



Public Health Association of Australia NT– Hearing Transcript

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Speakers: Rosalie Shultz

Rosalie Shultz: Thank you very much. My name is Rosalie Shultz. I'm a doctor in clinical medicine. I've also got qualifications in public health and in ethics. I've also got fellowships in general practise and the advanced qualification of Advanced Rural General Practice, and I'm a public health physician with the faculty of Public Health Medicine in the Royal Australian College of Physicians. I'm here on behalf of a number of organisations, including Doctors for the Environment Australia and the Public Health Association of Australia. I'm also involved with CARPA, the Central Australian Rural Practitioners Association.

I acknowledge here that we're on colonised land, and I recognise the traditional owners and the Aranda people. People ask, "Why Doctors for the Environment?" and the response to that is the environment is the basis of all life and all human life. If we're not for the environment, we actually lose touch with what enables humans to survive. Doctors don't just care for sick people. We hate seeing suffering and we'd like to see suffering reduced, and that's why we have Doctors for the Environment.

I noticed that between the submissions for the Terms of Reference and the actual inquiry, it's changed from being an inquiry into hydraulic fracturing to a scientific inquiry into hydraulic fracturing, and I wonder what that means. I noticed that science has got a particular pedigree. Science is about observation, description, classification, and rational explanation. It reflects our colonial history and the knowledge systems and values that we have colonised Australia with.

Science assumes that we're rational, and I'm sure that you as much as me recognise that we're not rational. I wonder if what you ate for lunch today will show that you're not quite rational in terms of your health. In medicine, we find this rationality quite a lot, the failure of the scientific method to really describe what's going on with people. We have this diagnosis called MUPS, Medically Unexplained Patient Symptoms, and this counts for quite a high burden of disease, what we cannot explain. Some people call it Fibromyalgia, Chronic Fatigue Syndrome, Somatoform Disorders, some forms of chronic pain. This is medical illness that science can't explain, and the point is here the limits of science, and so by calling this a scientific inquiry, we might actually be limiting the scope in a way that we don't want to limit the scope.



Aboriginal people have a particular disadvantage with this approach. For Aboriginal people, knowledge may be secret and sacred. If transferred inappropriately, it may be dangerous to both the giver and the receiver. There is no assumption among Aboriginal people that knowledge is a public good and that it should be transmitted. On the contrary, knowledge is only shared in the context of relationships among people and the land. I've got a fantastic paper that describes all this, which I'll leave with you called *Negotiating Cultural Heritage, Aboriginal-Mining Company Agreements*.

I, too, am part of the colonial and scientific history of Australia. I do notice that the presence of David Ritchie on the panel with his expertise, that may be particularly relevant in this context. Going on from the scientific inquiry, I'm just concerned about the limitation to written and oral evidence, perhaps overlooking the unwritten evidence, the oral history, the intuition and the ancestral evidence, all of which we might miss out on if we're only looking at what people can talk about and put into writing.

In public health we talk about groups of people who are hard to reach. For example, groups of population who continue to have very high rates of smoking. Public health, we call them hard to reach. If you talk to those people, they're not hard to reach. They feel locked out. So again, there's groups of people that may actually feel locked out of this inquiry, and so we need to look at ways that we can engage all of them. In the context of a Northern Territory, there is a group that is particularly locked out, and that's young men in prison. You might know that 15% of Aboriginal men are in custody, so we've got this big sect of the population, I'm sure they're locked out of this inquiry.

More about this, how we can just broaden it a little bit, that we've got the Terms of Reference and we've got the words about hydraulic fracturing and associated activities, which include acquisition of water, mixing of chemicals, return of ejected water and reuse of wastewater. I think there's some more associated activities that should be in scope, which is the construction of pipelines, the exploration of land, the rehabilitation of land, and ultimately the sale and the combustion of the gas itself. They're all inherently part of the fracking process.

