Independent Scientific Panel
WA Government Inquiry into Hydraulic Fracture Stimulation in Western Australia 2017

19 March 2018

Dear members of the Committee

I have been asked to write a submission in my capacity as a (former) hydrogeologist turned anti-fracking activist.
The truth however is that I am tired of writing, of quoting, of referencing for the sake of political showcasing.

One does not have to be a scientist to understand what a bad idea, what a high-risk activity unconventional, on-shore gas exploitation is. However, in my opinion it is scientists who have to ask themselves "What about ethics"?
Might we humans trained in science have a moral obligation to engage with contentious issues beyond a comprehensive list of potential risks, potential mitigations and carefully crafted disclaimers in our "areas of expertise" and within "terms of references" set by people who let's say feel constraint by a multitude of factors?

Let me put in one quote, taken from submission 151 Unconventional Gas Mining (UGM) – the International Association of Hydrogeologists' (IAH) Australian chapter submission to the Federal Senate Select Committee 2016 inquiry on the adequacy of Australia's legislative, regulatory and policy framework for UGM. The relevance of this quote will become apparent as you read on.

> *"Decisions on the development of unconventional gas should be determined by the acceptability of impacts. The acceptability of impacts is driven by the capacity to accurately identify them, communicate them clearly, enforce the development and operating standards to ensure the impacts are managed, if necessary have appropriate tools to off-set the impacts and rigorous close out approaches to ensure long term impacts are within the identified limits"*

We all know that with large-scale industrial processes it is not a question of whether things go wrong, but of how soon, how often and how badly. So, what is acceptable? Who defines acceptable? Are we sure we can ensure that long term impacts are within identified limits? And that identified limits are sufficient – acceptable up to and including rehabilitation times? Especially when dealing with a great number of unknown factors?
And in the case of a State as vast and as financially broke as Western Australia – who will be out there to monitor, communicate and manage the things going wrong? Above and below ground?

Will we have to rely on the industry's self-monitoring and reporting? The oil and gas industry's self-monitoring and reporting? I am sure you are or will be critically evaluating relevant journalistic investigations and whistle-blowers insights into that industry's standards in Australia and globally when doing the risk assessment around regulation and implementation, to develop a good, realistic assessment of the on-the-ground situation, and factor such in should it come to re-evaluating the existing regulatory framework.

Furthermore - let me ask all of you scientists on the panel, have you ever gone out into the areas where things, not unexpectedly – as per risks & disclaimer lists – have gone wrong and engaged, like really on a human-to-human level engaged, with local communities? Have you seen the destruction, felt the pain, the confusion, the sense of betrayal, of powerlessness that so often is felt by people on the ground affected by things gone wrong wondering why this was allowed to happen? Was it for the greater good? What is the greater good? And were the impacts indeed acceptable, the off-sets adequate?

How do you make the decision where to draw the line? The line beyond which you say the impact that human activity will always have is too much, too risky or too unknown and hence possibly too risky? The gains insufficient? The realistically expected and potentially even greater damage no longer justifiable? Whether to stick to given terms of references when you know the bigger picture, if considered, might change the outlook (even more)?

During my doorknocking on the anti-fracking campaign trail, while out on the markets as a knitting nanna against fracking, I have come across quite a few people working or having worked in the oil & gas industry who told me how bad an idea, how unnecessary too, they think "onshore fracking" – whichever term you want to give the process – is. That we have to stop this.
If I needed any more encouragement I got it. – Thanks to everyone who spoke so openly with me, it helped, and I am sure their anonymity in those moments helped them speak out.

Yes, the State does need money – apparently a lot at the moment – however, industrialising WA in this way and likely permanently or at least long-term damaging our agricultural areas, our natural gems, the health of our regional communities especially, our international tourism hot-spots within at the moment thought by some acceptable limits cannot be the answer in my opinion. Not in 2018, when the majority of us are well aware that we have to and can do better.
And how much money would the State get anyway? And how much of the money they get would they spend on hiring experienced staff to enforce regulations?
Or should they get extra money to do so? - Just an idea.

This enquiry in my opinion should not only be about whether the technical, geological/environmental and regulatory risks under best-case-scenario conditions are minimal, small or manageable to an acceptable level of risk and damage, as ultimately defined by - who? Politicians?
This should also be about listening to our hearts, our guts, or if you will our changing insights into how the human world works and changes, to (re-)determine what an acceptable level of risk is, really. In the here and now, as well as globally and long-term, and according to realistic standards.

Realistic standard as we, the scientists who work/ed for industry and government have experienced them in our day to day work. Have you for example, if/when dealing with large resource projects, with current-market-value and share-holder-profit driven projects, ever considered what I have come to call the "speed & greed factor"?
Or if you work for government, with its constantly shrinking number of advisors and enforcers in the state departments, whatever you think a white elephant in risk assessment is. And put that to paper as one of the factors to take into consideration? And if not, why not?

Many people living at the beginning of the 21st century, including politicians and political advisors around the globe, have come to understand that last century's technologies, last century's way of thinking, last century's way of dealing with human beings and with communities are not appropriate to tackle the challenges of this century.
Times are changing, as always.
And who, if not people like scientists, who are paid for their critical thinking, for advancing understanding of the natural world and our social fabrics, for 'dreaming up' new, healthier, better ways of being, who better to take the lead?

The lead in saying enough is enough, the lead in showing new ways, the lead in having the courage to say stop – to walk, to make new paths?!
More and more of us have reached the point of being fed up with the status quo in politics and industry and are doing exactly that, here and abroad. Contributing, quietly or not so quietly, to the huge groundswell of change driven by fed-up people in local but internationally connected communities.

