. I'm not saying that isn't happening but it's kind of an add on; it's a bit of a come-lately into that discussion.

The disincentive of revisiting an existing approval prevents, particularly in parts of the Hunter—there are lessons from elsewhere in Australia. But availability of land—I think you heard this in the Dantia submission—particularly in areas like Lake Macquarie, which we talk about, we're in transition. Areas like Lake Macquarie have been in transition for 20 or 30 years, which is why the lessons learnt from Lake Macquarie I think are very applicable to now Cessnock, Singleton and then moving to the Upper Hunter areas—where you've got to work on economic diversification and all those kinds of things. But I think just the bald facts of the need for land for investment, industrial uses, commercial uses, is pretty significant in parts of the Hunter, particularly the Central Coast, Lake Macquarie and Newcastle.

We're seeing a lot of population growth and development approvals coming through in Cessnock and Singleton because it's pushing through. It's obviously pushing north in those areas. Not recognising the value of these great swathes of land, and if you do plop them on the map with the evidence that we have now, there are very large pieces of land here that are either at the tail end of mining or have been mined or are now closed, which are currently, because of the regulatory processes in New South Wales, not available for the community to use for beneficial uses—social, economic and so on beneficial uses. And that regulatory process is central to the problem.

**The CHAIR:** In terms of the social and economic framework—I think this was a question that I asked the earlier witnesses that they suggested I ask you this afternoon, in terms of the research that was done. "There's an absence of coherently organised and reliable information to facilitate a social and economic framework for mine closure, relinquishment and post-closure re-use," is a quote from your report. Who should do that work and how long would it take in terms of that data that's obviously absent and important?

**ROBERTA RYAN:** It would take a number of years and it would require, of course, the cooperation of the mining sector, who hold much of that information. Whichever way the outcomes of your inquiry go, there's going to need to be changes in the way cross-agency interactions work in this space. We haven't developed—it's not in the CSIRO report or elsewhere—what the optimum government arrangements might be for this, but it's

partly the responsibility of the regulator, it's partly the responsibility of the land use planning agency and it's partly the responsibility of the regional department. But it has to be done in cooperation with the mine, the mining industry, because they're the ones who need to be supported and incentivised to make this mining land available earlier, or sooner, or be open to alternative uses that don't impact their core business at the time. It has to be done in a way that brings all of that together.

But I don't think it can be anyone but government who brings the required evidence about what are the— Ms Wetzel said this morning you can't find all the mining closure plans. They're not in one place. You're trying to develop an evidence base as high level, I think, in some ways as our work with the CSIRO was. If you had that next level of granularity, gosh, you could look at the picture in quite a different way to say, "What is the scale of the opportunities here? Where are the areas in which there's not much? Where are the areas in which there's a lot and you could make land available?"—but obviously with the cooperation of the mining sector.

**The CHAIR:** This is the difference between publishing the GIS data and the PDF data that Ms Wetzel referred to, yes.

**ROBERTA RYAN:** Yes.

**The CHAIR:** You mentioned in your opening statement, and you've referred to it again, the duplication in agencies that you talk about and it being a governance issue. I think you mentioned in your opening statement it was easily fixed. I'd invite you to provide some suggestions as to how to do so.

**ROBERTA RYAN:** This goes to what often for government—place-based planning, not just land use but planning—is a challenge because government agencies work in silos. I'm the independent community commissioner for the aerotropolis and Orchard Hills, appointed by Minister Stokes and subsequently by Minister Scully. Central to the lessons out of that in the last four years have been it's incredibly difficult for government agencies to focus on a place and coordinate their activities in such a way that addresses the requirements for, in this case, making industrial land available to support the new airport. What are the mechanisms? This can happen through Cabinet Office and Premier's and so on, but it's actually really hard.

My role is to think about how to support the community through change. But half of the work is actually getting the agencies to coordinate with each other, so that everybody doesn't go and do their statutory consulting without understanding what everybody else is doing, taking the agencies into the community and asking them to work together to share what's coming up next—that kind of work, which seems simple but actually is quite difficult to achieve. It is, I think, one of the roles of a State-based agency with its focus on regional New South Wales to act in a way that coordinates these kinds of initiatives. It goes into the role of Premier and Cabinet because these have to be dealt with as place-based things. The community in Lake Macquarie is a very different mob from the community in Singleton.

**The CHAIR:** Yes, they are.

**ROBERTA RYAN:** You're an MP for these areas. The Upper Hunter or the lower Hunter are not one thing. You've really got to be able to understand the ambitions for the future for these communities and facilitate their opportunities. It is difficult to bring agencies together to focus on that kind of place-based planning, even at basic things like communication, understanding how these communities are different from each other.

**The CHAIR:** Is there any research to suggest how you could better do that? It seems like, as you say, it is easily fixed on paper, yes, but how do we make that happen?

**ROBERTA RYAN:** Again, I think it was mentioned by our colleagues this morning. The Queensland example has shown that there are roles for commissioners. It's one of the things that, if there's been any success in my appointment as commissioner, it has been to be a ministerial appointment that allows me to ask the agencies to sit around the table and resolve who's going to take forward these particular issues. At that level it's not that difficult if there's a willingness and a support from government. And that requires political support as well as senior leadership support in government agencies to actually address these issues. It's often just basic stuff, like don't run 15 consultation sessions about something when there's a lot of change going on. Do it all at the same time every two months, and you all come together inside the community and people can ask what they want—quite straightforward mechanisms.

But it's also about the Hunter regional planning process. The department of planning does a great job in advancing those regional planning processes. But they're a huge amount of work and they require the requisite investment. Obviously we're competing at the moment for housing approvals. Everyone needs everything done in government and there are a finite number of resources. To do really well-developed regional land use plans requires a lot of work and a lot of investment, and those resources need to be made available to the department of planning to do that kind of work. That involves communities and the other agencies and all that sort of stuff.



**The CHAIR:** In terms of the place strategy that was mentioned this morning—I think it was Ms Wetzel who talked about it needing to look at the totality of the region or have that regional focus—would you have a suggestion? I think she spoke about having an addendum to the plan. Do you have any suggestions around that and what that should include?

**ROBERTA RYAN:** Not in addition to what Ms Wetzel talked about this morning, but absolutely it's about treating places at this regional scale, joining up all of the evidence at that scale and creating an evidence base around what are community aspirations all the way through to what are the impediments to investment in these locations. We've got particular things going on in the Hunter—the biodiversity issues impeding both housing and post-mining land use. We need biocertification at scale. That's an expensive and comprehensive business, but we have to create greater certainty for investment to allow these things and they really need to be enabled by government. So that context of investment—certainty, whether it's building pumped hydro or whether it's developing post-mining land use into a tourism site or a housing site—we need that kind of certainty to support people who are investing in these things to take the risks required.

**The CHAIR:** Just so I'm clear in my mind, the mining commissioner—that's what you're referring to with the Queensland reforms?

**ROBERTA RYAN:** It's one, yes.

**Ms SUE HIGGINSON:** I'm curious about your findings in relation to skills, the transferral of skills and where you see the correlation to land use planning in terms of the skills shortage or the skills transferrals, and whether you've got specific suggestions for this Committee around that. Perhaps I will start there.

**ROBERTA RYAN:** We've done a fair bit of work—again, I can share it separately if it hasn't been provided to you—at the Institute for Regional Futures on the skills transition piece, if I can put it in shorthand. One of the findings was—and I'm going to have to find it in my notes because I can't remember the percentage—a very high percentage, something in the order of 65 per cent, of people are willing to retrain. That's a piece of baseline research that we conducted 18 months ago. Right from the community point of view there's a significant willingness to retrain and for communities to take benefit of what is coming in the future as we move to a low-carbon economy, and so on. Some of those skills are required by the mining industry and will continue to be required. Some of those skills are required in the new energy economy, and there's a lot of work being done around that. The universities are doing work around new degrees in this space.

There's significant investment, and the Government has done a lot already in the significant investment in TAFE around things like electricians, who are going to be the big trade in demand, and so on. The unions, of course, are very clear about their support around these processes. I think the skills piece again requires a coordinated set of actions, but it has to be driven locally and it has to be done in collaboration with the work of EnergyCo and the department of environment in terms of rolling out the new energy economy. We've got a situation at the moment where transmission planning, planning for wind farms, solar farms and so on, as well as what's needed to make beneficial use of mining land, again is not seen as a whole picture.

We've got proponents who are putting in proposals and getting approvals for developing wind farms who are all talking about the same pool of labour. Again, that capacity to bring all of those things together to say we're not going to have enough—whatever it is; I'll just say electricians—electricians for all of this, because it's got to be seen as a whole picture. Same with Aboriginal employment targets—they're great things to have, but there simply aren't enough people. Every proponent is talking about percentages of their workforces that are going to meet targets for Indigenous employment, which is really important. There actually just aren't enough people in particular parts of regional New South Wales.

Again, it's that coordination piece, but the mining piece is part of the new energy piece and is also part of the skills for the future piece. It's difficult. In universities we're looking, obviously, at our future students and their kinds of aspirations. There are significant challenges. We need to be getting people. We need a plumber, who by this stage is probably earning reasonable money, married with children. They're not going to stop work for three years to become an electrician. We've got to be doing much more around how do we actually incentivise existing skills when we need less of them and more of those. We've got to obviously give people proper paid opportunities. We've got to make the skills pathways easier.

It's actually quite difficult if you're an air conditioning mechanic or tradesperson who does a lot of work with electricals to become an electrician. There's actually a skills pathway issue there. It has to be addressed at all of those levels, with a place focus. Universities and TAFEs are pretty slow moving—no criticism; we need to be slow moving so we invest government money in considered ways. But this is coming at us at a great rate and, if we're not doing this actually on the ground now—and I think a lot of people before the inquiry have talked about how this is urgent. It's happening. It's not something that is going to happen in the future.

**Ms SUE HIGGINSON:** Thank you; that's really helpful. I may just be picking up on something, but you referred to biodiversity as impeding things.

**The Hon. WES FANG:** That might have been me.

**Ms SUE HIGGINSON:** No, it was actually Professor Ryan's words. I don't see biodiversity as impeding anything, but I'm just curious about where that comes from and what we do about that.

