

Health impact assessment and environmental public health indicators: case studies from rural WA

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FACILITATOR: ...Our ext speaker is Paul van Buynder. Special thanks are due to Paul for agreeing to present a keynote at such short notice. He's only been in Perth for about a year, having been with the Eastern States Health Departments before that. He was in the first Australian on the ground health team to arrive in Banda Aceh after the Tsunamis. Please come up to the podium, Paul. Thank you.

PAUL VAN BUYNDER: Thanks, Rachael. And thanks for the opportunity to speak today. What I want to do is talk about the development of health impact assessment methodology, to talk about the development of environmental public health indicators, and to use those in a case study in WA, one of the many that's available from WA. And in particular, what I want to do is talk about opportunities of health departments and health agencies to step in at particular times to improve overall health status because of environmental issues that are taking place then, and to look at mechanisms from that to perhaps look more broadly at it, instead of the individual issues that you've got.

So I want to talk about some of the principles for responding to concerns, looking at using environmental public health indicators for a liveable future, and then putting it together, a challenge in a particular town which I will call Portside. Most of the time health departments are asked not to design an environmental health program for communities to make sure that they're healthy, but to respond to an environmental event. There's been a spill of some agent, or people are worried about the black stuff coming out of a smoke stack, or there's a development proposal, there's a feeling that perhaps there should be more industry in a particular town but the community's concerned that there'll be impacts on their lifestyle from that.

And these are one of the times that health agencies obviously can get involved. And usually when we do, we use two basic principles. The first of those is that the inclusion of a margin of safety is a public health standard, but the size of the margin of safety is a social policy issue. And if I give a couple of quick examples, Richard Dole's group did a meta-analysis of electromagnetic radiation from overhead power lines, looked at different companies and decided that anything above four milligauss produced an increase in leukaemia in children. When the data was analysed, that meant in Western Australia that we would expect a case of childhood leukaemia every 60 years from the overhead power lines.

So the question then was, should the government spend \$600 million burying the power lines to save that one case, and the answer was, probably not. But in the future, why would you bother putting them above ground? The reverse side of the spectrum, people have had a look at what's the safe level of asbestos fibres, and they've decided there is no safe level of asbestos fibres. And now, despite the cost to industry, that product has been totally banned from any use. The principle remains that science should inform, the government should make decisions, and they will, it won't be health departments, but the public should be involved in any process.

And I want to give an example of how this can work towards the end of the talk. What I want to do is look at what's happened over the last 10 to 20 years in health impact assessments over

time. We started with a process where most health impact assessments were industry saying, “Well, do you want a job or not, and if you do, this is what we’re going to do”. And most governments saying things like, “Will we get extra tax revenue?” And the broad basis of the health impact assessment was, earth first, we’ll mine the other planets later, and we won’t worry too much about anything else. Some people would say that there’s still a component of that in the State that I’m from.

We moved from that to a process of health risk assessments through environmental protection agencies and through health departments, where we looked largely at the overt science, the toxicology. If this amount of chemical is being leached into the water table, or if this amount of stuff is being put into the air, can we use a rat study or a beagle study and can we convert that with a level of safety to human exposures and decide that there is a risk or there isn’t, and what level of safety will we put into it? And that’s certainly had an impact on making sure that industries pollute less than they currently do, that we don’t have leaded petrol in the air any more, and a whole lot of other environmental health indicators that have improved because there was a demonstrable association between health risk and health outcome.

But it was a very narrow medical/toxicological view of the world. We moved over time, and this is certainly not something that’s widespread necessarily at the moment, to considering health impact assessments instead of health risk assessments. And what we decided was that people were interested in more than just would they get liver failure and would they get cancer. They wanted to know about processes like, will we have to put up with a smell every day, what’s the noise level going to be like, is the dust too bad. What about a whole lot of conditions that you don’t understand very well? What about multiple chemical sensitivity, what about people who are depressed continuously because of the fact that there’s this black smoke in the air, and so on?

This is something that industry’s found difficult to live with because it makes them deal with particular processes that aren’t as easy to quantify, and aren’t as easy to avoid with the least expensive technology that they can find at the particular time. The third step, and the step that we’re really trying to develop at the moment, is a process that says that we want to use opportunities like, there’s a new development or there’s a concern, to look at the broad-based health impact assessment, but to use that for a review of lifestyle as well, to say that what are the other aspects that are currently happening in the broader social and environment perspective that enable us to that this is where we should be going, and this is the opportunity?

The challenges that we fight are that almost invariably government wants an answer to these sorts of things in a very tight time-frame, particularly in places like Western Australia at the moment. China is keen for us to dig up the whole of the State and give it to them very rapidly. The Treasurer is keen to do that, he told me last week that the reason my interest rates had to go up a quarter of a per cent was because we weren’t shipping the stuff out of the ground quick enough to deal with the current account deficit, or whatever that term is.