We talk that the Terms of Reference are to determine the nature and extent of the environmental impacts and risks, yet we know that fracking- I looked it up- has only been happening since about 1947, so that gives us 70 years of experience. People used lead for 2,000 years before it was realised how toxic lead is, and even today we're still trying to escape from the dangers of lead. I guess that comes back to extreme caution with identifying how safe something is in a year and what we're gonna do if we do find it's unsafe.

The Northern Territory land itself about 2.5 thousand million years old. The gas is about 600 million years old. People have been here about 50,000 years. The industrial economy about 100 years, so I think we need to put this in the timeframe of this resource that's there, and how can we ever



have sustainable development for a resource that's 600 million years old? We don't. Obviously, we can't possibly sustain that.

I'm very grateful for the images that are in here. I think that they're really good to help people understand what's going on. But, I do note this particular image. It says we're gonna drill down 2 kilometres into the land, and I think it's really hard to conceptualise how deep into the land 2 kilometres is. That's over half an hour's walk. We've put some tracks on top, but those actually are not to scale. If this was truly showing 2 kilometres, the tracks would be even smaller. What I'm getting at here is humility in relation to the earth and drilling down 2 kilometres into the earth. I guess it shows a very anthropocentric view of the world, that we can just drill down 2 kilometres, more than half an hour's walk, and we're just gonna pump gas out of there.

I notice on the next page it's even more distorted, and this is going down 4 kilometres. The other thing here, interesting you've used the word 'target' formation. What's target? It's something that we're gonna attack. There's a very anthropocentric image of the earth, and we're gonna attack the earth. An alternative view would be an ecocentric view, and in this view we owe it to nature to preserve the integrity of the earth; the earth itself has intrinsic value, and we don't have a right to make any judgement about what should exist; we are part of a much larger nature, and we have a duty to preserve it. I think in that context you can see how fracking can never be safe.

My next question is why there are so many inquiries, and I think that goes into this fact that we've got very different world views, that from an ecocentric world view fracking can just never be safe because of what we're doing when we're fracking the earth. Likewise, from an ecocentric view there's an image of an alcoholic sucking beer out of the carpet when all the guests have gone, that we're so desperate for that last remaining bit of gas we're gonna suck it out of the carpet.

I think that it's a categorical error to think that people with an anthropocentric view of the world, that the earth is there for our exploitation, can ever come to an agreement with people with an ecocentric view of the world. So, from our view of the world we come to a confirmation bias. So a confirmation bias, you see and give a weight to and focus on what confirms your pre-existing beliefs, and this is very well illustrated when we have observational studies that show high rates of many conditions among people who are exposed to fracking. Those who are offended by fracking will say, "Look. See how dangerous fracking is?" Those who want to go ahead with fracking will blame other things. They'll say, "Well, who's living near fracking wells? They're the poor. They're isolated. They're minority groups. That's why they've got higher rates of illness. It's not the fracking itself."

So, because of our confirmation bias it actually makes it very difficult for us to assess evidence objectively. We're coming at it with a specific view of the world. Just going back to what really is science, that science, we bring into it



a mirror of ourselves. If there was no fracking, those people couldn't afford to live where those wells are, but they'll live in some other contaminated, noisy, isolated area. Confirmation bias reinforces our world views as we search for, interpret, focus on, and remember information that confirms our preconceptions.

I go to the issue of can Aboriginal and resource extraction priorities coexist, and I'm glad to see that you've noted on page 20 that Aboriginal people make up the majority of people that rely on the land where fracking is going to go ahead. Attachment to land is fundamental to what makes people Aboriginal, so when we look at what the World Bank defines an indigenous person as, and likewise in Australia, indigenous people are part of the land they belong to. In Australia, 80% of Aboriginal people identify a homeland, even despite decades of policy that's deliberately separated people from their land. People belong to the land. The land doesn't belong to them.