**ROBERTA RYAN:** It's the lack of certainty that is impeding things; it's not the biodiversity per se. In the way that we've had at-scale biodiversity mapping in parts of Western Sydney, that creates a level of certainty where investors know that this is developable and this is not developable.

**Ms SUE HIGGINSON:** And that was your reference to the certification.

**ROBERTA RYAN:** Yes. It's the uncertainty that creates the issue. If you have to go approval by approval to check whether you can clear land or whether there are threatened species there, and so on, and the BDARs and all of that, which is complex and time-consuming, the value of the at-scale biodiversity certification creates that certainty which then enables investment. It's not the biodiversity that's the problem; it's the uncertainty that's the problem.

**Ms SUE HIGGINSON:** For the Hunter, for example—I think the same can be said with the Gunnedah Basin to an extent, but I think it's a bit different there because some of those mines were approved under newer circumstances around biodiversity requirements—I think you referred to achieving some outcomes as you go. There are a couple of mines, rightly or wrongly and doing it well or not well, that had biodiversity requirements to regenerate—

**ROBERTA RYAN:** As they went.

**Ms SUE HIGGINSON:** —as they went. They were approvals from around about 2012 onwards. In terms of providing that certainty around biodiversity when we are stuck with a position where we've got a bunch of post-mining rehabilitation considerations but we're proposing to possibly pause some of those while we look at different uses of land, and then we're talking about potentially encroaching on biodiversity that hasn't been encroached upon, have you contemplated a system or a scheme, or what is the best advice for this inquiry that is grappling with all of these almost out-of-sync realities?

**ROBERTA RYAN:** Again, my colleagues referred to it this morning. We have lots of plans—regional plans, LEPs, local strategic planning statements that councils do as part of their strategic planning, their integrated planning and reporting requirements under the Local Government Act. They're all on different time frames. One starts, one finishes, one is going to finish in a year. Again, communities are engaged around these processes. You all appreciate this, but community sees government as one thing. They can't get their heads around the idea—"I know the planning department were here talking to you last week, but we're from the environment department, or the environment bit of the planning department. We want to ask you about your aspirations."

This is the stuff that makes communities think, "What? You're all government." Even the differentiation between State and local government is poorly understood in a lot of communities, and local governments work very hard at trying to make that—I think there are pieces to do. I will try to answer the question, but I think there are pieces to do with lining up the statutory requirements around these key planning cycles because it then facilitates the conversation about a whole-of-place focus.

When you have councils saying, "We went out to talk to our community"—which is a community plan for a whole LGA, which under the Local Government Act they're required to do within a year of a new term of council, so councils are turning their minds to that post the September elections now. That is not just about what council is going to do in this place; it's about what it's going to advocate and facilitate other agencies to do. And they say, "We don't get a lot of people coming out and being interested." It's either because they've been consulted to death, or they don't understand the opportunities to bring all of these players together. Next time there'll be a review of the regional plans, the same requirement will happen. From a community's point of view, you're asking us all about the same things over and over again.

I think there are two things. There's the bringing together of the time frames around these key statutory—local government is central to this because they do have that place-based role and that is actually what local government is. They have these requirements under the Local Government Act and other agencies can use this really effectively to understand how these communities are working. Many local governments work really effectively with the other agencies to bring all of that planning into the community strategic planning space. There are the local strategic planning statements, which again is a local government mechanism driven and supported by the State Government, but again it's on a different time frame that looks just at the land use planning components of the community strategic planning piece.

In other countries we've done work where we've brought that in to line up with the local government integrated planning and reporting process to avoid exactly this where everyone is going, "We're on different time frames", and also then lining up the higher level regional strategic planning pieces. In terms of how do you ensure protection of biodiversity, it's partly that evidence piece around we actually have to have the mapping of the corridors of what matters because it is the death by a thousand cuts, isn't it? You look at this for industrial land and it's just five trees, or whatever. But we're missing corridors. We don't understand. We don't have enough information in the public arena when planning decisions are made.

I sit on that regional planning panel. We're arguing for five trees on a relatively small—because if you don't it will be that five trees, that five trees, that five trees. But in the absence of evidence as to whether this is an appropriate corridor, are you giving something up that's really important if you let them chop down a couple? It's incredibly difficult to balance those decisions without the evidence. But this is the stuff that's important to protect, and this is the stuff that isn't. So that at-scale biodiversity mapping creates a level of certainty for everybody. Then the third piece, I think there's the lining up, everyone talking place-based communities, putting local government in the centre of that, and the other agencies coordinating around that. There's a forward vision that is retested every three or four years.

There's the evidence particularly around what actually is important because we often talk about planning being the trade-off between private and public interests. Well, often environmental issues are a trade-off between public interests and private interests as well. And who speaks to the environment? If we don't have that evidence, are we going to the wall over something where actually this would be a better service to create economic outcomes for communities? We don't know where these important corridors are for the most part in regional areas and we don't know what role the mining sector should have in this going forward. That's where the scenarios piece comes. I think you have to say in certain parts of, just say the Hunter for the purposes of our example, the biodiversity outcomes as part of these scenarios in this place are going to be very significant for the following reasons.

We don't have the evidence at the moment in which we can prioritise which piece of which scenario. We're all looking at each of these either mining approvals or land use approvals at this level without being able to say which things are reasonable to trade off against others. It's the lack of evidence around this, it's the lack of mapping, and it's the lack of certainty around making sure we protect what really matters so that the decision-making is enabled through that, and investment.

**The CHAIR:** Unfortunately, that's all we have time for. I have a list of questions I could ask you, but I will put them on notice. Thank you very much for making time to give evidence. It's been very valuable to have you.

**ROBERTA RYAN:** It's a great pleasure. Thanks very much for the invitation to be here.

**The CHAIR:** Just for clarity, are you tabling the documents that you provided?

**ROBERTA RYAN:** Yes. One of them is the executive summary of a document that has already been tabled. We just didn't think the executive summary got tabled, that's all. The other one is a summary of the document that has already been tabled, so that's not new for the Committee.

**The CHAIR:** Wonderful. If there were any questions on notice, our Committee secretariat will be in touch with you about the details of those. Thank you, once again.

**(The witness withdrew.)**

**Professor RAVI NAIDU**, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle, before the Committee via videoconference, affirmed and examined

**The CHAIR:** Professor Naidu, would you like to start by making an opening statement?

**RAVI NAIDU:** First and foremost, I've been invited to present myself and respond to any issues or queries that the Senate Committee might have. I have been working on environment issues for the last 30 to 35 years now, initially with the CSIRO—that would have been for the first 30½ years. I left CSIRO when I was chief research scientist. I then joined the University of South Australia and that's where I established the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment, crcCARE. It was established in 2005, initially funded through the Commonwealth of Australia and stakeholders, and from 2021 funded largely by stakeholders. I moved to the University of Newcastle after the university invited me and crcCARE to relocate, assuring us that the university would provide us support for the centre of excellence to be relocated here. Over the years I have worked on pollutants, both on contaminated sites and also in partnership with mining companies. I've worked on degraded mine land as well. I've just finished editing a book on mine degradation as well.

**The CHAIR:** I will start with a question that is prompted by the previous witness, Professor Roberta Ryan, who was talking about the risk that we're faced with in terms of the NSW Resources Regulator. We have a very risk-averse system, but we also, on the other hand, have a situation where larger mining companies are transferring the lease towards the end of the life of the mine to smaller companies who keep sites in care and maintenance for quite extensive periods of time. I suppose the potential of some these sites isn't realised and they're not fully remediated, and there is a risk that the State Government has. How much of a risk do you think that is, and where do you think we can best place ourselves in the pendulum of that, if that makes sense?

**RAVI NAIDU:** Let me start by saying that when we look at our minerals industry, for example, we all focused on that many years ago. The focus was all about building the economy, and at a time when we did not have appropriate environmental legislation. As a consequence, we ended up with, for example, abandoned and derelict mines. But then in the last 20 years or 25 years, the State and Federal governments recognised that large companies were pretty focused on generating revenues, which was supporting people as well, but they were not leaving behind the degraded land in the condition that they should. When I say, "in the condition that they should", I mean it could not go back to its original state. That's the key thing to recognise.

The second thing to recognise is what Professor Roberta Ryan said about being risk averse, for example. The question to ask is: When would we be and when are we risk averse? We are only risk averse and take precautionary approach when we do not have appropriate science underpinning the decisions that we make. Therefore, whenever we're confronted with legislation—for example, let's say from the education perspective, if we do not get appropriate science underpinning all decisions, we would be a lot risk averse. I am a little bit slow today because I was in Switzerland. I had gone for a meeting and so the time difference is making me a bit slower—pardon me for that. I lost one of my first cousins just the other day so my mind is struggling between the two.

**The Hon. WES FANG:** Sorry to hear that.

**RAVI NAIDU:** The challenge really is what we can do to underpin those decisions with some science. If we have some science, then we could minimise the risk-averse system. That's one thing to note. The second thing to note is that, of course, we've had the local community who rely on jobs as well. But then when we have mines—for example you have degraded land. What we do not have in the system is when degraded land is being rehabilitated, how far back do we go? We do not have an index, for instance. For me, because I chair the United Nations Food and Agriculture Organization, the global network on pollution and mine rehabilitation within that as well—the soils that we have are healthy soils. If we give an index to the healthy soils, as one instance, and if you degrade that index down to nearly zero, the question is how can we bring it back to a stage with the index is, let's say, 0.7 or 0.6, so that we can say we have the critical attributes that we must make certain and put in place such that the soil health is close to 1 or 0.7 that you can sign off on. We do not have any such thing like that. That's something which we do not see large companies providing sufficient resources to a stage where a small company will take over. Some of the work has already been done and the resources are there. I don't see that in Australia and it's something that we need to take into consideration as well.

**The CHAIR:** Soil index data.

**RAVI NAIDU:** Yes, that's right, soil health because globally soil health is something we have been focusing on. You are mining, for instance; removing surface soil, for example; and organic matter is gone, for instance, and you are trying to rehabilitate, you are not looking at the same soil because the nutrient content of

surface soils is of a much higher quality than sub-surface soils. Therefore, if larger companies are transferring risks to smaller companies, they ought to take ownership of some of this. If the legislation is there that says, look, you have got to address all of these attributes, which could then lead to, let's say a precautionary index of 0.7, I will sign off easily because in time it will get to 1.

