DR. MICHELLE MALONEY: Good morning everyone. My name is Michelle Maloney from the Australian Earth Laws Alliance. I am in partnership with Lisa Mead presenting today the second part of the Earth Rights session for the PPT. So I hope you can see my slides.

So my name is Michelle Maloney and, as I said, Lisa Mead will be joining me. She's on a call now. She'll be joining us for this session.

So just a brief introduction just so that you know my qualifications. I've got a Bachelor of Arts and a Bachelor's of Law with honors from the Australian National University and a Ph.D. in law.

I'm also the co-founder of the Australian Earth Laws Alliance and have been working on rights of nature, earth jurisprudence and ecological governance issues for about seven years on top of 20-years before that on environmental law and sustainability issues.

My organization is the Australian Earth Laws Alliance, or AELA, and our mission is very simple, to
increase the understanding and practical implementation of earth centered governance. And by that we mean law, economics, ethics, cultural.

And that diagram at the bottom shows that we focus on a change in culture in the industrialized societies as well as reconnecting law and governance with nature and the matters that are at issue and the issues that matter, building community, creating alternatives and then transforming law and governance.

So an overview of our session today we hope to complete our session in the time allotted, two hours. We may try to go a little shorter than that because we started a little later.

I'll do a bit of an introduction and a recap on Lisa's excellent session earlier this week and then I'll give an overview of the some of the emerging laws around the world that recognize and support the rights of nature. We feel that is an a really important context for the PPT to understand why this emerging space around recognizing the legal rights of the natural world is relevant to our case that is challenging the impact of unconventional oil and gas extraction.

We will then invite an expert witness Mari Margil. We'll have a video footage from another expert witness, Damien Maher, who I'll introduce as we bring
them all on. Lisa will actually speak to a bit of
evidence about fracking's impacts on earthquakes and
seismic activity.

We'll then turn to our final video of the
session which looks at the way that the people in
Scotland have addressed fracking and their choice to
issue a moratorium and then we'll do our closing
statements.

So just to recap on Lisa Mead's session. Lisa
introduced our overall argument and she also talked
about the Universal Declaration of The Rights of Mother
Earth and how it's a civil society agreement formed in
2010 by more than 30,000 people which holds extreme
moral weight and an emerging law and statement of
principle around the fact that we are an interconnected,
indivisible community of life;

That industrial legal systems do not, at the
moment, reflect the fact that we rely on and are inter-
dependent with the natural world;

And in fact the UDRME is an important basis for our
entire case here at the PPT because it offers a
statement, a normative statement, of how our legal
system should be. And interestingly since it was
created in 2010, which I'll talk about in a moment,
quite an upsurge of laws around the world that are
starting to reflect those very principles and this
shift ing norm towards recognizing the rights of nature
in our legal system.

So Lisa talked about the UDRME and outlined
the rights of nature. We also heard from experts Cormac
Cullinan and Linda Sheehan. We also heard evidence from
Michelle Bamberger and Dr. David Paul on violations of
the fundamental rights of plants and animals to exist,
thrive, and evolve and the fact that fracking and CSG
has been violating the rights of life to exist, thrive
and evolve.

Lisa also showed evidence in a video witness
from Professor Gavin Mudd from here in Australia talking
about the impacts of fracking on water ways.

So what I'll do now is actually talk through
some of the emerging rights of nature laws around the
world. Again, just to give you some context I'll do it
fairly quickly and I'm very happy to take questions but
I just wanted to give quite a growing number of examples
of how rights of nature is working around the world.

This is a brief summary and then I'll have a
couple of extra slides on a couple of these points.

So in 2002 CELDF -- I'm very honored to have
Mari Margil from CELDF on our session today -- CELDF
began a push for local laws to pass for rights of nature
and community rights laws in the US. And she'll talk
about that in her presentation.

In 2008 Ecuador was the first modern
constitution in the world, by modern I mean western
legal structure, to actually recognize the rights of
nature in its constitution.

In 2010 Bolivia implemented a national law.
In 2010 Bolivia also hosted this phenomenal gathering
looking at climate change and the rights of Mother Earth
and everybody worked together to create the UDRME.

Since 2016 activists and lawyers in Europe
have been pushing for an EEU directive for the rights of
nature in the European Union.

In 2016 interestingly not a legal structure
but a policy development the Greens party of Scotland
and a separate Greens party of England and Wales, both
adopted rights of nature policies.

2017 was somewhat of a push forward for the
rights of nature and legal personhood around the world
and attracted significant attention internationally. And
I'll talk in a moment about what happened with New
Zealand, India and Columbia.

There is also a lot of social movements around
the world as well as the work of the Global Alliance for
the rights of nature, all of which are bringing people
together who are trying to force through a shift in the legal system and also represent what people know in their heart to be true, that we are completely dependent on and part of the natural world. And our legal system should no longer treat it as invisible but the most important player in our society and our legal system.

Very briefly just for those who aren't familiar with it. The current framing of the rights of nature many people look to the work of Thomas Berry. He's written a number of books. He called for earth rights. It does build on a longer history of deep ecology and legal writing, everything from Christopher Stone, Should Trees Have Standing, et cetera.

There's quite a phenomenal body of work that we can turn to but I just wanted to mention that the theoretical framework that many of us use for the rights of nature comes from some of the ideas articulated really beautifully by Thomas Berry.

Any future governance system must recognize the rights of the non-human world to exist, thrive and evolve and generate.

Berry looked to first nations culture in law, as we all do, for deep inspiration for how earth centered governance and law can work and how it can permeate and infiltrate the living culture of our human world.
society. It's really important. But Berry also give us
a gift by challenging the western legal system to
actually look at this more seriously and to activate it.

And the other point that I would mention in
amongst this amazing body work that I could possibly
talk about today is rights of nature is a little
distinct to legal personhood because rights of nature
articulate that rights exist for life, and life
supporting system exists, and nature has its own rights.
It doesn't have to have human rights. Bees have bee
rights. Rivers have river rights. And these rights or
these arguments about how it should be maintained and
left to exist are really just based on the way that
natural systems, animals and plants work, live and
operate.

The final point on Berry is that he always
said that we are a community of subjects, not a
collection of objects. And that's a fundamental point
for the whole earth laws movement.

In a moment when I talk a bit more about New
Zealand, India and Columbia I'll talk a little bit about
legal personhood for nature but I won't go into too much
detail. There is a lot of material for those who would
like to read about it.