Fracking aims to exploit gas deep within the land, yet Aboriginal people of course want to improve their material well-being, and so Aboriginal people may want to become involved with fracking in order to improve their material well-being. Unfortunately, the evidence to date is that that doesn't work. I've got another paper here from Michael Dockery. He calls himself Alfred Michael Dockery, about the mining boom in Western Australia and how Aboriginal employment has not increased, even in towns where there's a huge wealth being made from mining in western Australia. One of the interesting reasons for that is that the companies are allowed to have affirmative action and have Aboriginal-specific employment, and what happens then is Aboriginal people from other areas of the country move in and take those jobs. So, the local Aboriginal population, despite the affirmative action and the efforts of the company, the local Aboriginal people may not benefit.

There's also this concern that I raised when I spoke to some members of the panel earlier about what's happened in Kakadu, so I brought this submission from the health department to the EPA in relation to further uranium mining in Kakadu, and what they describe is increased cancer rates and increased still birth rates among the Aboriginal people living near to the mines in Kakadu. The people who want the mines to go ahead will say, "Look, those Aboriginal people, they've got high rates of smoking, high rates of alcohol abuse, poor diet, don't exercise enough. That's why they've got those high rates of still birth and cancer," but in fact that's not true because they're comparing them to other Aboriginal people who also, as we know, sadly have high rates of smoking.

This group in Kakadu, for reasons that are currently being explored, have even higher background rates of cancers, but they're not the cancers that are associated with radiation exposure. So, something else is going on there for those Aboriginal people living near the uranium mines in Kakadu. I'll await the finding of that inquiry, and I'll leave this submission from the health department for you to include.

Hon. Justice



Rachel Pepper: Thank you.

Rosalie Shultz: Yeah. That's really interesting. I guess it's reflecting how much we don't know about life and extractive industries. I do acknowledge the opportunity for Aboriginal people who are on the lands that's near where fracking may occur and the efforts of the companies to promote Aboriginal people's well-being through corporate social responsibilities that obviously it looks good for their company, and of course where there's been legislative reasons that have given Aboriginal people authority over the land. That's another reason that these companies have really tried to support Aboriginal people. Unfortunately, it's strong on rhetoric, but the evidence is that it frequently doesn't work. There's no increase in employment or reduction in local Aboriginal unemployment during the WA mining boom, possibly reflecting the long history of neglect, poor health, poor housing, poor education that make it very difficult for Aboriginal people to integrate into the mining sector.

Page 15 of your Terms of Reference, I see we've got a great table of the risk themes, and I'm glad to see that you've put public health in there, both in its own theme and in water, air, and regulatory framework. Many people don't know what public health is. They get it mixed up with public hospitals. I think the dictionary definition is what you've used here, which is the health of the population as a whole, especially as monitored, regulated and promoted by the state. Then in Appendix A, you describe a possibility of doing baseline health impact assessments, as if the people are gonna become guinea pigs exposed to this industry after their baseline health assessment.

In public health medicine, we have a different definition of public health, which is the art and science of preventing disease, prolonging life and promoting health through the organised efforts of society, and so that's a much broader definition of what public health is, and maybe presents an opportunity for the Northern Territory to look at a broader view of what public health is, emphasising that it's art as well as science. It's preventing disease and promoting health, so not just stopping people getting sick, but looking at ways to actually promote well-being. I guess the point here is the need for the panel for great expertise and depth in relation to understanding what the health impacts of this industry might be.

Moving on to the health impacts, this is where I really should have a slide, but there's different ways that unconventional gas development through fracking can have an effect on health. There's the chemical exposures themselves. There's the industrial activity that will appear as part of the fracking development, and then there's the changes to the community that will occur, and there's this mixed up in ways and causing hazards, for example, with safety in the exposures, and then the psychosocial stress, and then the downstream impacts on the people who are particularly vulnerable, so respiratory effects, cardiovascular effects, endocrine effects, especially reproductive health. So, that's been a particular feature that's



been identified, reproductive health issues. Mental health, injuries, and children being a particularly vulnerable group.