**The CHAIR:** Interesting. I will pass to Ms Higginson.

**Ms SUE HIGGINSON:** I am just curious. In terms of the need to get environmental remediation right, it just seems that we hear this consistent theme that we need good baselines, we need good indexes and we need transparency around all of that. Why are we not there? What are the things you see across the board about why we haven't got these things that we need and what we need to do to actually have that point of excellence to be able to get the remediation program at scale good?

**RAVI NAIDU:** That's an excellent question as well. The key thing that I see here in Australia—I've lived in Australia since 1989. I came from the small country of Fiji, for instance, to Australia. I have grown in my role by researching here. What is it that we are missing where mine rehab is concerned? First and foremost is that we always want to rush into doing things. The first thing you see is "Where is the consulting company that can help us?" Consulting companies are very good at making sales pitches. We have international companies, but they are not able to deliver what investment into two years' research [inaudible] could provide and which would provide a lot more benefit than rushing into consultants and getting consultants to deliver. I'm just going through a proposal now where I said it will take three years and the consulting company said, "We can do it in 12 months. We can cut, cut, cut. Here it is."

As a scientist—I have also received the United Nations' highest award, the Glinka award, for a soil scientist—when I see these things I say to myself, "Here they are trying to reduce the cost. They are saying, 'We will deliver tomorrow,' but we never deliver tomorrow." This is where sound investment and good governance could deliver a lot more than what we have been able to deliver. Within good governance is not just research; we have to build capacity as well. We have to train people. This is where the local community, for example—if we are looking towards closure, we need to train the local community on rehab best practice. If we did that, then we would have an appropriate team of people who could step in and provide that support as well.

**Ms SUE HIGGINSON:** At the moment with this inquiry we have been hearing the need to be able to potentially suspend current imposed rehabilitation requirements, including environmental rehabilitation, while we consider further other exploits of the land for other purposes such as other economic generation. Do you see any dangers in adapting that kind of practice and, if so, what safeguards should we be looking at? How do we move from a system of project-by-project remediation requirements around mines when we are looking at biodiversity or contamination—all of those remediation issues—to a regional view of these matters?

**RAVI NAIDU:** Another really good question. The first thing is that, anywhere you have very large regions or areas, for example, the first thing—the way you see it is we need to decipher what parts of the affected land would be good enough for certain end use. When I talk about end use, you could say, "Here we could have residential," for instance, "and this is where we can't have residential because the degradation of the land is such that you can't take it back to the way it is." Therefore there is less sensitive end use, for instance. Where you need to rehabilitate, we should be able to do that as the first thing. While we do that, personally, I wouldn't say we should stop the degradation, because the rehabilitation is also in capturing carbon. This is also crucial.

The first thing would be for us to look at location, location, location, and the receptors—what receptors are there? For sensitive receptors, we should look for land where we could make it sensitive; and for not so sensitive receptors, we should identify them. Then you could have a matrix. If I can just draw it and show you—let me just see. I can't do it here. The way in which you do it is that, on the one hand, you have cost, for example; on the other hand, you have risk, for instance.

If you want to reduce the risk all the way, the cost will be very high. And then you keep going up, and the risk is very high, and you say, "This is where we cannot have sensitive receptors," and therefore could be [inaudible]. Somewhere in the middle we say, "Yes, we can manage. That risk is low enough," and you can still have sensitive people staying—sensitive receptors here. So we should be able to come up with a system like that. From CRC's perspective, I was at a project in India—55,000 hectares of land infected by [inaudible] wastes, and we were able to totally remediate that and help the people, get the community on board. And finally now there was BBC documentary on that and I was quoted on how we could help reserve. That's how we did it. The first thing was to look at what could be the receptors that we could put in place and based on the sensitivity and risks.

**Ms SUE HIGGINSON:** Just finally, I'd be really interested, given the breadth of the work that you do, do we have good remediation standards? Our standards in New South Wales—are we working on highest best

standards or globally equivalent standards? Where else are there perhaps better standards or practices than what we require?

**RAVI NAIDU:** You're asking really good questions. First and foremost is that I think New South Wales EPA is really good. There's absolutely no doubt about that. I think the chief executive has put in really lots of things that are quite appreciative of—that's one thing. A lot of the time, it's about going to source contamination, which is highly contaminated sites, and when you go beyond that and start to take into consideration mine rehab, for example, that's a totally different ballpark, which is where we're beginning to do things, but we are not quite there—where we ought to be.

**The Hon. WES FANG:** I've only got one really brief question.

**RAVI NAIDU:** It's really faint for some reason. It's not coming through.

**The Hon. WES FANG:** My apologies. Is that better, if I speak more into the microphone?

**The CHAIR:** Can you hear me all right, Professor Naidu?

**RAVI NAIDU:** Yes.

**The CHAIR:** There may be a problem with the Hon. Wes Fang's mike. We'll try and get that fixed up in the meantime. In terms of the situation that we're facing in New South Wales, we've talked about the planning system that's in place at the moment. The previous witness was talking about whether or not we can separate out the rehabilitation requirements from the mining conditions of consent and have them separated out, if that makes sense, so that all of our historic mines, which had their conditions of consent given under very different circumstances, which you referred to, I think, in your opening remarks, so as to quarantine that risk but also allow us to do things with more of a regional focus, more of a modern focus, if you like. I wonder if you have any thoughts or observations around that or any examples from overseas, in terms of other studies that you've done, where it has been done well.

**RAVI NAIDU:** We have worked on those abandoned or derelict mines in New South Wales. I go around there with the suggestion that the derelict mines should be separate from existing mines because, with derelict mines, we did not have appropriate technologies, advances, that we have today. The risk, for instance, associated with derelict mines would be very different from the risks associated with the existing mines right now. With derelict mines, there could still be minerals, for example, that with new technologies, people could still go there and mine. With the existing mines, there would be a risk that your post work is both from a remediation perspective and rehab. When you look at rehab, the concentrations of toxic metals, for example, will not be as high as you see, for example, in derelict mines. So we did work on derelict mines, and we were modelled there as well. My suggestion also is that we should use an artificial intelligence approach to delineate derelict mines. However, we have a risk [inaudible] that one can use to delineate such that you could see where the highest risk is, the lowest risk, and what can you do when [inaudible] as well.

**The CHAIR:** We heard earlier about the lack of mapping that is available or the single source of truth in terms of where these derelict mines are and what sort of state they are in. Have you done any research to look at that?

**RAVI NAIDU:** Yes, we have done research. We looked at a number of derelict mines and we have written reports. The challenge that we have these days is that, any work that you do, there is no base funding, for example, to support what you're doing. For example, a university would not pay anybody's salary. Equally, crcCare doesn't receive any base funding and therefore somebody has to pay for their expenses. And those expenses do not generally [inaudible]. State governments do not have sufficient financial resources that provide that. As a consequence, we are not able to look at all the mines and come up with [inaudible] that we could. Everything boils down then, the [inaudible] held purpose goes down to resources if the Commonwealth funds it, for instance.

**The CHAIR:** In the CSIRO report—we heard from them earlier this morning—they identified there being an opportunity for a trusted broker to provide an evidence base, around the social and economic benefits in particular, to inform post-mining transition efforts. Do you have a view as to who or what is best placed to do that sort of work?

**RAVI NAIDU:** A trusted broker is one who is quite independent in literally what they come up with and that go along with that. For example, from crcCare's perspective, we developed technical guidance documents bringing industries and [inaudible] jurisdictions together. So crcCare is that trusted broker, because we didn't favour the [inaudible] jurisdictions and we didn't favour the industries. We were right in the centre, making certain that what we provided was not favouring either [inaudible] parties. So you do need a trusted broker like that as well. I'm not saying that crcCare shouldn't be one, but I'm saying we should.

**The CHAIR:** I wonder if you have any suggestions around examples of where First Nations have been empowered in decisions around post-mining transitions, from any of the work that you have done either here or on an international scale? It was recognised by the CSIRO report as being an area of importance but also a real gap in the current approach.

**RAVI NAIDU:** Thank you very much for that. A few things. First and foremost, right now I'm part of the United Nations Environment Programme where we are writing the Global Environment Outlook report, and First Nations is one thing that the United Nations is very focused on. The entire report—in every chapter we are including First Nations. So that's one to take note of. The second thing is that we do quite a bit of—I provide [inaudible] reviews from New Zealand discovery projects and some of the other projects, and First Nations feature very high as well. The same thing is that I recently worked on a mining magazine named [inaudible] to write a column on ESG, and we mentioned First Nations and BHP, because crcCare has been working with BHP, and BHP has always been very keen to make certain that First Nations were taken into consideration with whatever they were doing as well. At least there's one company who does that.

**The CHAIR:** Professor Naidu, were there any other final remarks or comments that you wanted to make?

**RAVI NAIDU:** I was very delighted that the New South Wales Government is looking into this, which is really great. From my perspective, my feeling is that, as mentioned earlier, we have derelict mines as well as existing mines. From a [inaudible] perspective, we do need to put in place a number of things. First, we have to take into consideration the local community because they are concerned about work as well. Secondly, it is what you see that we need to do to make certain that we are building capacity such that if we move towards rehab, local people could be engaged with that. The third thing is that we always rush into doing things [inaudible] where people are rushing to [inaudible] and people are stepping back very quickly as well. That always takes me to year 10 when my chemistry teacher said to me, "Here is water and here are the electrodes. You can see that we can split water [inaudible] and then we can burn hydrogen [inaudible] and let it condense and see how water condenses."

We did that in year 10. We were always told that, at the end of the day, you would have [inaudible] residues as well, depending on how clean the water is. Year 10 is when we did that, and people have been rushing towards hydrogen. Anything that comes out of this should not be allowed to [inaudible] rushed into things, but we are putting sufficient resources to underpin, which to me is crucial as well. Yes, the research is important, but research should not be about just doing research and writing a publication. Utilisation of what becomes of it is so important. That's what we have been doing as well. How do we convert solutions into practical outcomes? When we do that, social issues need to be taken into consideration and the risk associated with what we are doing and, of course, science as well. That's all I wanted to say.