The main point that I would like to make is
that legal personhood and legal rights for nature is an emerging legal space but when we talk about legal personhoods we're, of course, talking about really taking the first step towards rights of nature. In our analysis at least, within the Australian Earth Laws Alliance, we see a bit of a difference. Sometimes in practice it's not hugely important but there is a difference in stating that something has legal personhood rights by either saying recognition as something like corporation, which is treated more as a legal person and not sort of as a human being.

And the difference is with legal personhood, and we'll see this in the India case, there's been a little bit of confusion for some people in how you articulate the rights of nature when you talk about it in literally in a human-centered way, legal personhood. We believe that Thomas Berry's articulation of bees having bee rights, a whole argument for the rights of nature, is that the intricate unique system of life has its own unique rights. But that said I won't go any further about this but what is important about the legal personhood space is that it's been a really -- it's an area that is developing quickly.

Last year we saw this with the progression of TREMAINE & CLEMENS, INC. EUGENE, OREGON (541)343-8833
a number of laws because it's a way for the western legal system to grab a concept that it already understands i.e. corporations and other entities have legal rights, legal personhood rights, and moving forward with that with nature. So it's offering up some very interesting analysis.

Very quickly though Ecuador in 2008 included these provisions and it's what I would say it articulates the rights of nature framework, not a legal personhood framework. It talks about the interconnectedness and vitality of life, the indivisible nature of life, the primacy of earth laws and so on.

There's been a number of successful cases argued under the rights of nature provisions in Ecuador including the rather famous Whanganui River case in 2011 that found for the rights of the river to flow, and other cases.

In Bolivia the national law is, again, very much focused on the rights of nature. Does not talk about legal personhood.

I just want to briefly show a photo of the Universal Declaration of The Rights of Mother Earth, the UDRME. For those who don't know it was held over more than a week and thousands and thousands of people were genuinely engaged in crafting and writing up the
documents. And Cormac Cullinan and many other people
were involved in that process.

Very quickly, again, in New Zealand in 2017 an
act was passed in parliament by the New Zealand
government that was the result of decades worth of
discussion and compensation, arguments between the Maori
people and the New Zealand government under the Treaty
of Waitangi. I can provide more info on this if you
want it but this is to just move through the slide
quickly.

What is important about the Whanganui River is
that it was the first time in the western colonized
nation that indigenous values and the recognition of
this living entity as a whole were embedded into a
modern legislative tool. It took the debate between
Maori people who wanted not just compensation but to be
returned to their spirits and their land and the Crown's
resistance to that argument. And it allowed somewhat of
a halfway house by using western tools and articulating
that the river has it's own legal identity.

And it's got two guardians, one from the Crown
and one from the Maori Trust as a set up to take away
the previous arrangement where it was just the ownership
of the Crown. A broader guardianship structure was set
up at the end of last year.
And the reason I talk a little bit about the Whanganui River is it is the one that has inspired references from courts in the court cases in India and Columbia.

Some people don't know that in New Zealand there are now three major ecosystems that have their own legal rights. The Urewara Forest is very interesting. Again, after many years of debate and discuss and arguments the Waitangi Treaty discussion process, legal decision process, came to a new act that came out in 2017 where the Te Urewara will effectively own itself into perpetuity.

And at the end of last year, and I still have to do some reading on how this structure will work, Mount Taranaki also has these same legal rights as a person. So New Zealand has been leading the way in the legal personhood development.

So interestingly on top of all that many, many years of the developments under the Treaty of Waitangi in early 2017 we saw a court case, two court cases pop up in India that were really important and grabbed international attention.

The state of -- I'm not even going to try to say that at six o'clock in the morning -- in India the court decided that the rivers Ganga and Yamura and all
their tributaries, streams, every natural water way flowing, are declared as a legal person and would have the status of a legal person with all the corresponding rights.

There's a whole range of issues that have been developing around people challenging that decision by the court, undergoing scrutiny, particularly around the idea that nature having liabilities. But the fact that this case has come into a jurisdiction that does not have the legislative basis for the rights of nature is extremely important and very powerful.

And the same with Columbia in 2017, again, in that first four months of last year we saw all of these river cases coming out. A court in Columbia recognized the Atrato River, together with its basin and tributaries, as a legal entity. And the river's rights are distinct from the community's rights and its rights are to protection, conservation, maintenance and restoration by the state and local communities.

And then earlier this year it went further and now the Amazon region inside Columbia has been recognized as having legal rights. It's the first time that a bio-region or sub-region has legal rights.

Just wanted to briefly mention that in Australia last year there's been a new act for the Yarra...
River which does not give legal rights to the river but it does, for the first time in Australia's sordid colonial history, recognize the indigenous peoples connection and spiritual connection to the river. It's an interesting development and one that many other communities are looking to. They are looking at that and connecting it to the rights of nature and seeing what can happen in Australia. And we had our first public rally for river rights in Australia in March in western Australia.

So what I wanted to say from that material was really simply that we see this emerging social and legal norm shift as really changing the way that people are looking at the legal system. It's a way for ecological governance and democracy to be shifted so that local communities, particularly at the broader earth community, can argue for greater standing, enforcement and rights of natural systems.

The increasing body of law demonstrates that it's a shifting norm, demonstrates that people want a different system. And increasingly it demonstrates civil society will not tolerate damage to ecosystems. And finally we have put into our written submission that we think that this growing jurisprudence, which articulates rights of nature and
how they can be enforced, is actually shifting what we think is towards a growing evidence of a customary international law by the rights of nature.

I'm not going to talk to these notes but I just want to flag, for the tribunal, that there are many issues around rights of nature, including how do you speak to nature, it's about relationships, about establishing the rights and duties. It can change standing in a legal jurisdiction. It already has in those places where the laws exist.

But, at the same time, it's also drawing on some very conventional legal tools, remedies such as injunction, compensation, restoration, and the ideas around indigenous custodianship, community guardianship new administrative and management structures for the rights of nature.

So, on the one hand, it has the potential and it is to turn its legal system on its head. On the other hand it can be implemented in such a way that is really no different than to setting up a structure to support a company.

Another important point to make when we think about the rights of nature within the context of this tribunal, and if people are kind of thinking how can we give rights of nature it's important to remember that
every time we've expanded rights there's resistance,
from ending slavery in the US to introducing votes for
women around the world, for the constitutional
recognition of first nations people in Australia,
people resist or hasn't been there before and once those
laws are passed they become the norm.