So they want answers to say this is good development, and they want it quickly. We don’t understand things like sensitisation. Why do some people get chronic fatigue and multiple chemical sensitivity after exposures to short-term boosts of chemicals that we have no guideline for?

We don’t understand what happens when you mix chemicals. We don’t understand the exposure mechanisms. And one of the things that we do understand is that no science does not mean no concern. At one stage we thought asbestos was the greatest heat preventer that there ever was, we used to put pesticides everywhere we could find a place to put pesticides, and there were no data to say that was a bad idea, and now there is. The social issues of perception are just as important as the hard science about where the environmental challenges are. What

the opportunity at the moment is to start looking on a broad base, and it follows on a bit from what we've just heard, to make communities more liveable by looking at environmental public health indicators.

And in order to do that we've got to have a very good understanding of those sorts of different social impacts that can impact on the ambient environment, the community and the home itself. And a lot of nations, particularly the US EPA, or the National Centre for Environmental Health in the US, but also the European community, and WHO have looked at a series of environmental public health indicators and say that these are the things that we need to address.

They tend to be relatively medically based, but they assume that in designing the indicators for your community or agreeing on the indicators for your community, you've taken into account those things that relate to the particular social groups that are challenged, and the other socioeconomic aspects of your community that impact on the broader based medical processes.

People have looked at it from an outcome based process. They've said, "We've had too much asthma. What does that mean?" Or they've looked at it from the environmental process, "Our air quality's not very good", or, "Our water quality's not very good. What do we need to do?" But at the end, what they come up with is a whole range of what we call environmental public health indicators, and they use those as opportunities. And there are many States in the United States where it's actually compulsory for you to address these issues at the level of your local government or in urban conurbations, and make sure that you're trying to take steps to improve it.

This is a range of some of the ones from the US process, and because it leads into the case study, what I'd like to do is concentrate on ambient air environmental and public health indicators. And these range from things such as criteria pollutants, sulphur dioxide, noxious particulates, how much dust there is in the air, PM10, or how much pollutants are actually released. It looks at hazardous substances, it looks at the air toxic program, it looks at motor vehicle emissions, how many vehicle miles are being driven per capita, it looks at residents in non attainment areas.

If we've got an air shed that, in fact, is unsafe to live in, then how many people are forced to live in that particular area, or currently do choose to live in that particular area? It looks at some of the health data. Do we have unusual patterns of asthma events in our community? Do we have unusual patterns of cardiovascular or respiratory events in our community? And it looks at broader based stuff. What's the availability of mass transit? If we're worried about how many people are in their cars, is there a bus or a train or a tram system for them to use anyhow? And how many people are actually using mass transit alternatives? Who walks to work, who bikes to work, why don't they if there's almost no one doing those sorts of things?

Okay. What I want to do is move from the broad-based process of saying that there are opportunities if people have concerns about particular environmental conditions or there are opportunities to take a broad-based approach and say, "Let's look at this and let's do something for our town without having to be told that there's a development proposal". And I want to look at an example that's currently under way in Western Australia which we'll call community X. Community X is broken up into Portside and Southside, and it looks a little bit like this. And it's a community of about 20 000 people, part of whom live on the Portside, and they're the people who, if I can make this work, live in that particular area along there, and part of them live a fair distance away from that.

As you can see from the overhead view, what this has is a whole series of people that live a little bit near the beach, and then this huge area of industrial process which is largely an iron

ore crushing and storage area before the ships down on the bottom left-hand side of the slide pick it all up and take it to China. There's for good measure a bit of a manganese pile in there as well, a bit of a salt pile in there as well, but the town itself is totally dwarfed by the stockpiles and the port facilities that are there. This has been a community that's been bubbling along for a fair while. It's Portside and Southside, ignore anything else that's there.

It's bubbling along because at the moment one of the companies there sells 70 million tonnes per annum of iron ore to Asia, but there are now three companies that want to expand, and they're hoping that in a short period of time they'll have 250 million tonnes per annum that they can give to China. This creates some dissatisfaction with some of the community who think that they probably don't want more dust, and they don't work for the mines so they don't see the point of it, and creates more dissatisfaction because the Portside's actually the nice bit to live, even though you drown in the iron ore dust, it gets a sea breeze and it's got the beaches there and it's got some nice bars that look out over the water.

Southside, which is where the bulk of the people live, has a whole series of social issues that have been discussed in some depth as well. It's a fractured community, it has a whole lot of gated processes where there are Caucasian residents that live in almost little enclaves, it has a fairly large Aboriginal component that isn't mixed within that, it has an ethnic component, there's a large Muslim community within that as well, there's a very high crime rate in that particular area, and there isn't a lot of facilities and services there.

So at the time that people on one side are talking about the dust and how it's not possible for this to expand, the people on the other side are saying that we have real social issues in our town and we have real issues about the environment and the social structure and how we can go about dealing with that.