**The CHAIR:** Thank you, Professor Naidu. If there are any questions on notice, our Committee secretariat will be in touch with you for the details. We appreciate you making time to give evidence today, particularly in the circumstances that you are currently in.

**(The witness withdrew.)**

**Professor TOM MEASHAM**, Research Director, Cooperative Research Centre for Transformations in Mining Economies, before the Committee via videoconference, sworn and examined

**Dr GUY BOGGS**, Chief Executive Officer, Cooperative Research Centre for Transformations in Mining Economies, before the Committee via videoconference, affirmed and examined

**Ms JILLIAN D'URSO**, External Relations and Impact Director, Cooperative Research Centre for Transformations in Mining Economies, before the Committee via videoconference, affirmed and examined

**The CHAIR:** Welcome to our next set of witnesses. Would any of you like to make an opening statement?

**GUY BOGGS:** I have an opening statement. Firstly, thank you to the Committee for inviting us here today. My colleagues and I would like to acknowledge the traditional owners of the lands on which we each join you today—for me, in Perth, the Whadjuk people of the Noongar nation; for Tom, in Brisbane, the Jagera people and the Turrbal people; and for Jillian, in Adelaide, the Kaurna people. We pay our respects to Elders past and present. CRC TiME is an independent research organisation working to bring together diverse stakeholders to improve what happens after mining ends. We have delivered over 40 projects worth over \$30 million since forming in 2020, through funding from the Australian Government Department of Industry, Science and Resources Cooperative Research Centres program as well as in-kind and financial support from our 80 partners.

In the four years since we began, we have seen a significant shift regionally, nationally and globally in how the process of mine closure is understood. What is happening is a recognition of the need to focus on what is being transitioned into and not only what is being transitioned out of. This represents a fundamental shift towards value optimisation. As the Committee has heard, this raises complex and challenging questions. Our submission highlighted some of our work underway to help answer these pressing questions, including on policy, collaborative planning, economic transition capacity, repurposing options, First Nations inclusion, technical solutions and education and training. We look forward to your questions on these.

Before then, I wanted to quickly highlight three overarching observations. The first is the importance of shifting from site scale to regional scale. Mine closure is regulated at site scale, usually proponent led and seeking to return to prior state. This is in tension with the experience of the economic and social effects at a regional scale and limits consideration of what post-mine land use options could deliver the best value. The second is the role of multi-stakeholder and whole-of-government processes. Every region is different. What model is used should reflect what is best suited for that context. What is common across all regions is the role of ground collaborative planning in each region's own value set, the importance of First Nations being equal partners in local processes and, critically, the need for cross-government coordination.

The third point I'd like to make is around the potential for a mine closure solutions industry. Our landmark report with the CSIRO identified an approximate \$4 billion to \$8 billion annual spend on mine closure equipment, technology and services to 2040. This is significant, with potential to turn the domestic challenge into global opportunities for local, Indigenous and Australian businesses under the right settings. We look forward to your questions.

**The CHAIR:** Thank you. We will now move to questions.

**Ms SUE HIGGINSON:** Thank you all for being here. I am really curious—the first thing that you spoke to in your opening statement was about moving from site scale to regional scale. I think that is something that we so clearly need to do; we need to do it and we must do it well. One of the concerns that I have around that is the consideration of biodiversity and the regeneration of biodiversity. When we are looking specifically at the Hunter Valley, some really powerful evidence has been provided to this inquiry in submissions around how mining in the Hunter over the decades has actually left us with a bit of a nature debt or deficit. I don't think that's controversial. I think that's quite accepted.

Particular vegetation communities that once had relative abundance are now literally on the brink of not existing. To add another layer, we have an understanding that if we could just identify where biodiversity should be or could be, everything would be all right and we could move forward. Unfortunately, biodiversity is not that nimble and its requirements are not that anthropocentric. Your perspectives would be really beneficial for the inquiry. Do you have any insights about how to move really well from site to scale with a deep understanding of the requirements of biodiversity needs while looking through a nature-positive lens?

**GUY BOGGS:** This is a wonderful question. I'm going to start by actually talking to the journey of CRC TiME. For my part in it, I was employed by the Western Australian Biodiversity Science Institute and I led the restoration program. It was out of that program, from my side, that the CRC TiME concept was born. One of



the questions and the tensions we see in the broader restoration community is where should we be making investments in restoration and why should we be making those investments to deliver the nature benefits that you've described? That question is very much at the heart of the CRC: How do you balance these competing tensions around what is the most appropriate thing to do with our sites within a regional planning context?

If I look at the nature question that is being framed here, the piece of work that we've been doing has been to look at the use of natural capital accounting frameworks to help us understand and track our natural capital assets over the life of the mine, from pre-approval through the construction phase and well into closure, to help us make the decisions that are actually going to ensure that we have the right natural capital at the end of the mine's life. We know that is, as you say, nature more broadly than the biodiversity—water, soils and the whole range of ecosystem services but also the fundamentals of natural capital.

This year we launched the first guidance for the resource sector around natural capital accounting. That included case studies where we worked on assets where we had almost the opposite to what we've seen here, where you've had agricultural landscapes that were mined and then returned to a nature-based situation post-mine. There are different ways that those tools can be used. They also allow you to integrate forecasting-based decisions. That nature debt that might be accrued over the life of the mine and the way in which you might play that out beyond the mine is really dependant on very good forecasting techniques around what the capability is of the types of works that are feasible to be implemented on these sites, and what sort of nature value they would create.

That's why I bring it back to this value optimisation story as well. What we're seeing in the nature-positive conversation is, yes, site-based decisions, but within a regional context. We know that, as you say, biodiversity plays out across regional scales and ecosystems have particular extents. What we're looking for in that collaborative planning process is how we work between biodiversity activities that are on agricultural land, how do we work with the conservation estate, and what is the role of the mining rehabilitation and the activities of mining companies across the whole estate—not just those areas that are significantly changed because of mining but more broadly across the range of leases.

Mining actually has reasonably large areas under their tenements. There are a whole range of nature-positive actions that can happen across those. The short answer at the end is do we have the appropriate evaluation tools sitting behind the way in which we might trade off different decisions around nature as part of the beneficial land use conversation. We believe the work that we've started doing in natural capital provides some of those robust, evidence-based tools to support nature-based decisions.

**Ms SUE HIGGINSON:** From the submission that you gave us, which is very good, is the tool that you're referring to in terms of that natural capital framework available?

**GUY BOGGS:** It is. Pretty much all of our work is publicly available. Firstly, it's based on the UN system for environmental economic accounting. We know all States and Territories and the Australian Government have signed up to the SEEA framework. What's really interesting is—it's also cross-sectoral in its adoption. That's where it's really valuable because we want the resources sector to engage with other industries and around regional planning or conservation planning. I think it's that framing and the opportunity to connect those conversations that's really valuable.

**JILLIAN D'URSO:** I might just add that we released the resources suite about two weeks after we made our submissions. That's why we didn't refer to it specifically but I can share them online afterwards.

**Ms SUE HIGGINSON:** That would be very helpful.

**The CHAIR:** Just a question for all of you: In terms of the 11 Australian case studies of post-mining land use, what can we learn from these case studies in particular?

**GUY BOGGS:** That's a great question. I'm going to pass to Tom for this one in particular.

**TOM MEASHAM:** So there are lots of things we can learn but I will just pick out a couple of things. One of them is that, to date and particularly within the Australian context, examples of post-mine planning resulting in a transformation to something that is a positive and good outcome—it has not really been part of a planned process. It's mostly been either serendipitous or it's because people have actually been finding what you might call alternative methods of achieving outcomes. They have not followed the rule book, so to speak. What they've done is they've sort of said, "Look, there's a way through this." It's not been the intended textbook approach to how you achieve post-mining change.

There are a handful of examples around the world where we do see that, but we haven't seen those in Australia. When we do see a positive outcome in Australia, it's because you've had a handful of individuals with a sense of drive, a sense of determination, a lot of focus and concern about resources, and a commitment to place. We've seen individuals who have said, "This place really matters to us. We have got networks. We've got

knowledge, have ways to understand what's going on here. We are going to find a way through this." That's one of the key things I would say we have seen: that it is not a natural outcome of the kinds of processes that we have in Australia in terms of those sort of planning processes.

Another one, I would say, to take away from this is in many cases it has required substantial resources. They often require significant resources in terms of money, and another observation is they frequently require quite a lot of time. They might require—or, you know, potentially decades; not necessarily, but usually a longish time frame—a handful of individuals who are really key change-makers, decent resources and people who are prepared to circumnavigate around what you might call the limitations of the existing structures. That's more or less the examples that we see in Australia. But, like I said, there are examples overseas where there has been a much more intentional process. But they're pretty rare.

**The CHAIR:** When you talk about the high costs involved, how in your view could the Government create a framework whereby those costs are minimised?

**TOM MEASHAM:** Probably the way I would answer that is to say the focus should be more on the opportunity. Let's say this costs so many millions or so many billions, depending on the scale of what kind of transformation you're talking about. For example, people often draw their own analysis of what's happened in Germany in the Ruhr Valley. That was a €38 billion transformation, so that's roughly A\$60 billion. That's the scale of that transformation. That transformation took 50 years. It involved all scales of government, with an emphasis on regional delivery. That might not be possible in every part of Australia, that kind of scale. But the reason it worked was because they generated a whole lot of jobs, industries, new economic activity, real estate value—a whole lot of things came out of that which were very positive for Germany. To come back to your question—and if you want to maybe scale it back, because we're not in the Ruhr Valley—what would be the way to think about that would be not so much focusing on what does it cost but focusing on what can we do of value. It might be 1 per cent of that size or it might be some other fraction, but it would be a significant cost.

**The CHAIR:** In your submission you outlined the limited understanding around re-using of infrastructure and the missed opportunities that there were. How can mine operators and regulators ensure we don't miss out on those opportunities?

**GUY BOGGS:** That's an excellent question. We are, as I said, four years old. What we are finding at the moment is that the scale of change in this space has been incredibly rapid since the formation of the CRC in its own space. I'd note that even the fact that this inquiry is taking place is a representation of how quickly this conversation is emerging, when this conversation was actually very difficult for us to engage with in the earlier bid phases. I think there is still a space here for growing awareness of what opportunities actually look like in the beneficial post-mining land use conversation. Our case studies that Tom just referred to, that was a really fundamentally important study for us to highlight not just where these beneficial post-mining land uses have occurred but what led to them being enabled within the Australian context.