I'm going to end my little overview of things
with a lovely quote from Mari Margil. It's also my
segue into her presentation today. An important thing
to note is this idea of how could we possibly balance
the rights of nature? We believe it's completely easy
to do.

Recognizing rights of nature, as Mari Margil
puts it, does not put an end to human activities, rather
it places them in the context of a healthy relationship
where our actions do not threaten the balance of the
system upon which we depend. These laws do not stop
all development. They hold only those uses of land that
interfere with the very existence and vitality of the
ecosystems with depends upon them.

And before I introduce Mari I would like to
draw on this quote to remind the Tribunal why Lisa Mead
and myself have brought this case and invited these
amazing witnesses to join us.

We believe that unconventional oil and gas
extraction absolutely threatens the balance of the system upon which we depend. The impacts it has on land, the subsoil, plants and animals, particularly and most obviously water and human health, absolutely violate the rights of the natural system, takes out of balance our co-existence with other species and should absolutely should be stopped.

So that is the end of my overview of the emerging rights of nature laws around the world. It's now my really great pleasure to introduce Mari Margil from the Community Environmental Legal Defense Fund. She's an attorney based in the US and together with Thomas Lindsey and others at CELDF have really been leading the way on rights of nature law making around the world. So without further adieu I would like to introduce Mari.

Mari, would you like to give your presentation?

MS. MARI MARGIL: Thank you so much Michelle. Can folks hear me all right?

My name is Mari Margil with the Community Environmental Defense Fund and our International Center For The Rights Of Nature.

We are based in the United States but work around the world. In the United States we've assisted Tremaine & Clemens, Inc. Eugene, Oregon (541)343-8833
more than 30 communities to establish legal rights of
nature and the human right to a healthy environment.
This includes many communities that have been fracking
as a violation of the rights of nature.

We have also met in 2008 with the Ecuador
Constituent Assembly as they were drafting that new
coloration there on the rights of nature and, as
Michelle said, Ecuador is the first country in the world
to recognize legal rights of nature within its national
coloration.

Today our organization is working with
Michelle in Australia, in the United States, in Nepal,
India and other countries to advance rights of nature
and legal frameworks. As we see people across the globe
finding that legal systems which treat nature as
rightless, that is without even legal rights, basic
rights to exit, that they're unable to protect nature.

Today legal systems around the world have
split the world into basically two categories. One,
either as things or property without legal rights or as
rights bearing entities with legal rights.

Treated as property we find that nature is
considered to be without legal rights and, therefore,
environmental laws which we find around the world.

Environmental laws authorize the use of property, that
is the use of nature such as fracking through aquifers, drilling through the oceans or, as we have in the United States, blowing the tops off of mountains in order to mine coal.

Conventional environmental laws therefore, again, which we find around the world, they legalize fracking, they legalize drilling, they legalize mining and other practices, meaning environmental laws legalize environmental harm.

Under decades of these environmental laws which treat nature as property, which treat nature as being without rights, the state of the environment is worsening. And we see this in many ways including eco system collapse such as the die-off and bleaching of coral reefs around the world which support millions of species. And with species we see species extinction rates around the world occurring at rates that are greater than 1,000 times natural background rates. And, of course, climate change which is accelerating far faster that even the most optimistic scientific models predicted.

The Community Environmental Legal Defense Fund began our work with communities more than 20-years ago to help them protect against environmental harm, including things like drilling and mining, but we ran
into this system of environmental law which legalizes
environmental harm as well as the larger legal system,
which Michelle mentioned, which does things that
recognizes rights and protections for corporations,
including oil and gas corporations and other industries
which draft the very laws which regulate their
activities. That is, they're drafting environmental
laws which authorize their industrial activities such as
fracking and mining.

We learned, along with our communities, that
we can't protect nature under environmental laws which
authorize destruction. And with this, in 2006, we
assisted the first community in the United States, the
very first place in the world, to develop a new kind of
law. And that new kind of law recognized legal rights
of nature. This was Tamaquor Borough, a small community
in the state of Pennsylvania in the United States.

Since that time the Community Environmental
Legal Defense Fund has assisted more than 30 communities
which have done the same, recognized legal rights of
nature in their local legal system. This includes the
city of Pittsburgh, in the state of Pennsylvania, a city
of 300,000 people or so. It's the first city in the
United States to ban fracking as a violation of the
rights the nature.
We found that communities have found it necessary to recognize legal rights of nature, including rights such as the right to exist, to thrive, to regenerate, to be restored.

To recognize those legal rights of nature alongside the human right to a healthy environment recognizing that it is impossible to fulfill the human right to a healthy environment if the environment itself doesn't have rights.

And, for example, with fracking which contaminates millions of gallons of fresh water at each fracked well which harms human health and the environment which, of course, accelerates climate change, we found it's impossible to fulfill the human right to a healthy environment under legal systems which authorize the use of the environment for fracking. That is, under legal systems which treat the natural world as property as without rights and regulate its use to conduct fracking and other destructive activities.

And what we found is that environmental crises have extended across the globe, that there is a growing understanding that we must fundamentally change the relationship between humankind and the natural world and recognize the highest level of legal protection for nature that we have in the law. And that means the
recognition of legal rights of nature.

Furthermore, we find that communities as they're finding in the United States and in countries around the globe, an increase in fracking, an increase in fossil fuel extraction, of course, an increase in the impacts of climate change.

Last year, 2017, we assisted the first community in the United States, that is the city of Lafayette in the state of Colorado in the Rocky Mountains. We assisted Lafayette to ban fracking as a violation of (1) first the human right to a healthy environment and a healthy climate and, second, the rights of nature to be healthy and thrive, including the rights of nature to a healthy climate. They called it their Climate Bill Of Rights to prohibit fracking and fossil fuel development as a violation of the human right to a healthy environment and the rights of nature.

Lastly I wanted to finish by letting you know that we're also working, of course, outside of the United States and other countries and partnering with people, with communities, with NGOs and even governments to advance legal rights of nature frameworks.

And this includes in the country of Nepal where we've been working for a number of years to advance a rights of nature natural constitutional...
amendment, specifically a right to a healthy climate for humans and nature. And this includes the rights of the Himalayas to a healthy climate.

Nepal is home to Mt. Everest and studies show that the Himalayas are experiencing the fastest rate of warming from climate change of any mountain range on earth. By recognizing a constitutional amendment that is the constitutional rights of nature, including the rights of the Himalayas, intended to provide Nepal and the people of Nepal the ability to defend the rights of the Himalayas from climate change impacts from nature polluters around the globe.