And what happened was that there was an opportunity because the industry wants to go and treble the size of their output, to start looking at, what should we do from the point of view of the environmental status of Portside? And the preliminary work that took place, and this was quite extensive, and I think it sort of gets down to, you know, a good way of undertaking community consultation, was it started with a CATI survey of 350 people where they were asked to look at what their key issues of concern were and what their priorities have changed. So a broad range of people randomly sampled. There was a formal air quality study done which looked at exactly how bad was the air and would it really make you sick.

There was a cumulative impact assessment that was done that said, "If we let these people do what they are going to do and if we look at what improvements they can make to their technology, what will be the net effect?" And there was finally a social impact assessment that was done that looked at what exactly does this mean for the people here and what do we need to do to try and make this something that's an opportunity for benefit rather than just some more employment for people? Firstly, if we look at the air quality, some people will be familiar with the ambient air NEPM.

We have guidelines for what is a desirable if not a fully safe level of air quality. And the particulate level down the bottom says that you shouldn't let small particles that you can breathe in get above a level of 50 more than five days a year. Now, we had some good monitoring sites at Portside. We stuck one at the hospital and one at the town site just near where the ships load, or where the stockpile is. And when we looked at the guideline, that line you can see there, that's the national guideline. On five days a year it should be below that particular level. And what we found when we looked at the town was it varied between about 40 and 120, and when we looked at the people who were sick who were living in the hospital, it varied from about 30 to 60 days a year.

So these were greatly in breach of what we expected. When we did the modelling, and I don't know if this is that easy to see, but those lines on the graph there are how many times a year we expect this will be bad. What you can see is that in some parts of Portside this breaches the air guideline between 100 and 150 times a year, and when we let them bring in their new technology and improve things and look at the new graph it really isn't going to make much difference.

We're going to get better technology, we're going to treble the size of the output, and we're still going to have just as much dust. Now, the problem is, some people there say, "Well, tell the Port – tell this company to go away because we were here first, we got the town in 1906, they didn't turn up till 1950, and we don't work for them, we don't want to see this happen".

Other people say, "We need the jobs and we need the development", and the company itself says, "Well, you've got to remember that this is good dust, not bad dust, that your guidelines in fact came from Sydney and Melbourne, and we've got this really good iron ore and it doesn't have the same sort of effect on that". And they've managed to sell that particularly convincingly in a large part of the town where some of the medical staff were even telling me last time I was there that there was nothing wrong and they definitely weren't going to go live in Southside and I should stop talking about moving the hospital.

So what happened next was, over a course of three days, 300 people got together at what they call an inquiry by design. Half of them were selected randomly, half of them responded to ads – some of them responded to ads, and some of them represented specific organisations that wanted to be represented. There was problem that it was Ramadan and there were some law ceremonies going on, so that we probably didn't have as many Indigenous and core people as we'd like. But there being further – had held discussions with, and in the end all of these people got together for a three day process that said, "Before you start, here's all the data about cumulative impacts and air quality and what we think that might mean, and what the social impact said, and what you said were the main issues for you".

The first day was people discussing all the priorities and identifying where they wanted to go from there. At the end of that there was a report written that went back, and on the second day they then looked at options and feedback about where they could go, and again there was a report. And then the third day there was an agreement of the 300 people in the room that this is where we want it to develop. And they didn't always agree on everything, and they never will agree on everything, but there was a general consensus that, given all the information that we've actually been presented with, this is what we think should happen. The report went to implementation groups and the report's gone to a commitment by government.

The outputs were firstly, we want to see some health studies and these health studies are just about to commence, to determine the impacts. Is it true that this is good dust or is this true that, in fact, this is stuff that we don't want to be breathing in, and that we're going to have bad asthma and bad heart disease? They wanted rules for co-existence between industry and town. They wanted people not just to talk about the stockpile and employment, but to address both the perception and the reality of the social issues in Southside. They wanted improved health education and civic cultural facilities, they wanted somebody to think about a public transport system.

I think the mean temperature in this town is about 48 degrees, and to have no transport between different places really restricts the opportunity of people to get out and do things. They wanted to have the foreshore developed for recreation and tourism, which is obviously going to be an issue if it's very dusty. They wanted the residential areas revitalised, and they wanted improvement to Indigenous services. So we started with an industry coming to government and saying, "We want to treble the size of this and it'll be good for the current

account deficit”, and we’ve managed to turn it into a process that says, “Let’s try and sort out the social and environmental issues of this particular community”.

There’s now a very high level inter-agency group of four or five government departments, the Development Commission, Industry, the Port Authority, to oversight the implementation strategy that was agreed to. And there’s strong local involvement in the solution. There’s the Strategic Review and Co-ordination Committee that is largely local people, there’s a Health and Environment Committee that’s largely local people, and they keep feeding back to the broader based group. The inter-agency group’s already agreed on a whole series of studies which are partly national and partly international based, and will include a morbidity review of the town, and it’s funded by the industrial group. And it’s agreed that there will be continued improvements as part of that.