But there's other work that we've been involved in supporting—for example, the release of a recent book, through the Eden Project in the UK, which characterises *102 Things to Do with a Hole in the Ground*. I'm sure it's been previously mentioned. But what's really critical there is that we need to unpack and understand what different opportunities from the whole variety of types of the uses have been actually demonstrated in different sites around Australia and around the world, and then start to think about, one, what were the policy settings that may have helped or hindered that, but two, what were the regional contexts. Tom and I are both geographers by training, and place-based decision-making is fundamentally important. You can't just pick up one repurposing project and expect it to work in another context.

But we have a whole range of socio-economic and biophysical characteristics across Australia that allow us to think about the different types of repurposing options and help evaluate why they might work in different places. It's that evaluation point I wanted to land on as the last point, and I will pass to Tom for some context around it and the economic transition thinking around that. We are working now, particularly with the Queensland Government, on evaluation tools that are helping to prioritise and understand the different options that might be available for post-mining land uses at a site, looking at repurposing value pathways; looking at re-use—and it's important to separate those two things—where we're seeing circular economy and waste re-use opportunities emerging on mine sites; along with the types of values that might be present through nature-based decisions or investments, or social or cultural values. So robust evaluation tools, along with stimulating the imagination by understanding there is a whole range of things that can be done with these sites. Tom, did you want to talk about the actual transition capacity a bit more?

**TOM MEASHAM:** Sure. The capacity at the community level to even have a good conversation around transition is a really important factor. We've seen that not just in Australia, but there's actually some new work which has just come out of Indonesia which is also bringing home this point that the capacity to think about

transition is really important. Guy mentioned the economic transition tools. Having a good understanding of what are the economic implications of different courses of action is critically important. It's critically important to avoid what you might call a sort of white elephant type—or things which seem desirable at the beginning but which are not actually effective in the long term.

We want to avoid those sorts of outcomes, so we need tools which give us a good understanding of what are the likely economic consequences of actions. CRC TiME has been investing in improving these tools. We currently have a prototype of a tool which does this for all local government areas in Australia. It's an improvement on the other tools that are available. A lot of other tools will often take what you might call averaged trends from a State or some wider area and then represent them at a local scale. What we really need is very customised information that really tunes into the actual effects, which are regionally specific, and how they interact with other locations. You have a tool which tells you, "If you increase jobs in one area in one location, what does that do in another location? Does it decrease jobs? Does it create jobs?", and so on and so forth. We have developed these types of tools within CRC TiME as an important input into the transition capacity.

**The CHAIR:** How would that level of economic modelling assist us when we're looking at future use of the land? How could we apply that?

**TOM MEASHAM:** One of the things it could do—we're speaking hypothetically here. I'll just start by saying that we haven't done this work in New South Wales, so I can't give you exact examples of what would happen. But what it might do or what it could do is—if you were to, say, grow one part of the economy, which might be, for example, the care economy, just because that's a part of the economy which is often an area for growth in many parts of rural Australia, not necessarily in New South Wales, but in many parts of rural Australia that is an area which is growing. If you were to invest in that, let's say, hypothetically, that would have a number of flow-on effects, which we could calculate for the broader region. Firstly, if you were to say, "Let's invest in this,"—which might be, let's say, tourism—it might not. We don't know that's the case until we check the data.

**The CHAIR:** The upskilling of communities is obviously a key part of utilising mine sites after they have concluded. What challenges have you found in running some of the online courses, and what challenges have you found in running the courses in general?

**GUY BOGGS:** I think there are a couple of nuances to this, but I'd love to ask Jillian to speak to it.

**JILLIAN D'URSO:** Thank you, I'm really passionate about education. One of the things that we have funded through the CRC is the mass open online course on mine closure and sustainable transitions. We made a deliberate decision to fund a mass open online course because the aim is to make it broadly available and not cost prohibitive for people. We have been looking at the education and training from the perspective not only of people from workforce. The actual workforce is part of it, in terms of the delivery of activities or mine rehabilitation and planning, but what other knowledge do people need to be able to be equal partners in decision-making around what happens on their land and in their communities? Often there's an asymmetrical information base about what an industry or regulator might know about the mine closure and post-mine transition process. If you're a community member or a traditional owner, you've got many other things happening. It's not an area where you would have the same amount of information.

What we have been trying to do is make a product available. The Massive Open Online Course is part of that. They had 400 enrolments in the pilot version from 33 different countries. We also had about 30 policymakers and regulators as part of that, which we also found was an area, and we're just about to, hopefully, launch the next version of that. We will be doing targeted engagement to raise the profile to traditional owner groups and regional development organisations that may be facing the prospect of a mine closure in their region and would like to get information from an independent source about what that can look like.

In terms of upskilling, we are also funding stages one and two of a program of work to understand what knowledge and skills traditional owners are seeking to help them negotiate with proponents, to help them develop long-term benefits management structure plans and strategies and to look at employment and training opportunities that may come from the post-mine landscape. Hopefully, the workshops part of that will kick off soon. It has led to quite a lot of analysis of what is currently available. I will just note and acknowledge Tom and Gavin's leadership here.

We're just about to launch a report with the Australian Mining and Automotive Skills Alliance that mapped or looked at different education and training options in mine closures and transitions. It found that, while there has been a growth in opportunities—particularly in the VET area—there is still not enough. Potentially, the best pathway would be further VET qualifications and also a professional suite. People are really seeking more formalised training pathways in addition to on-the-job learning. Just to add to that, one of the key areas that people need skills in is the technical components. We're increasingly seeing how to do stakeholder engagement,

facilitation of partnerships and the—I don't like this term—soft skills that come around how you would work to a positive solution.

**The CHAIR:** Are there any key skills that you've particularly identified through that work as being needed?

**JILLIAN D'URSO:** Yes. One was in the mine closure process, beyond the mine closure specialist—Tom, please jump in as well. One was about the regulatory regime and what's involved. Working with First Nations is a particular area where people are seeking more skills, and moving beyond those skills being held by a community team to being understood and held across an organisation. Tom, I might go to you.

**TOM MEASHAM:** While you try to remember the details, I'll just mention one, and that is having a good understanding about what is actually within scope for a discussion around post-mining outcomes.

**JILLIAN D'URSO:** Great point.

**TOM MEASHAM:** Quite often we have a situation—and, again, I'm not speaking specifically about New South Wales—where the negotiation or dialogue is constrained by people's understandings of what they can ask for. Developing skills in that negotiation process and understanding of the nature of the scope is particularly something which has come to us as an issue, as a demand, from our Indigenous partners. Our First Nations partners have specifically mentioned this. They would like to have more skills development in enabling a richer discussion or having a better understanding of what is within scope.

**The CHAIR:** In terms of the course offering that you currently have, will you continue to expand these courses?

**GUY BOGGS:** Yes. We're just about to launch our next strategic plan. In the next three-year cycle, there is space to grow the formal education offerings: building the postgraduate qualification base and expanding the micro-credential offerings that we can provide. To Jillian's point, upskilling the post-mine community to help engage with the mining community and mining conversations is critical, so we'll be launching a suite of handbooks for VET-based training of First Nations groups around the broader mine closure space. The other piece to note is that we have about 25 PhD students in our cohort at the moment that have the opportunity for industry and regional placements, but we have a further 25 to bring into our program over the next few years. We're keen to expand and grow that.

There is a really great link here between, say, the work that Jillian and I did with AUSMASA and some of our training options and also the work we did with the CSIRO on the mine closure solutions. If we start to think about the actual transition as what we are transitioning into rather than what we are transitioning out of, we start to think about all of those different measures that government often uses to support an industry growth area. That mindset is really valuable to bring to this more broadly, into the education and training space and into the way in which we think about the mine businesses, the value chain that sits around mine closure solutions and the way in which we think about pre-competitive information that we can start to make accessible to investors, community members and other groups that might be wanting to think differently.

One of the spaces we haven't touched on yet is this area where there are opportunities, if you are looking at beneficial land use transitions, to work with a different set of actors in the investment space, where we start to think about who's coming in and when are they coming into transition concepts, what sort of capital can they bring into a transition process and have we got those settings right. That brings us back to, again, some of the skill sets sitting within companies, within government and outside of those domains that actually might grow the opportunity that sits around economic-based transitions of mining assets.

**JILLIAN D'URSO:** One thing I might just add quickly—it's not something that we're delivering but I've seen one of our partners, the Mine Land Rehabilitation Authority in Victoria, do it, and that is their engagement with secondary school students in the Gippsland area about what career paths are available in mine rehabilitation. That's an area that I'm sure you're familiar with that has intergenerational coalmining. The work that they're doing is expanding what people saw as careers that were possible in the region, and doing it at a secondary school level is important to bringing people in the door and also to look at staying in the region. I just wanted to highlight that.

The other point is not directly education involved but I think it is about the pipeline of workers. It is important to highlight that the Latrobe Valley collaborative planning process that we're providing funding for with a range of local partners is holding a youth summit as part of the stage two deliberations, with the idea of bringing in young voices about what they would like to see for their region in the future. That's a really important point because there's the existing workforce, but we always hear people from regional and mining communities want their kids to stay local—they don't want them to go to the city—and often they feel there's a limited opportunity.

So giving people confidence that they can have a career, whether in mining or whether mining is a pathway to something else, is important.

**TOM MEASHAM:** Can I follow up on that? Jillian has just raised a really important point about bringing in some voices that you might not have necessarily asked. She has picked up on youth in particular. I saw students here but others too. This is something that we've really observed in our review work. When we've looked at what is effective and what is aspirational in terms of these processes worldwide—and, actually, the work in Latrobe Valley is a good insight into this—what we see is that bringing in a wider range of values is really critical to a good outcome. What we might think on is if we have a land user or a landowner or leaseholder or something like that who is actually exiting, they might only be giving a restricted set of input into what happens next, and if you think about the other people who they might engage with on a sort of day-to-day basis, you've still got a fairly limited or restricted set of voices.