I'll end there and thank you very much for this opportunity and I'm happy to take any questions. Thank you.

DR. MICHELLE MALONEY: Thank you, Mari. Does the Tribunal have any questions for Mari?

I have a very simple one, Mari. Based on the work that you've been doing I mean the nature of this PPT is looking at does fracking violate human rights and earth rights?

From your experience in the work of the communities that you work with do you think fracking violates the right of humans in the natural world?
MS. MARI MARGIL: We absolutely believe that fracking violates the rights of nature, the rights of human rights to a healthy environment, the rights of the natural world. And, furthermore, we see that by legalizing activities such as fracking and other fossil fuel extraction it stands in the way of people in their communities from not only protecting nature but with putting in sustainable earth friendly energy systems in their place.

It's impossible to have a sustainable energy system in your community if fracking is taking place. And, therefore, we see it as a fundamental violation of the rights of nature, of the rights of human kind to a healthy environment, and also a legal and practical barrier to establishing sustainable systems in its place.

DR. MICHELLE MALONEY: Thank you, Mari.

MS. MARI MARGIL: Thank you.

MR. GILL BOEHRINGER: Gill Boehringer.

Mari, I was wondering what has been the reaction in Colorado to what the City of Lafayette has done? Is there a challenge?

Well, yeah, can you tell us a little bit about it?

MS. MARI MARGIL: Well, in Colorado, as
in other places, the oil and gas industry, of course, is very powerful. We've seen communities in Colorado that have banned fracking or put moratoria on fracking. Have seen both the state of Colorado, that is the state government, along with the oil and gas industry sue communities to override, to overturn those laws.

I know you spoke yesterday or the first day of the tribunal regarding Mora County and John Olivas, a former county commission chairman there who we worked with Mora County, New Mexico to assist them to put in place their ordinance which banned fracking as a violation of the human right to a healthy environment and the rights of nature as well.

And what we found in both New Mexico and Colorado which are, of course, neighboring states in the US, is that you have industry and government partnering to stop communities from putting in place protections against fracking and successfully going into court and getting court rulings in which the courts are saying that state law pre-empts communities from being able to protect themselves as we saw in Mora County.

This is has not happened yet with Layafette, which I have spoke about earlier, which established a Climate Bill Of Rights. But I can tell you what, in Mora County which faced, as John Olivas I think
explained, a challenge in federal court and the US District Court, the federal court judge, Judge Browning, said in his ruling which found that Mora County was pre-empted in banning fracking, he also wrote in his decision that Mora had quote "a legitimate county interest in enacting the ordinance."

That is that he noted sympathy for the community and said they had a legitimate interest in trying to protect against fracking, to try to protect the human health and the environment and nature from oil and gas extraction, but his hands were tied.

That is he found that state law pre-empted the community and he said specifically that this is something that the state government and the federal government and courts were going to reckon with in order for the people of Mora County to protect themselves.

So I say that to say we see this very much as the beginning of a movement. Michelle spoke in her opening about this being really we see this as standing on the shoulders of past peoples movements who saw that government and laws were oppressive and unjust and needed to have a fundamental shift in those laws in order to protect people. And in this case to protect nature.

And we see this about building a movement to
do so which means confronting unjust laws and putting in place laws that establish what we need to see in the law even when those laws may get challenged. Because we know that we have to keep pushing that forward to ultimately establish in the United States, of course, at the state level and ultimately at the federal national level these kinds of laws including constitutional rights of nature.

And in the United States in places like Colorado where Lafayette is, which established the Climate Bill Of Rights at the local level, we've been working with people and communities and groups to advance state level constitutional amendments which would begin to codify rights of nature protection at the state level. And we see it in the United States needing to build upward from there, including through this local law making to the state level and to the national level.

MR. GILL BOEHRINGER: Thanks.

One other question just to get it on the record. We've had a number of people, including in the previous session, a very strong position that fracking is inherently damaging and needs to be banned. You can't frack and expect nothing bad, no harms to happen.

So I was wondering what your recommendation is to the Tribunal. Are you asking us to recommend that it
be banned like a moratorium or total ban or whatever?

MS. MARI MARGIL: Yes. I think the short answer is yes. I think it is inherently destructive, inherently violative of a human right to a healthy environment and to the rights of nature.

MR. GILL BOEHRINGER: And you say that on the basis of many years of working on this issue. It's not just an opinion. It's a thoughtful and reasoned response to what you have seen and read and understand.

MS. MARI MARGIL: Unfortunately it comes from communities across the United States as well as, of course, study upon study, which shows the environmental destruction that comes from fracking but the many, many people and communities and even governments that we have worked with across the United States, which has seen that even upon the threat of a lawsuit from industry or even their own state or federal government, people in their communities and local government officials are moving forward to ban fracking as a violation of the human right to a healthy environment and the rights of nature, because they understand that it is inherently destructive and inherently violative of rights.

And even with the threat of a legal challenge they are needed to move this forward because they have
no other way to protect themselves other than by taking
this step at the local level to establish a legal ban
knowing that they could be threatened with a lawsuit,
they could be threatened with bankruptcy at the
municipal community level, but they see that they have
absolutely no other choice under the law than to take
that step.

MR. GILL BOEHRINGER: And just to follow
up. I hear from the evidence and the testimony and what
I also know from my own experience and research, the
real problem here is that the corporations are so
powerful that they get away with ignoring the law,
vioating the law, so that simple law reform or trying
to tighten up regulations and so forth cannot work.

Would you agree with that?

MS. MARI MARGIL: Yes. And we didn't
really have the time in the presentation to speak about
it but our work is broader than recognizing the rights
of nature and banning activities such as fracking.

We take a very systemic approach to protecting
the natural world. And by that I mean as we absolutely
recognize that so long as corporations have rights and
protections which they wield against people, against
communities and, of course, against nature that we
simply cannot protect the environment.
So even if we prohibit fracking tomorrow around the globe corporations will find another method to extract oil and gas and fossil fuels. And so, therefore, we have to understand that the system itself is destructive to the natural world.

It's not enough to just ban fracking or just to ban mining or other destructive activity. We have to fundamentally change the system of law. And that means in our communities, for example, in the United States not only are we assisting them to recognize rights of people, communities and nature, we're also, then, simultaneously removing corporate constitutional rights, corporate protections when they come in to violation of people, communities and nature. So essentially elevating the rights of people and nature over the rights that corporations have.