Then there's the communities itself, so particularly from an Aboriginal perspective that doesn't just look at health of individuals, but looks at health of whole communities, we see communities at risk through the crime that might happen- increased- if there's great industrial development, increased traffic, substance use as a response to stress, increased risk of STIs that we see in fly in fly out workers, domestic violence and then increased pressure on services that we already struggle to staff in remote areas of the Northern Territory.

Interestingly, with the alarm that is among some health professionals about fracking, that even if one day it's discovered to be completely safe, this alarm that we've already generated means that the stress may never be relieved. I guess I would draw your attention to the terrible association between vaccination and autism, and one fraudulent paper in 1978 linked vaccination with autism and forever after we've got children with vaccine-preventable diseases because this alarm was inappropriately raised. I think that because there is concern, we may never be able to alleviate it and the psychosocial impacts often inadequately considered because they compound the effects of other impacts.

So, we'll not only have noise and the stress related to noise, we'll have that worry going on in the background. Increased road use, housing issues, including affordability and the value of people's houses might go down if there's fracking in the area, divisiveness within communities. I've got relatives in Roma in Queensland, and that community is incredibly divided between those who are profiting from the coal seam gas development and those who are losing their land. Incredibly divided community that will never be the same again. Then the impact on other industries, particularly tourism and pastoralism.

Just to put that all together, I have downloaded a number of major summaries of the health impacts of fracking. There's a few of them because it's such a big issue. There's the occupational risks, and this paper is done kind of in a target where you've got the risks and the well side itself with the noise and the accidents and the chemicals. The local risks with traffic, accidents, malfunctions of the equipment. The regional impacts affecting the water quality and quantity and the jobs that will change, and then the global impacts, so the impacts on trade and how fracking industry may impact on our trade and fossil fuel developments and the risk of climate change.

This other fantastic review here, *Toward an Understanding of the Environmental and Public Health Impacts, Scientific Literature 2009-2015*. This fellow has counted 685 papers in seven years and done a graph of the increased rate of production of data on fracking. They conclude that 84% indicate public health hazards, risks, or adverse health outcomes. 69% indicate potential water contamination. 87% show air quality issues. So, the



weight of the findings indicates hazards and risks to health associated with unconventional gas development.

Another review really highlighted the precautionary principle, which is that when an activity raises threats of harm to health or the environment, precautionary measures should be taken even if some cause and effect are not conclusively established. In this context, the proponent of the activity, rather than the public, should bear the burden of proof. Considering the uncertainties about health, environment, local, social, global warming potential and economic implications, it would seem prudent to be doing more research and do delay any development until we've got more data.

Finally, one paper, which goes into the specific details, so the main adverse health outcomes are related to respiratory issues, particularly asthma, and birth outcomes such as intrauterine growth retardation and pre-term birth. With differing results across studies and across different populations and regions, most of the data is retrospective and it's about self-report, so quite poor quality data.

Finally, I'll just talk about climate change, which is the most important public health issue of the 21st century. In the nineties we were told that gas was a transition fuel between coal and renewables, and unfortunately, through this gas transition fuel we've kind of got hooked on it, and now we're trying to get this very resource-intensive gas out of the ground rather than having moved on to invest in other areas. Furthermore, the methane releases related to fracking and other aspects of the unconventional gas index may more than account for the reduced carbon dioxide emissions. So, again, in a mind frame of caution this fracking and natural gas development are certainly not the answer to climate change.

Just to conclude, I guess I'll say that not enough really is known that we can conclude that fracking is safe, and for people with an ecocentric view of the world, fracking can never be safe, and so that's why they'll never be happy with the limitations that the inquiry may come with. We need to enforce the precautionary principle and wait further data, and we need genuine consultation with Aboriginal people in a timeframe that meets their needs. Many Aboriginal people may have a custodian view of the world that's neither ecocentric nor anthropocentric and view our position of the world as its custodians, so a bottom-up approach rather than a top-down approach, but listening to what people have to say, what they want.