There are many people who are affected by that decision and bringing in multiple voices who may not have been heard in the processes to date is actually one of the keys to delivering an outcome which is a positive transition for the region. So just thinking broadly about how to bring in more voices and particularly looking for—in this case, the youth example is a real insight into what we're talking about here; we're talking about bringing in voices, rights holders, stakeholders who may not have had much of a say in the past. We think that's a key point.

**The CHAIR:** In terms of the economic boost and the potential that is there in mine closure and rehabilitation—one of you spoke about it earlier—how ready would you say New South Wales is to meet the demand needed? In your submission you found that we need to expend somewhere in the order of between \$4 billion and \$8 billion a year on mine rehabilitation and post-mine land use.

**GUY BOGGS:** It's a great question. I would love to be able to answer it more fully, but our work hasn't really focused on New South Wales, because we don't have strong New South Wales partners in our organisation so it's difficult for us to comment with the degree of depth that we probably would love to or should in terms of the preparedness. A couple of key comments here is every jurisdiction at the moment that we are working with is facing this challenge, and there is a broader shift towards how do we build the policy settings that will lead to the most valuable outcomes for our post-mine communities. That is a really exciting shift to see across the board from where we've been historically. We have been working with most jurisdictions, and I should acknowledge that the New South Wales Government has joined a number of our government college meetings. We work with all States and Territories in those meetings and those conversations.

One of the things that we have been working with that college on is the preparation of a white paper on the development of national transition principles. That is hopefully an opening pathway to a shared understanding around what a broader framework might look like that enables a mine closure base transition element. We've been mirroring the national remediation framework in some of our thinking in this context, so starting with a shared understanding of principles, and we'd like to move forward into a framework and then start to think about what's the guidance that can be created in these spaces that supports each of the jurisdictions, acknowledging that each State and Territory will develop their own policy settings in this context. We have a great opportunity at the moment, given the shared interest in this conversation across a whole range of jurisdictions.

**JILLIAN D'URSO:** Guy, I might add a point, which is not about New South Wales but I want to flag something that is really interesting that might be relevant. The Greater Whitsunday Alliance from the Bowen Basin recently launched a METS diversification strategy. I believe the region has some of the highest number or one of the highest concentration of METS business in the Southern Hemisphere [inaudible]. They are working quite significantly on diversification. They looked at the region's strengths, what capability it had as well as the local and national market, including that METS report I mentioned. That identified seven focus areas, one of which being the circular economy and the second being potential for post-mining land use. I think that provides quite a valuable approach in terms of a key action that's being led from a regional organisation to really set the region apart and understand what actions it could take.

The other point I just might make is that the CSIRO report included a range of enabling actions that are relevant to all regions, and one of them was the potential for a definitive character for the mine closure solutions industry. I'm not sure if that's the catchiest name, but the idea is to think about what kind of actions we could take collaboratively so that it is recognised as something on its own within the broader METS sector, which is quite large, and also thinking about ways we can encourage innovative partnerships with industry to try to bring new ideas to the surface that may be through challenges or other activities. The final one is just to look at the global market opportunity. We're focused on Australia, obviously, with the almost 240 mines that were identified to end production by 2040, and I think 33 in New South Wales, but there are many mines around the world that will be facing the same challenge. Also, with the net zero critical minerals development, they will require the same market expertise, so just thinking it through from that as well.

**The CHAIR:** Were there any final comments that you wanted leave us with? My colleagues have advised me that you've been completely thorough and fulsome in your answers, and so they have no further questions.

**GUY BOGGS:** No, I'm very happy to leave it there. Thank you for the opportunity. I think there is significant opportunity to further explore this question. One of the things I would like to sort of leave on is the way in which we look at the mining estate, and including—I know it is beyond the terms of reference here—the legacy mining estate, through the lens of value, which is a really critical conversation we should be having. I really look forward to following the outcomes from this inquiry as well to inform the work that we will be delivering in CRC TIME.

**The CHAIR:** Thanks for your time and for appearing today. If we have any questions on notice, the Committee secretariat will be in touch with you. We will now have a short break.

**(The witnesses withdrew.)**

**(Short adjournment)**

**Mr JOHN COLVIN**, Consultant, Hunter Lakes Corporation, sworn and examined

**Mr DENNIS BLUTH**, Director, Hunter Lakes Corporation, sworn and examined

**Mr PETER LAUX**, Mining Technology, LEAG, before the Committee via videoconference, affirmed and examined

**The CHAIR:** I welcome our next inquiry participants. Do either of you want to start by making an opening statement?

**DENNIS BLUTH:** Firstly, I make an apology for my co-director, Mr Gregory Story, who is currently travelling between Bulgaria and Moldova on the Black Sea, looking for opportunities in wind farms and solar farms in Eastern Europe. He does tell me that the Black Sea is not black; he says it's like the Mediterranean. We wish to thank the Committee for this opportunity to update the Committee. We have already, as you know, made a submission. Both John and I have recently visited Lusatia, and we want to bring to the attention of the Committee some of the observations from that visit. I wish to table an additional paper, which is being handed out, that has some material in it, like photos from our trip and also the paper from our colleague Peter Laux, from LEAG, who will speak to it. His paper is called *Lessons learnt in 35 years: On the way from Europe's largest opencast coal region to the Lusatia lakes land*.

Just as a segue, because we were able to listen to the previous presentation by witnesses, they did mention that, internationally, coalmines are being terminated and brought to the end of their life. The point that Hunter Lakes wishes to make to the Committee is that we can learn from the experience in Lusatia. The valley in Lusatia, which is south of Berlin, near the Polish border, is akin to the same type of valley in the Hunter—that is to say, it's about 21 kilometres long; there is a major river that flows through it, like the Hunter, called the Spree; and there are coalmines that are being terminated. We believe it is most opportune to look at what's happening in Lusatia. John will speak briefly about his visit and then also about his meeting with Federal member Dan Repacholi.

I also wish to table an email that we have sent to the department of climate change in New South Wales. I will come to address that shortly as to our engagement with them. If I could just take you briefly through the material that I have tabled—and there's a summary of our position as to the Hunter Lakes Corporation and the Hunter Lakes Scheme, which sets out the benefits of the proposed scheme. As I said, there's a paper from Peter, which hopefully he will be able to address. Then if we go to the photos, there is a schematic photo there from LEAG to do with the Ostsee, which is the latest new lake that has just been filled, and it's the largest lake in Lusatia. The next photo shows that lake. It's a huge lake. It will be akin to the same void of Mount Arthur, which I'll address shortly. You'll see on the next photo, in the distance there, the wind turbines. Again, in our proposal, we have significant adaptive uses of both wind and solar as part of any proposal with respect to the closure of mining voids and the use of mining voids.

The next is a very complicated scheme, which is—LMBV, by the way, is the local authority that controls the water flow between the lakes and the rivers. There are three rivers in the system in Lusatia. The Hunter Valley only has really the Hunter Valley and some tributaries. Luckily, we are more simple. The next photo shows computers. They monitor the water capacity in each of the lakes and in the river. They direct the water flow between the river and the lakes. The river Spree provides drinking water to Berlin. Thirty per cent of Berlin's drinking water comes from the river Spree. The next lake, over the page, is Grossräschen, which is a lake formed about 10 years ago and is now substantially working. You'll see one of the adaptive uses is the marina. All the lakes are proposing to have marinas. This provides recreation and sailing opportunities for the lake.

The next photo is, in fact, the tourism centre, a very nice building. Again you'll see how the lakes are shaped and the landscaping down to the lake. And the second-last photo is something close to John Colvin's heart, and that is vineyards on the lake. Of course, Mr Colvin has a vineyard in the Hunter Valley. But, again, you can see the advantages and the uses that can be put. The final photo again is a broad walk for the lake. That is the material. In relation to the letter, the email, I just would like to read that to the Committee:

I refer to my various emails and to our telephone discussion and note we are awaiting from you

1. Brief summary of matters discussed at the debrief session
2. Update on new benchmarks from the NWGA.
3. Indication that local community support and in particular from the mining industry to our proposed Scheme and the need for a Feasibility Study would be of great assistance in support of a further application for funding.

DPI is a gateway for funding applications for the National Water Grid Authority—

4. Contact details to be involved in formulating an updated Upper Hunter Water Strategy.

As mentioned, on Monday 21st October I, on behalf of Hunter Lakes Corporation will be a witness before the Statutory Committee on State Development into beneficial and productive post-mining land use. The other witness for HLC is Mr Peter Laux from LEAG the energy and mining company operating in the Lusatia area.

I enclose copy of his paper Lessons Learnt in 35 years on the way from Europe's largest open cast coal region to the Lusatia lakesland. The lessons are instructive and very relevant to what is proposed in the Hunter Valley with the advent of mine closures, starting with BHP Mount Arthur scheduled for 2030.

As mentioned, the current Upper Hunter Water Strategy drafted around 2018 makes no mention whatsoever of any overseas experience. To further ignore these lessons is, in our opinion, not in the interests of NSW.

That's a bit reflective, in our view, of the way the New South Wales department of water infrastructure has been conducting their operations and looking at that Upper Hunter water strategy that originally, in 2018, completely ignored what was happening overseas, notwithstanding what was earlier presented to us from the former witness to say it's always a good idea to look at what's happening overseas. We have been trying to bring to the attention of those who are looking at the Upper Hunter water strategy that what has happened in Lusatia and particularly Peter's paper about lessons to be learnt regarding the watertable are highly relevant. I've spoken enough at the moment. I invite John to address you about his recent visit, what he saw and also his discussions with the local Federal member, Mr Dan Repacholi.

**JOHN COLVIN:** My background is not only in law, economics and a few other things, but I have a vineyard in the Hunter Valley, so I spend a lot of time up there—more time now. I know the M1 backwards. Sometimes I'm stuck there for some time. The reason I got involved was the wonderful opportunity that's come to me and to all of us: What can we do with the rehabilitation? One of the things which sticks in my mind is—I think this has already been said and already understood by this Committee—we should look at every possibility to make sure that whatever we do is, one, rapid, if we're talking about Mount Arthur closing in 10 years or less and, two, we should jump to the conclusions quickly where they're available. Those conclusions, I would say, are available in abundance when you look at what's been happening in Lusatia in Germany.