Because without a fundamental shift in that system, without establishing that the rights of people and nature are prime, then we are unable to protect the environment. And so we work with more than 30 plus communities in the United States to withdraw, to remove corporate constitutional rights when they will violate their human right to a healthy environment and the rights of nature.

And without doing that then you're kind of
leaving out half of the equation by establishing rights but without removing the rights and protections that the corporations have of which they can override the rights that nature has.

MR. GILL BOEHRINGER: Well, let me just follow-up on that again. Sorry, this is very interesting and important I think.

And I like your approach but I would say that I am a little skeptical about using the law and concepts of rights and so forth to control corporations given their power and not only regulatory capture but governmental capture.

And being a criminalogist I know that there is a lot of power that goes along with money and that corporate bodies have gotten away with murder in the work place, you know, and on and on and we could go on. And because there are many things in this discussion about fracking that reminds one of the tobacco companies, big pharma and the other who knows things.

Asbestos here in Australia. We had a shocking example of that with Hardee's. They know and they do. So maybe we should be talking about getting rid of corporations in some way or moving towards a cooperative community rather than one dominated by corporations.
MS. MARI MARGIL: Well, I think to that point specifically, you know, when we work with communities they understand that it's not enough to prohibit fracking.

For example, without looking at another means to create sustainable energy systems and the idea of cooperatively or community owned systems, to provide energy or farming or water this course is being increasingly discussed and methods to implement.

Because I think you're quite right we just can't eliminate the need of energy. We need to a way to do it sustainably and locally and in a humane system.

And I guess I would just say one other thing, if I may, that is sort of a broader idea which is I understand what the Tribunal is very focused on fracking which, of course, is taking place now around the globe, but we also think it's critically important that we don't, I guess, divide ourselves by certain kinds of environmental destruction or environmental practice.

And by that, I mean, of course you mentioned big pharma. You know, there's big oil, there's big gas, there's big ag or big food. You know, there's all sorts of ways that corporations and industry have divided us as those who are seeking to protect the environment by a particular practice, environmentally destructive
practice such as fracking.

So which is to say that I think that we need to take a very systemic view of how we treat the natural world. So it's in the communities that we work it's very often that they're trying to stop a particular imminent threat such as fracking.

And so, of course, that's what they're focused on prohibiting as they establish the rights of nature. But they're not simply trying to protect the natural world from fracking. They're trying to protect it on the whole.

And, therefore, activities such as fracking but also corporate agriculture, pesticide spraying and other activities, communities and people who are advancing the rights of nature in other parts of the world at different levels of government, they're doing it on a broad spectrum that is to protect ecosystems, to establish the rights of ecosystems, the rights of natural communities across the board. Not just to stop fracking. Not just to stop corporate agriculture and other kinds of activities recognizing that it's going to take a fundamental systems change in how we treat the natural world.

And I think it creates difficulties with us within the activist or advocacy world trying to protect
the environment and that we find ourselves divided by
these different practices.

And, therefore, we think we need a systems
based approach, not only to protecting the natural world
but in how we conduct our own advocacy to do so.

MR. GILL BOEHRINGER: Thanks. That's
really important.

DR. MICHELLE MALONEY: Thank you, Mari
I'm aware of time and our time allotment so we might
move on but I can't really thank Mari enough for
elaborating on the approach that they have been using
and the work they've been doing and really the tragic
consequences that they see in communities of the impacts
of fracking.

And I guess I would also like to validate the
approach that CELDF used and had shared with us and told
us about which is this local law making approach, the
blanket recognition of the rights of communities and the
rights of nature to, indeed, challenge all environmental
hazards and threats rather than breaking them off into
little bite-sized chunks.

Mari Margil, you're very welcome to stay on
this session with us. But thank you so much for your
time. We'll now move on. Is that OK?

MS. MARI MARGIL: Thanks Michelle.
Thanks everybody.

DR. MICHELLE MALONEY: Thank you, Mari.

So thanks everyone for continuing to be with us.

In our next piece of video material we're now going to hear from scientist Dr. Damien Maher from the Southern Cross University based in Northern New South Wales in Australia.

Damien has done extensive research particularly focusing on the gas fields in Queensland. I apologize for not having a map but those not familiar with Queensland it's the big pointy bit at the top of Australia on the right-hand side. And the Surat Basin is in the middle of that big pointy bit at the top of Australia on the right-hand side.

I am now going to turn to my trusted colleague, Lisa Mead, to show the video. I interviewed Damien Maher last week and asked him about a couple of specific issues.

We were particularly interested in his research in fugitive methane emissions. So basically the gases that leak up through the coal seam wells in Queensland and trying to understand what are the threats from those methane gas emissions, the bits that leak through water and soil, its contribution to greenhouse
gas emissions and its threat to water and life around it.

So, Lisa, are you able to show that video for us?

MS. LISA MEAD: Yes.

DR. MICHELLE MALONEY: Thank you. It's about 15 minutes everyone.

MR. DAMIEN MAHER: My name is Damien Maher. I'm an Associate Professor at Southern Cross University in Australia. And I work in the School of Environmental Science And Engineering.

DR. MICHELLE MALONEY: Thank you, Damien. Before we talk in detail about the research that you’ve undertaken in relation to fugitive emissions and unconventional gas extraction can you please give us an overview of how unconventional gas extraction contributes to climate change and why it's important to measure fugitive emissions.

MR. DAMIEN MAHER: So one way of talking about unconventional gas we're talking about extracting methane and methane is more potent as a greenhouse gas than carbon dioxide.

So if we have to look at the global warming potential of methane it's gotten 86 times more potent over a 20-year time frame and about 34 times more potent...
than carbon dioxide over a 100 year time frame.

So essentially if we have leaks of that methane during the mining process or the transportation process then we need to account for that in terms of the affect on climate change because we're increasing the atmospheric concentration of methane.

DR. MICHELLE MALONEY: Thank you, Damien.

So now can you please turn to your own research and can you give us an overview of the research that you have carried out within Southern Cross University regarding fugitive greenhouse gas emissions from unconventional oil and gas extractions.

We're quite interested in knowing the nature of the research, your focus areas and the geographical location and what the key research parameters and questions were.

MR. DAMIEN MAHER: Okay. So the research that we've undertaken is primarily in the Surat Basin in Central Queensland.

The research questions that we were interested in were do we have higher methane concentrations in the atmosphere in the gas field as opposed to outside of those gas fields.

We've also done work looking at ground water/surface water connectivity and how coal seam gas
development may influence that in the Clarence Morton Basin, which is also in New South Wales.