I have got some papers, which show some good outcomes for Aboriginal people where minings occurred on their land when they are listened to, when it's in a framework, a timeframe and a cultural framework that they can relate to. There's a lovely example in southwest WA in Esperance where the BHP, Rio Tinto, were wanting to do a nickel operation and they provided housing and infrastructure, environmental conservation, but particularly they had a cultural awareness training with the local Aboriginal people. What was interesting is that the mining community came into this town and thought that the Aboriginal people had all been killed in a massacre, and



then these Aboriginal people were there and they told their story and showed that Aboriginal people were still there, were still on the country, and that really empowered the local Aboriginal people and was a great two-way learning opportunity.

Thank you.

Hon. Justice

Rachel Pepper:

Thank you. Thank you very much, and you're happy to provide those copies of those papers to the inquiry?

Rosalie Shultz:

Hon. Justice

Rachel Pepper:

Absolutely. I can do them electronically if you want to mass produce them.

Well, if you can provide them electronically as well, we would be very grateful of that, and we will upload them on our website.

Rosalie Shultz:

Hon. Justice

Rachel Pepper:

Yep.

Thank you very much. Now, some questions from the panel? Yes. Dr. Jones.

Dr. David Jones:

As a medical person, I'd like to just explore what your concept of safety would entail. When you say something can never be safe, what would you define as safe because this cuts to the heart of our Terms of Reference, what is acceptable, what is safe, and things like that?

Rosalie Shultz:

I think it would entail no additional risks, so if it's completely safe there's no additional risks above the baseline level of risk.

Dr. David Jones:

Essentially the natural environment level of risk.

Rosalie Shultz:

Which is a very difficult thing to define, and going to the issue that the people who are going to be living in areas are already health-disadvantaged, and so if they're going to bear some of the burden, there should actually be some way that their health is improved through this procedure.

Dr. David Jones:

(inaudible) Relationship.

Rosalie Shultz:

Yes, yes. There are examples where that has been shown to happen, so that one in Esperance and also the people in one of those communities in north-Watacan- where they're offsetting the carbon from the impact site, and so they get paid for that, so that's a way that ... They don't get paid to be employed. They get paid to re-institute their cultural practises, so it's what they want to do with that money in their way, and it seems to be quite a win-win. Both the company is offsetting their carbon emissions, and the people themselves are having some cultural reinvigoration and a strengthening and recognition of their identity.

Hon. Justice

Rachel Pepper:

Yes, Ms Coram.



- Ms Jane Coram: Thank you for that. I'm just interested to know a little bit more. I know you're gonna provide us with the papers, which will be really interesting. You cited a range of health impacts that included chemical exposure, industrial activities, changes to community structure and social dynamics that occur, psychosocial stress, respiratory, reproductive health, mental health, vulnerable children, a whole list of impacts. I'm just wondering, where are you drawing them from? Are they from other mining activities in Australia, or are they from shale gas operations overseas?
- Rosalie Shultz: Most of it's from the U.S. where it's been a major industry for enough years to have quite a lot of data. So, yeah, from the U.S.
- Hon. Justice
Rachel Pepper: Prof. Priestly.
- Prof. Brian Priestly: Yeah, Brian Priestly. I guess that my responsibility in this inquiry is going to be particularly related to public health, and certainly the documents that you talk about are quite very useful. I've already started doing quite an extensive literature survey myself to try and pick out on list sorts of issues, so it's helpful to have that additional information. I think one of the areas that I'll probably have more difficulty dealing with is this issue of mental health and well-being and the impacts on that. If you look at the issues paper that we've developed, we tried to identify some of the factors that might need to be looked at. I guess it would probably help me if you could come forward with any more specific information as to whether there are additional factors that we need to consider, or how best to address some of those points that have been raised in the issues paper. I think that would be very helpful.
- Rosalie Shultz: Yeah, and I do think that some of these reviews, and it's extraordinary the volume of literature, but those three reviews that I've cited, and two of them I've got here, summarise that very nicely.
- Prof. Brian Priestly: Thank you. I think that would be very helpful.
- Rosalie Shultz: Yes.
- Hon. Justice
Rachel Pepper: Any other questions? Yes. Dr. Ritchie.
- Dr. David Ritchie: This just is to really summarise, but what you're saying that there are medical pathologies they can't identify. In other words, like lead. There's a clear cause and effect once you know it, but you're talking about there's a bigger epidemiological problem created by the stress, generally, in a community, created by this kind of thing. It doesn't necessarily just apply to fracking, but the change in people's lives, the change in communities, the disruption and all that sort of things. Is that a fair summary of the other bit?
- Rosalie Shultz: Yes. I guess that's the way we've come to see health more in recent times. When infectious diseases were the main burden of disease it was quite easy to say this bug causes this disease. Now we see these complex interactions