The pictures that my friend Dennis Bluth has put are, I think, unbelievable, in terms of what can be done. Just look at the one with the vines, which attract me, obviously. Those were pretty terrible looking moonscapes. If you look at the pictures arising in Lusatia prior to what's happened there, the idea of turning these into lakes was thought through very heavily for a number of good scientific reasons. I don't even pretend to have any scientific background, but the one that I've been informed of was that you have to be very careful of the watertable when you do anything, and the one thing you must do—I think Peter Laux might say this too, and it would be much greater evidence than mine, that's for sure. One of the things you must do is a proper hydrology, because the watertable, apparently—again, I'm quoting as I don't have any firsthand information about this—goes back to where it was originally.

In Germany, they've had some subsidence, and they didn't realise where they were coming from or when they were going to happen, but the very fact that they were doing, if you like, a lakes system helped all of that, because the watertable was being monitored and looked after not only from the beginning, for the setting of the fundamentals, but also to make sure that, when they're doing it, the water in the lakes also helped this. I didn't do physics, so I'm again quoting, but I'm told that the best way to look after the watertable is through lakes. I'll let other people who have got a much better idea about that than me—one friend of mine said, "You know what happens when you put a glass of water upside down and push it in?" I said yes. He said, "That's basically the physics problem that we're talking about." I must admit, I still don't understand that, but it's obviously something which you might like to ask Peter Laux if you can get him on.

The opportunity to do something really, on one view, wonderful in the Hunter Valley should not be missed. From what I've seen, the thing which would probably be the most satisfactory would be turning it into lakes. As in Germany, when we went to have a look, they are in the process of repositioning whole parts of forests and things and putting it back to where it was. They've got new areas where they're building manufacturing or other industries in other areas of the lakes, which are beneficial for this. They have other areas which are tourism. The photos aren't here, but there are lakes. You can see sailing and you can see canoeing, and you can see all this and the expansion of lakes, and then what can happen around that and near it with water.

The other thing that made me really interested in this is that in 2002, for example—I know the date my child was born—the bushfires came right up to the edge of our property. What happened then was the helicopters came in and sucked out all our dams. I was happy to do that, but then there was no water for anybody to actually put out the fires. There was no water to do all the things you need to do. Any electricity and any energy that might be thought of in the Hunter Valley needs large amounts of water—every one of them. Pumped hydro and hydro coming from the slope between Singleton and Broke—apparently it's 15 degrees. You've got an opportunity to do hydro there. You've got an opportunity to do hydro because you've got multiple lakes. If you want to do wind, you can see that wind has been done there around the corner. One of the questions is what about evaporation. In Germany they've got floating solar, as well, to do some of these jobs.



**DENNIS BLUTH:** And that eliminates the evaporation.

**JOHN COLVIN:** I will stop there because Peter is here and he is somebody who knows all about the expertise.

**The CHAIR:** Mr Laux, would you like to make an opening statement?

**PETER LAUX:** I am a mining engineer with LEAG. It's a company operating in eastern Germany doing mining and generation. I have been dealing with the Hunter Valley now for a few years. What was a little bit surprising for me was how similar it is to the situation we have. It is open-cast mines. It is a river. All the water of the river is more or less distributed to customers who need it. You have a large city. We have Berlin, with four million people. It's very similar. Of course, you never have enough water, and you have the problem that the mines will phase out and you have to do something with them.

**The CHAIR:** Tell me about the climate. Is the climate similar?

**PETER LAUX:** Yes, what we've found is that we have even less rain than in your region. We have more or less the same evaporation. It may sound crazy, but we are the most dry region in Germany where we are, unfortunately.

**DENNIS BLUTH:** Peter, do you want to address your paper about lessons to be learnt? Do you want to run through that?

**PETER LAUX:** Yes. What you can see from this paper, where we came from, was that there were some 19 mines. By the way, we are operating in the former socialist part of Germany. We came from 19 mines, which produced around 200 million tonnes of coal, and we had to pump a billion cubic metres of water at the time, in 1990. Then we had the first coal phase out. For market reasons, after reunification, 12 of the 19 mines, and later two more, were closed. We had a situation where we had large voids and a water deficit of around 13 billion cubic metres—there were nine billion without water and the rest were just voids. We had the problem to develop a program to deal with this. For 30 years—that's what you can see in the second part—we managed it.

The deficit now is reduced to around seven billion, which is more or less around the active mines, because we still have to pump. At the moment, we are producing around 45 million tonnes of coal and pumping, let's say, between 250 million and 300 million cubic metres per year. We still have the river, of course. What is different to the situation before mining is that in summer up to 60 per cent of the river is coming from the mines. It means it's pumped groundwater. Everybody is used to using this water because it's always there. Now there is a coal phase out. Maybe you know that in Germany we have a decision and even a law now that by 2038 the last mine and coal generation has to be closed. That also means there will be no pumping any more. That is problem number one. Especially in dry seasons, there will not be enough water in the future. That is very clear.

The second problem is that, as well as in the Hunter Valley, of course, you have these large mines, which means you have large voids. Even if someone decided to bring all the waste back to the mine, we have still taken out a lot of coal. That means you have a deficit there. There will be a void, even if you brought back the last cubic metre, even if, economically, that is not possible. The other thing is that in our region, the regional groundwater level is somewhere between two and four metres below surface. What we found, as I mentioned, is that the groundwater is coming back more or less to the original level. You have to deal with the fact that the water is coming, whether you do something or not. We decided that we have to manage it. I learned that in the Hunter Valley you have a salt problem. We have an iron problem, which means we have to manage the water quality. That is problem number two.

Problem number three is that over 150 years, we produced a large dry area. Now the water is coming back and completely changing the geotechnical situation. Our problem was that when the water came back, we had some unexpected effects, even in areas where there was no mining, simply because it was dry before and then the water came back. Those are the three problems we had to deal with, and we are dealing with now over 30 years. The new situation since—it's even 10 years now—is that we now have the first planned stop of a mine and planned creation of a lake. That's our so-called Cottbus East Lake. In German, by the way, it is the same word, like the Baltic Sea. That sometimes makes for English-speaking people some problems when we talk about Ostsee and it's not the Baltic Sea; it is our lake. The lake itself will have 126 million cubic metres, but we have to fill in 250 million. This is exactly because we had this dry earlier, so we not only have to fill the lake, but you also have to fill the area all around which has been dried by the mine. That may be enough for the moment.

Let me say also one thing that maybe I didn't mention in the paper. The most important precondition is that you know what you talk about. It means you must know what the pre-mining situation was regarding water. You must know how much water you have, not just over the year but over the long term—even, say, over the months of the year. It means how much do you have in the dry season and how much do you have in the wet

season. And the third thing you must very clearly know: Who are your, so to say, customers of the water, how much do they need and what are the priorities? We have a clear priority list—I think that is mentioned in the paper. The first thing is Berlin, very clear. Then comes a lot of industry and agriculture, and also we have a nature protection area. Our lakes are absolutely last. It means we have to manage it. To manage it, we have an intergovernmental committee which is doing the priorities and then we have a district centre which is doing the work, and that works very well.

**DENNIS BLUTH:** They are the photos I showed you with the computers and the map, because the area of Lusatia covers two different states. We don't have that problem in New South Wales, but Lusatia covers both Saxony and Brandenburg. There are also three rivers involved, and we only have the Hunter River.

**PETER LAUX:** Number three is Berlin.

**DENNIS BLUTH:** And Berlin, yes.

**Ms SUE HIGGINSON:** Thank you for providing such a clear picture of what is happening in Germany. We have for so long considered groundwater in New South Wales, and the impact that we will be having on groundwater. In some places, we will be looking at these final voids reaching some level of equilibrium over anywhere from 100 to 200, 300 or 400 years time. For some, we don't actually know particularly when. There are issues of acidification and hypersaline. I'm not a scientist—I can't for a moment claim like you, Mr Colvin, to have that kind of educated experience. That said, I've read just about every single EIS and water analysis and assessment that every mine has presented in the Hunter Valley and Gunnedah basin—and the Sydney coalfields, for that matter. It is a massively fraught problem area, the way we see it. I really appreciated Mr Laux's evidence. The reality in the Hunter is we are dealing with particular geographic factors. We have intensively wet periods where we're now seeing those intensified and the extremes around the climate—so managing these final voids, even as they're posed right now, is clearly a massive feat of engineering, remediation, monitoring and so on.

Is your view, based on the final voids that we understand are going to be presented across the Hunter—is that the extent of final voids that you're proposing remain final voids? Or are you suggesting that the final voids be made bigger than what they're currently proposed? Because I know, with some, there is a condition to look at how to reduce that final void as much as possible. Because the original intent of mining in the Hunter was you should fill your final void—but recognising that that is too expensive. If we're coming from the expertise and the best practice was we should be left with no final voids and landscapes should be placed how they were before they were mined—we now know that's not possible and there will be some final voids. Where does your Germany experience and the evidence of what is happening there—to what extent are you arguing that that should be replicated here in the Hunter?

**JOHN COLVIN:** Can I just perhaps do one thing that I know a tiny little bit about? I was on Sydney Water's board for about six years and during that time they had the cryptosporidium problems et cetera. But there was a very large part of some of that science, I would say, that looked at the water quality all the time. When we also did some work with Newcastle university about this, they weren't too worried about the actual water because you can look after that and you can change it and, as Peter said earlier, salt is a problem in the Hunter whereas iron is more a problem there. That's one area which is looked after and has been, I think, reasonably well in various areas. This would be our suggestion, that they do something similar. But I'll let Peter talk about the other area. It seems to me you've got to actually go and do the fundamentals first about the hydrology.

**DENNIS BLUTH:** Yes, I think that's the point.

**JOHN COLVIN:** When you do that, maybe then you can work out how you design all the voids and how they interconnect or how they don't. I'll let Peter take over here because he actually knows all about it.

**DENNIS BLUTH:** Peter, if you could just explain that it's fundamentally important to do the hydrological studies for the whole area before you can start planning.

**PETER LAUX:** Yes, but let me say first one other thing. We also had these discussions in the past. There were even plans to fill the voids completely, but you can fill it only when you open a new mine because, as I mentioned, you have taken out the coal. I don't know how much coal you dig over the history in Hunter Valley.