So some of the research questions that we were really interested in is there a distinct enrichment of the methane in the atmosphere in those coal seam gas fields compared to nearby areas?

If so, what are the potential pathways of those emissions?

So is it coming just from the wells and the infrastructure or are there other pathways for that methane to enter the atmosphere?

We're also interested in whether or not we can use stable isotopes which are essentially a chemical fingerprint of that methane to determine if it's coming from the coal seam or if it's coming from other pathways.

So for the ground water/surface water connectivity work we did we're really interested in undertaking baseline studies to understand how important ground water is in surface water and river hydrology and ecology.

DR. MICHELLE MALONEY: Thank you, Damien.

So particularly in terms of the fugitive emissions can you talk to us a little bit about the findings of your research so far?
MR. DAMIEN MAHER: Yes. So essentially what we found was much higher concentrations of methane in the gas field, in the Surat Basin, than outside of the gas fields.

So we used instrumentation that allowed us to also measure the stable isotope ratio of those methane emissions and we compared that to the stable isotope ratio or the chemical fingerprint of the methane that is found within the coal seams of the area and we actually found that it matched as well.

So not only do we have higher concentrations in the gas field but that methane is coming from the coal seam. So it can be, obviously, other potential sources of methane.

So in that area there are large cattle feed lots and wetlands and so on but we were able to kind of narrow it down to emissions coming from the coal seam.

So another bit of work that we were interested in was kind of characterizing the pathways for that methane to enter the atmosphere. And to do that we measured radon concentrations in the atmosphere. So radon is a radioactive gas that is formed in the soils.

So our hypothesis was that, you know, some of these gases may be coming up through the soils rather than by the infrastructure. And through our radon...
measurements we actually found a very strong relationship between radon concentrations and the number of nearby wells.

So it appears that this methane is not only leaking through or leaking through the infrastructure but also potentially coming up through the soils as well.

DR. MICHELLE MALONEY: Thank you, Damien.

So I guess to recap for a layperson, someone who is not a scientist, what you're telling us is that your research has demonstrated a process for identifying specific types of methane coming from specific sites.

You can actually tell through your process that it's coming from the gas fields.

MR. DAMIEN MAHER: Yes. We can use isotope fingerprinting techniques to differentiate the different potential sources so through doing that we can say that the dominant source of methane that was in the atmosphere came from the coal seam originally.

DR. MICHELLE MALONEY: Thank you. That's very helpful.

And another question, I guess, from a layperson's point of view, a non-scientific point of view, are you able to explain or quantify to what extent or to how much of the methane that's coming out of the
soil is different to what would be in the background atmosphere? Like what kind of volume are we looking at?

MR. DAMIEN MAHER: An excellent question. And certainly our research we couldn't quantify that yet and that's an ongoing area of research that we're looking at to kind of take those initial measurements where we can see that there are leaks and to actually quantify how large those leaks are.

So we're certainly still working on that but I couldn't give an answer to you now.

DR. MICHELLE MALONEY: Okay. Well, perhaps something that would help particularly as we have an international audience, can you estimate how many wells we have in Queensland at the moment or in Australia.

MR. DAMIEN MAHER: So looking as of about 2014-2015 I believe there were about 6,000 or 7,000 wells, coal seam gas wells but, yeah, since then I'm not sure. But certainly the number of wells has been expanding exponentially since the early 2000s.

DR. MICHELLE MALONEY: Yes. So if every well has been proven to be leaking methane we already have 7,000 to 10,000 of them in certain regions of the Australia and it's only growing then, obviously, the
total amount of methane fugitive emissions are increasing.

MR. DAMIEN MAHER: Yes, it's quite possibly the case but not all of the wells are leaking but, you know, there certainly hasn't been analysis on all of the wells. But what we can say is that there are leaks and widespread leaks occurring in these gas fields.

So other research in the US, for example, has found that a lot of the leaks are coming from a smaller number of the wells but, you know, I don't think we're in a position here in Australia to kind of make those judgments yet.

DR. MICHELLE MALONEY: Thank you, Damien.

So do you believe that given these leakages, these impacts on climate change, these leaks of methane into the atmosphere, can they be mitigated or completely eliminated from the industrial practices of the gas fields?

MR. DAMIEN MAHER: Well, my personal opinion is that you can not stop all the leaks. There will always be leaks. No matter how good the management is there will always be leaks.

So all that can be done is that things are monitored and measured and, you know, those leaks are
addressed as soon as they've kind of found.

I guess one thing that our research suggests may be happening are these methane leaks through the soils. So this could be due to changes in the geological structure through fracking and so on that actually increases the connectivity of the coal seams and the atmosphere. So we may have created cracks and fissures that actually allow that gas to flow from the coal seam into the atmosphere.

Now these leaks are far more difficult to deal with. And there's an example in the Surat Basin where we've done work of large methane seams in the Condamine River, for example.

Now whether those leaks are natural or due to industrial development in the area we may never know because we didn't undertake baseline studies in the area prior to the industry going ahead. But if these large seams are due to dewatering of the coal seam and fracking and so on then they may be occurring elsewhere. And trying to seal up these fugitive leaks is far more difficult than fixing up a leaking pipeline or well, for example.

So, yeah, my opinion is we can't stop all the leaks and it takes a lot of monitoring and good management to minimize those leaks.
DR. MICHELLE MALONEY: Thank you.

And, in fact, picking up on the absence of baseline information, would you say that this area is under researched in Australia?

MR. DAMIEN MAHER: That is certainly something that myself and my colleagues have been calling for is the extensive baseline studies prior to the development of an industry in area.

And certainly historically they haven't been done extensively enough and, you know, it's something that you really have to do to assess any changes. So I would certainly say that, you know, we need to be doing it and it's probably not being done as well as it should be.

DR. MICHELLE MALONEY: Yes. Thank you Damien.

It's obviously one of the many concerns is that the industry is underresearched and we do not understand its full impacts in many places.

So a final question is really your opinion, based on the work and the places you've been and the impacts you've seen, in your opinion, given our understanding and the current practices in the gas fields, do you think that fracking and unconventional oil and gas extraction should be banned?
MR. DAMIEN MAHER: Well [indiscernible] need to make those decisions but certainly in particular areas, say, where we have ground water dependent ecosystems, very valuable ecosystems that may be affected by fracking and unconventional gas extraction then, yes, certainly in some areas it should be banned. But a whole industrywide ban, you know, that's not for me to kind of make a decision on.