Please - make sure you ask yourself the right questions while doing this important work of yours. Ethics in science is not just a nice, and in my experience mostly neglected thought. It is a responsibility, an obligation that comes with the work.

Remember what, admittedly not all but some, scientists felt at the thought of what the future might bring, after they saw the damage the "atomic bombs", the technical marvel of the "atomic bombs" they had created, excitedly, had done - irreversibly, can do again. Or, as a more recent example of reflectively looking back and wanting to change the way – some creators of facebook and google apparently wanting to stop and change the way those large scale commercial exploitation projects operate at the moment.

Technological advancement can be exciting, is exciting, but when it becomes too risky, too destructive we have to have the courage and finesse to stop, reconsider and find better advancement. Science is about constantly learning, refining, readjusting or indeed redoing after all isn't it?!

Gas-fracking is no doubt a technical marvel. It has taken a lot of tenacity, ingenuity and money to get it to where it is today. However, ask yourself, is the price, the potential price to be paid for the ongoing commercial application of this method worth the risks? The implementation of a process very much still in development, complex and already competing with alternatives worth the damage it will do in WA? Are there not enough early warning signs coming in from elsewhere, where unconventional gas exploitation has been undertaken for a few years now, to reconsider?

Is it not time to change the thinking and to take the lead again – in embracing change that is already here?
And to address the big picture items as such and not from within technical pigeonholes?

So, dear independent scientists on the the panel, I will not argue with you about technicalities. As the enquiry's web-page says there is enough material out there outlining the risks and already occurring impacts. There are people out there who have more technical expertise than I do, including panel members, who can easily be found and contacted directly, without me having to quote and reference.

My contribution is but a plea for a truly scientific, inclusive of a humane and realistic approach to the task at hand, hopefully stirring something within you.

Yes, I have looked at geophysical profiles published by the exploration companies, have seen their sometimes disrespectful and blassé presentation slides, I have listened to experts working in the industry and in regulatory bodies, have heard their warning, their imploring words or tone of voice – off the record, to stop this.
I have worked around drilling rigs enough to know that shit happens, have produced colourful numerical model results and reports with comprehensive lists of disclaimers, but in recent years I have stopped, looked, listened – have taken more than 5 to reflect on work I and scientists & engineers around me have done, or indeed did stop doing.

And I have realised that not only in my opinion we scientists have an ethical responsibility to not only assess risks to the best of our technical ability and usually based on rather sparse data in our 'area of expertise', but we also do have a responsibility to look, critically consider and factor in the big picture issues, the potential long-term impacts, as we understand or indeed only vaguely sense them at this point in time, as we can discuss with experts in other areas.

And then listen to our heart, our gut, our niggling doubts hanging in the dark corners of our intellect, and speak wisely and act determinedly, assess and act to our best abilities as human beings trained in critical thinking, in dealing with change, in finding solutions in and for the complex and largely unpredictable world of the 21st century.

Take a bit more time to ponder whether we can and will still stand tall 10 -20 years down the road when the damage has occurred, walking through destroyed landscapes, looking affected community members in the eyes and saying, yes I am

standing by my assessment, by my decision. In some cases we may, because human activity does mean impact, and it has been our job to assess and help minimise such, in other cases we might hang our head and say I wish I had acted more on that niggling doubt, that alarm bell in the back of my mind.

Is it not the following up on the "niggling something" that usually brings the break-through in research? And is it not the same in the applied / commercial cases especially in on-the-ground risk assessment & monitoring? That sometimes we sense something is not quite right, is going wrong before we get enough data to 'prove' for sure?!

I sincerely hope that all of you, individually and together as an interdisciplinary team, do arrive at the conclusion I have, get that same niggling feeling I started my journey to openly oppose and protest fracking with; that onshore unconventional gas exploitation ("fracking") is not worth the risks, the uncertainties, the destruction and the stresses it would, indeed already does pose to our communities, to us, to the environment we live in and from. That you arrive at that conclusion even if staying within the terms of references and within your areas of expertise –applying a healthy dose of robust realism.
Or if you feel compelled to consider the even bigger picture, that alternatives ought to be explored and supported more instead.
And that you have the courage and finesse to clearly state that to the government of the day.

Faithfully

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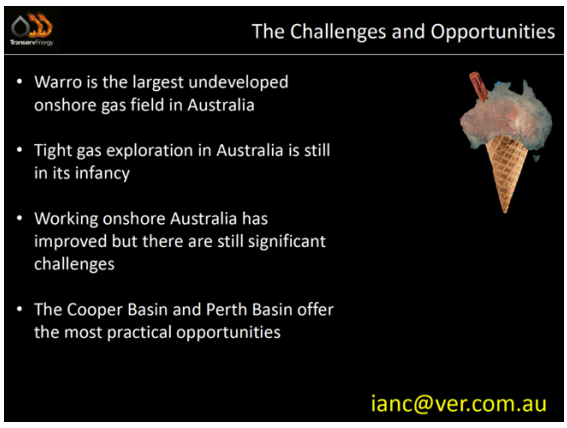
Human Being - engaging with the world around her (everywhere I live)
Activist - making use of the freedoms still available to us (in a constantly changing world)

PS:
Do we really want to serve up Western/Australia like this?
With chocolate flake?



(slide 36 of Transerv Energy's "Giant Tight Gas in Australia" presentation – downloaded from their web page in 2016.)