**JOHN COLVIN:** Well, we're the biggest coal exporter in the world. It's quite a lot.

**PETER LAUX:** But you just recalculate tonnes to cubic metres and then you know how much deficit in earth you have—not just in water but in earth. So you can't fill the voids, whatever you do. You have to think about—and of course, yes, we are doing some refilling but this is more for stabilisation and for shaping. One thing is that you fill the void but the other thing is that you want to use it after that. By example, I mean we are constructing beaches—just one example. The other thing is that we are shaping the outside dams in a way that they are usable for the community, so that's also where we bring back some volumes to the void. I think it's

unrealistic even to discuss to bring all the dumped material back to the voids because at first it would need years and years and years, and the other thing is who will spend this money. From that point of view, the first thing, of course, is that you must have a clear picture of how much water you have, what is the hydrology.

Let me say one thing. When our mine, where we now fill the lake—and, by the way, it's just half a metre left and then we'll reach full after six years. When this mine was designed, in the '60s, there was a plan to create a lake, and let me say why. Berlin at that time decided to build a new quarter and they just said, "We need water for it, and we need water for it also in summertime." Even at that time this lake was planned as a water buffer, let's say, between winter and summer. That's also one important thing you have to think about—how much water you will have in dry seasons. That's one thing, and the other thing is how much water you want to let flow down unused. Because these mine voids can play a big role in holding water back in the region. For me, this is one of the most important functions of these lakes.

**JOHN COLVIN:** Peter, is that used for flood mitigation? Are the lakes used for flood mitigation—holding water back?

**PETER LAUX:** Yes, but even more important is to have a water reservoir for dry seasons.

**Ms SUE HIGGINSON:** Because it's very controversial, the idea—a water body is either for mitigation or supply. It's very hard to manage for both; you either have one or the other. If it's for mitigation then, naturally, you can't have it full. The whole objective is to have it nearly empty so you can have it as mitigation, so then it can't serve as a secure reservoir for supply. That's a water manager's reality. We're seeing it with Warragamba—you can't have it for both, even though some would like to imagine it could provide both. At the time you need to have it as a mitigation effort, you need to release water, and if you're not doing it in a timely—the reality is it's getting harder and harder to predict season stability. It's just not offered that way. But I'm curious perhaps if you could tell me, Mr Laux, what issues you have faced in terms of water quality. Have your water bodies had the quality issues in terms of acidification and hypersaline, or are they different types of water bodies with different issues?

**PETER LAUX:** We have another issue in our region: We have a lot of iron—which means pyrite—in our overburden, and it's all fine until you touch it. At first, since we lowered the water table oxygen, put leachate, and the other things—because we dug it. Oxygen plus pyrite gives iron disulphide, and that's our problem. That clearly means we have to manage the water quality in a way that most of the filling of our lakes—which is now, I think, 20 of them—is coming from the river because the river water is good quality. What we now even are doing is that we sometimes bring back water from the lakes to the river to increase the river water quality again. It means it's managing not only the water quantity but also the water quality from the lakes now.

**Ms SUE HIGGINSON:** What would you say to the fact that the river that we have, the Hunter River, is—how do you say it?—it's not like it's a massive river by any means. The Hunter has certain vulnerabilities and a certain capacity to it. Are we talking about comparable river systems?

**PETER LAUX:** That I didn't understand, sorry. What do you mean?

**Ms SUE HIGGINSON:** I'm just curious whether you've had any look at our river where the final voids that we are talking about in the Hunter Valley of New South Wales, and the Hunter River compared to the two river systems that are feeding the quality of water in your final void scenarios?

**PETER LAUX:** Just a bit, meaning not in the detail to which I could really say something qualified about it. I know that you have the soil problem, and I know that there are ideas to manage it. I have seen some scientific papers about that. But, as far as I know, so far there isn't a management and practice as would be needed to deal with it.

**JOHN COLVIN:** Can I just intervene there? Peter, my understanding is that you do not fill the lakes from the Spree River.

**PETER LAUX:** Yes, we do. We do in high water mines. Maybe later on I can send you some statistics about filling our lake where you can see that we even had some dry years where we got very little water. At the moment we are filling to full capacity from the river because earlier there was a lot of rain where the source of the river is, so we have a lot of water at the moment. We are filling from the river, but especially along the weir, we have now even started to fill the water back to the river. It means you can say that our lakes are playing the same function as a dam normally. In high water seasons, you take in water and increase the water level in your lake or dam and in lower water seasons, you bring water back to the river. For our lakes, for example, we are talking about a minimum and maximum difference of only 2½ metres, but this difference is a little bit more than 40 million cubic metres.

**Ms SUE HIGGINSON:** When we had the very high rainfall events around Mudgee, the voids, storage dams and everything were overflowing and had to flow into the river. The EPA had to suspend all of the environmental protection licences. The rivers were completely polluted with high levels of matters and substances that you would not want in the river system. That's the sort of landscape phenomena that we're having to deal with in our mining valleys at the moment.

**JOHN COLVIN:** Perhaps just on that point, in Germany they have interconnecting lakes. If you have one lake in Mudgee—I was brought up in Orange so I used to come past there. If you have one, then you're going to have troubles spilling out everywhere. If you have interconnecting large lakes—I'll now ask Peter, is that a better system?

**Ms SUE HIGGINSON:** It will all end up in the river system at some point, isn't it, Peter? That's what happens.

**PETER LAUX:** What is clear, of course, is that there are limits to the possibility of controlling water levels using these voids, but it's still helping. I think since 1995 they started to fill the first lake, which is more than 30 years, so we now have a system of lakes that we can use from one side buffering water—for example, when we had this high rain season, we have been asked to open our filling to a maximum, which is five cubic metres per second. Our river has, in high level, between 15 and 20 cubic metres per second. So when we take out one quarter, it's helping a lot. But of course, when you have really disastrous water levels, you will not solve this problem with voids. You can make it easier, but there are limits in the possibilities that you have, of course. That's clear.

**Ms SUE HIGGINSON:** I'm curious about whether there has been any thought about the salt and what we do. Is the idea that you would try and extract the salt, and if so, where does it go? I'm considering the discussions that were before the Independent Planning Commission around the volumes of salt that would be extracted out of groundwater for the Santos gas project, for example. Obviously that's a high volume, but the argument and the discussion was that nobody knows what to do with the salt. What do you do? Do you take it to a landfill and dump it somewhere? What would we be looking at—a desalination system of some sort? Finally, as you've identified, this requires a heck of a lot of hydrological investigation and study. Who does that? Are you suggesting that that should be the work of the New South Wales Government? Do the mining companies have to make that investment? What would drive that?

**DENNIS BLUTH:** Just in relation to the second point—

**Ms SUE HIGGINSON:** Yes. There are two questions there.

**DENNIS BLUTH:** I'll come to the salt in a minute. In relation to the Hunter lakes scheme that we have proposed, as I mentioned, we have put in applications to the National Water Grid Authority, which has funding for this type of particular water. Because they're the National Water Grid Authority, they have both project funding and they also have scientific funding. We have applied in relation to the scientific funding to have these hydrological studies done and a feasibility study done. That's where we believe the funding should come. I think it is the role of government. Industry can participate, but industry are looking for a lead. We're talking about the future of New South Wales here. This is an opportunity to get it right. I also go back to my earlier comments about the department of climate change and water infrastructure. How they can consider an Upper Hunter water strategy without looking at these particular issues and seeing what happened overseas is really beyond my understanding. From that point of view, the funding could be a combined 50 per cent State and 50 per cent Federal for the feasibility study.

**Ms SUE HIGGINSON:** Should the proponents who have left the void—are they now out of the equation? Do you think there's a role—

**DENNIS BLUTH:** What do you mean by that?

**JOHN COLVIN:** The miners?

**Ms SUE HIGGINSON:** The miners, yes.

**DENNIS BLUTH:** The miners say that, under their bonds and under their licence, all they've got to do is rehabilitate, and they will follow that.

**Ms SUE HIGGINSON:** They say "safe, stable and non-polluting".

**DENNIS BLUTH:** They will do that, but they are looking for guidance. Whether the State Government believes they should contribute is a matter for you. The problem, to a certain extent, is the independence of the study. If they contribute, how confident would you be about the independence of the study? One of the proposals we put forward is that we are independent. We are not connected with any mining companies or any other third

party, and therefore the Hunter Lakes Corporation is independent and an honest broker in this relationship. Like all things, as you know with environmental planning and schemes, if they pay for the consultants then there's some suspicions.

**Ms SUE HIGGINSON:** They could pay, but the consultants could be brokered by an independent agency. Some of their bond might be—you know. So, what about the salt?

**PETER LAUX:** That's exactly the scheme and how it works with us. German mining law is more strict in requirements to the mining company. We are completely responsible for all these things. We have to fund all the consultants, but the consultants are selected by the mining authority. That means not by us. We are sometimes doing double consulting. That means we are selecting consultants by us, but the main work is done by consultants which are selected by the mining authority. It is state-organised in Germany—that means Brandenburg and Saxony, where the mine is—and we just have to pay it.

**DENNIS BLUTH:** In relation to the salt, my understanding is that you will extract some of the salt. Given the depth of the mining voids compared to Germany—ours are very deep, 100 metres—the saline will be more at the bottom, and the upper levels of the water will be much clearer. The water quality is actually 75 per cent of the water up; the saline and the salt will be at the bottom. That's my understanding.

**JOHN COLVIN:** But it is definitely a big issue.

**PETER LAUX:** That's also something we are doing.

**DENNIS BLUTH:** What are you doing?

**PETER LAUX:** The cold water is, so to say, concentrated in the deeper parts, which, let's say, is not so good water quality and the better water quality you have on top of it.

**The CHAIR:** Unfortunately, that's all we have time for today.

**DENNIS BLUTH:** Can I have one closing statement?

**The CHAIR:** Very briefly, because we are actually five minutes over time.

**DENNIS BLUTH:** We are of the view that the Hunter Lakes Scheme captures all of the potentiality contained in your terms of reference from (a) to (g). That really sums up the whole situation. The Hunter Lakes Scheme has all of these opportunities. As we heard from Peter, the most important thing is to understand the hydrological component of the valley before any thorough planning can be done.

**The CHAIR:** If there are any questions on notice for you, the Committee secretariat will be in touch with the details of those.

**(The witnesses withdrew.)**

**The Committee adjourned at 17:20.**