I would say that certainly we need to be assessing and accounting for the fugitive emissions when we're kind of weighing up unconventional gas in terms of it being a breaching fuel.

So a lot of the push towards using unconventional gas as an energy resource has been based on the fact that at the end point of combustion we produce less greenhouse gases than if we were before using coal or other fossil fuels.

However, if we start hitting on the global warming potential and the leaks of methane on top of those end point of combustion greenhouse gas emissions then we start to see a bit of a leveling of the playing field between other fossil fuels and gas.

So we need to kind of look at the big picture scenario here when we talk about using unconventional gas as a breaching fuel.

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DR. MICHELLE MALONEY: Absolutely. Okay

Damien, thank you, so much for your time and we'll leave
it there for now. Thank you.

Thank you very much, Lisa, for showing that
video interview of Damien Maher.

I'm now going to return to sharing the screen,
just bear with me while I fiddle with the technology and
we'll move on to our next part of our presentation.

That was just a segue from the comments that
Mari was making about the natural world not being
property and the fact that around the world communities
like the Australian Earth Laws Alliance community and
others are hosting their own Rights Of Nature Tribunals.

We'll be holding our Rights Of Nature Tribunal
in October on Saturday the 27th in Australia. We'll be
looking at a range of issues to do with big Ag and the
impacts on the Great Barrier Reef and forests.

I'm now very pleased to hand it over to Lisa.

She's going to give an overview of some of the research
that is connected to our submission that looks at the
violation of the rights of nature due to earthquakes and
seismic activity that is believed to be caused by
unconventional oil and gas extraction.

So, Lisa, I'll move the slides for you. That

might make it easier but if you would like to begin.

TREMAINE & CLEMENS, INC. EUGENE, OREGON  (541)343-8833
MS. LISA MEAD: So, yes, another very dramatic and immediate threat from unconventional oil and gas extraction to the living world is the industry's causation of earthquakes and seismic activity. And these are often caused by the waste water that remains after drilling activities being injected back underground at high pressure.

Now this waste water may contain chemicals, many unknown or untested chemicals, heavy metals and radioactive materials.

So in Appendix 1 of our written submission as well as in our main submission document we've set out a non-exhaustive list of some of the seismic events that have occurred as a result of various kinds of unconventional oil and gas extraction.

And just to give you several examples when it comes to nature that we're talking about this first example took place in 2011. There was a 5.3 magnitude earthquake in Colorado which was ascribed to waste water injection wells from coal bed methane production.

And the research that was carried out in the Raton Basin of northern New Mexico and southern Colorado but Justin Rubenstein and his colleagues in 2014, which we've referenced in our Appendix 1, showed clear evidence that the earthquake sequence was induced by
fluid injection from that coal bed methane process.

So the abstract of that research stated that they investigated the ongoing seismicity in the Raton Basin and found that the deep injection of waste water from the coal bed methane field was responsible for inducing the majority of the seismicity since 2001.

Many lines of evidence indicated that this earthquake sequence was induced by waste water injection.

First there was a marked increased in seismicity shortly after major fluid injection began in the Raton Basin in 1999. And from 1972 through July 2001 there was one earthquake of a magnitude of greater than 4.0 in the Raton Basin whereas 12 occurred between 2001 and 2013.

And they said that the statistical likelihood that such a rate change would occur if earthquakes behaved randomly in time is just 3%. So they said more of this rate change was limited to the area of the industrial activity and that earthquake rates had remained low in the surrounding area.

And so secondly that the vast majority of the seismicity was within five kilometers of the active disposal wells and the seismicity was shallow, ranging in depth from 2 to 8 kilometers.
And in our second example in 2006 mud began erupting from the ground in volcano-like fashion in an urban area of Java in Indonesia. And this was 2006. And as of 2015 so it was still flowing. This loosey mud flow it caused almost 40,000 people to be displaced and nearly three billion dollars in damages and disaster management.

And a study in 2015 concluded that the likely cause was nearby gas drilling which forced fluid into a clay layer via the open well. And I think there's a photograph on the next slide, or back one. This was the first day it happened so you can sort of see the area that got some. Just a disastrous impact on that particular area.

So in our submission to the Tribunal we draw on the rights of nature set out in Article 2.1 of the Universal Declaration Of The Rights Of Mother Earth and assert that the rights of the land and the subsurface are being violated by these activities and, in particular, the following specific rights are being violated:

The right to well-being;

The right to continue their vital cycles and processes free from human disruptions;

The right to integral health;
And right to be free from contamination, pollution and toxic or radioactive waste.

And just to say I think Cormac Cullinan touched on this yesterday that the concept of integral health in the Declaration Of The Rights Of Mother Earth reminds us of the essential interrelatedness of every aspect of the earth's community and that the health of the whole system affects the health of any aspect or being within it, and vice versa.

So this understanding is also reflected in Article 1 of the Universal Declaration which states that each being is defined by its relationships as an integral part of Mother Earth.

And in this case it's clear that earthquakes and seismic activities disrupt the capacity of nature to provide a stable, safe place for life exist, to thrive and to flourish.

Thank you.

DR. MICHELLE MALONEY: Thank you, Lisa.

Because of time unless, anyone has a pressing query we might keep moving.

All right. We'll keep moving.

Thank you so much, Lisa. In a moment we'll go to our final piece of video evidence.

So we were very interested when we were
Putting together the arguments and case that unconventional oil and gas extraction violates the rights of nature, to understand why communities were banning or creating moratoria to stop fracking in their communities.

So the next piece of video information is basically enabling us to learn from Scotland's approach to prohibiting gas fields in their communities and only the most extensive review of evidence undertaken.

We will hear, in a moment from, Professor Andrew Watterson from the University of Sterling in Scotland and Dr. Wil Dinan also from the University of Scotland.

Professor Andrew Watterson is the head of the Occupational And Environmental Health Research Group and a member of the Center For Public Health And Population Health Research at the University of Sterling in Scotland.

So he works in the areas of risk assessment, risk management, risk regulation, in energy and agricultural sectors. So his evidence is very important.

Dr. Wil Dinan is a lecturer in Communication Media And Culture at the University of Sterling. And he's published on various aspects of political and
environmental communication and regulation.

So I will unshare and, Lisa, if you could run
this video that would be terrific. Thank you.

DR. ANDREW WATTERSON: I am Andrew Watterson. I work at the University of Sterling in
Scotland and I am in the Occupational And Environment
Health Research Group which functions within the Center
for Public Health and Population Health Research at the
university.