of aspects of people's lifestyle that occur together causing a multitude- So, multiple input and multiple output, and I guess that's aggravated in the setting of industrial development such as fracking.

Dr. David Ritchie: Where there's a dissonance between what's here now and what that is pretty massive. I suppose there are two comments. One is that remote communities are already- There's a lot of documentation on how stressed they are already, and so these problems, so the baseline is pretty stressed, and the question is can you actually make it any worse in some cases? Just a realistic and just apart from that, are there any specific studies that you would like to draw our attention to that you think actually deal with that particular issue, the generalised epidemiology of stress as distinct from whether it's a good idea to pump hydrocarbon down-

Rosalie Shultz: I think this- What's going on in the people in Kakadu. Given the concerns about radiation and ARPANSA is quite equivocal that there's no increased radiation risk, and yet we see these increased cancers and increased still births. I think that might be an interesting example showing potentially the increased stress, and the mechanisms may well be things that we know about, like substance use, and just general apathy and that sense of ennui and meaninglessness, and I guess just the extraordinary rates of suicide that we see in remote Aboriginal communities, often in a copycat chain.

Dr. David Ritchie: That was not really the point. This is not a situation where there is not- There is a lot of stress for other reasons, and we're trying to look at this particular, and just curtly point out, this isn't narrow. It is focused on this particular industry. Our Terms of Reference require us to deal very specifically with this industry and what are the risks and to what extent that they can be mitigated to a level that's acceptable. That's the challenge for us. Your review has raised a lot of really interesting points, but a lot of them just seem to me very, very difficult to tie down given the Terms of Reference we've got. I think we need some more assistance in focusing on things that fit within our Terms of Reference. I think that a lot of what you said there is very important stuff there that I think we need to have tighter idea of how we could help.

Rosalie Shultz: Yeah.

Hon. Justice

Rachel Pepper: Peter. Yes. Peter McCabe.

Prof. Peter McCabe: When you look at the GDP of countries versus life expectancy, there's a pretty strong correlation, a very strong correlation, between the higher the GDP the longer the life expectancy. Development on a global scale is clearly something that is good for people's health, obviously their life expectancy. There's obviously problems like diabetes that are much more common in highly developed countries, but do you see any advantages at all to some more development in the Northern Territories in terms of life expectancy and public health?



Rosalie Shultz: I acknowledge this curve of GDP and life expectancy, but I think it reaches a threshold, and I think that even Aboriginal people that we despair their low life expectancy, I think they're still above that threshold where it's a steep curve. I think that absolutely, and I guess it's about appropriate industries, and I think that's where investment in ongoing fossil fuel development is such an opportunity lost when there's so many opportunities for Aboriginal people in their own country in strengthening their own industries, such as pastoralism, tourism, and cultural activities, and in the solar industry. Every dollar that's spent in fossil fuels is a dollar that's not spent in renewable energy. As far as we do need energy supply in Australia and we've missed the boat so far in investing aggressively in solar, but the more we don't do it, the further behind we'll get.

Prof. Peter McCabe: Thank you.

Hon. Justice
Rachel Pepper: Any further questions? Dr. Shultz, thank you very much for your time today.

Rosalie Shultz: Thank you.

Hon. Justice
Rachel Pepper: And thank you very much for the materials. They're greatly appreciated.