DR. WIL DINAN: I'm Wil Dinan. I am from
the faculty of Arts And Humanities Communication And
Media Culture. I am affiliated with the health center
that Andrew just mentioned.

DR. MICHELLE MALONEY: Can you please
briefly outline the research that you've carried out in
relation to fracking and unconventional oil and gas
extraction?

DR. ANDREW WATTERSON: In the last four
or five years we've been looking at unconventional gas
extraction that's been linked to various proposed
projects and developments in Scotland relating to coal
bed methane and also underground coal gasification, but
our focus has been primarily on fracking. And in that
context we've got a range of interests initially linked
to looking at health impact assessments that have been
done on fracking, both in England but also further
afeld and to get an idea about what the hazard are,
what the risks are.

    DR. MICHELLE MALONEY: Can you confirm
the countries the research that you were looking at?

    DR. ANDREW WATTERSON: American
research. We looked at Canadian research. We looked at
Australian research. We looked at some German research
as well. So we cast our net fairly widely.

    Obviously fracking is going on in a limited
number of countries. And the US is the major source of
information and there is quite a lot of paradoxical
things for us because the industry was constantly saying
we've learned from the lessons of Pennsylvania and now
things are better.

    And we were frequently reading, of course,
about a whole series of problems still in Pennsylvania.
But obviously you're looking at where the activity has
gone on although different countries might have had
different settings.

    DR. WIL DINAN: We also looked at, just
very briefly, what we could find just in terms of policy
debated places where they were considering fracking
too. So, we were just looking at where public opinion
was on this issue in different countries to summarize a
bit about the research as well.

DR. ANDREW WATTERSON: And we were also interested in looking at the total picture surrounding fracking with regard to the health of the life cycle analysis of fracking.

So that means when the materials come in what are the health implications. The technology, the machinery that's developed, what are the implications? The transport in and materials. The removal of products and the removal of waste products at the end, decommissioning and so on, the total picture.

We find that there are often life cycle analyses of the economic impacts of energy activities but there isn't one for fracking, or at least not yet. And we were concerned that some of these impact assessments were limited but they could be skewed towards industry rather than take full note of the position of the communities. And that they might even reflect the view of government that had already prejudged the issue of fracking and effectively was engaged in gathering evidence to approve a particular policy option other than making policy on the basis of the evidence.

So we looked at scientific and governmental papers. We looked at toxicology and epidemiology
papers. We looked at industry and regulatory practices. We were also concerned with possible implications for climate change and public health, mental health and well-being and where the precautionary principle fitted into all of this.

DR. WIL DINAN: Yes. And I should just add to what Andrew said there. The way that this comes from studying, I suppose, that the policy process and communication around this issue looking at how industry would seek your consent for operating and for fracking. But also I suppose how scientific expertise and different forms of expertise were translated into the policy debate.

So the results of those kind of interests Andrew were laid out and that kind of formed the basis for a series of articles that were published over the last few years.

MS. MICHELLE MALONEY: Would you summarize the main findings of your studies?

DR. ANDREW WATTERSON: Okay. So, together we've done three peer reviewed papers in scientific journals and we've produced two reports and we've also offered information to governments and others.

So our concern was about how that risk that
related to the established hazards and some of the suspected hazards that the fracking were dealt with. And to do that we needed to look at a range of scientific literature and, as Wil said, to look at some of the policy materials to give us an idea of what was going on.

So at the end of the day we had 14 projects or papers that were looking at fracking and were providing information about both public health and related issues. And we looked at the processes that were used to create policy. And within those paper and reports we looked at 10 key characteristics linked to public health.

So that would include occupational health. It would include climate. It would include transport. It would include seismicity. It would link in with the economic benefits and disbenefits. And I think Wil will say something about sort of the broader elements about that. We also looked at regulation and industry.

And what we found was that, firstly, Scotland was the only national assessment that had ever been done of fracking. So there had been assessments in states the US. There had been some assessments made in provinces in Canada. There had been some studies done in towns and municipal regions but the only global...
national assessment of fracking had come out of Scotland.

And Scotland also addressed all of the key areas that have been mentioned and brought them together in the context of engaging the public as well. So they had the findings. There was the evidence. They got a view from the scientific community, from regulators and then they presented out to the public and communities. But in that sense it was quite unique.

But at the time it was done it was the most extensive review of the literature, the most up to date review of the literature. Not perfect and Wil will perhaps say something about that a little bit later. But, nevertheless, the best thing that we had to offer.

DR. WIL DINAN: Yeah, I would just add to that, I mean I think really two features to that in terms of the depth and the detail of the Scottish case. One was the analysis of public health research and public health impact strand. And that was very, very detailed.

I think it was conducted in a way that allowed other research-makers to make a serious evaluation of the work that had gone into our opinion, the advice that was given to government. So that was one aspect that stood out that led into.
The other I think really outstanding aspect in terms of comparatively understanding which was that the public consultation element was very, very strong. Very few of the other integrated assessments we looked at had such an element of public engagement.

Some of them had elements early in the process where they kind of consulted key stakeholders and then carried on.

The Scottish study which, I suppose, is remarkable for its effort of those stakeholders early in the process and then returned with this evidence to the public later on for kind of a wider differentiation about what this all means and then that fed into policy-making. Of course policy-makers weren't bound by this but it certainly informed their thinking and I think that was a real, you know, a real striking characteristic of the Scottish case.

DR. MICHELLE MALONEY: Do you think that there were any things that you would have improved in the way they would have approached it?

You said it was outstanding in some ways.

DR. ANDREW WATTERSON: I think they can't justify their conclusions but there were big gaps in the evidence about the tangent effects but it was also, from our point of view, evidence of significant problems in
the literature. And not all of that literature was necessarily covered at the time.

So at the time and since we've seen more evidence about the neurological effects, about the reproductive effects, about developmental effects, about carcinogenity and possible exposures, about mental health and well-being damage. All of those things have come out and, perhaps, could have been even stronger in the reports.

I think we were concerned that there was probably an underclaim of the mental health and well-being impacts, both in proposals to fracking as well as fracking.

And we also had some concerns about probably, I think we would say, a lack of rigor in terms of looking at how well regulators could deal with the problem and how good industry practice was.

In a sense some of these things were taken as a given but with all of those limits, nevertheless, the conclusion of those reports was that you couldn't make a strong case for fracking linked in with the things that Wil mentioned in terms of the public engagement which was huge. Nothing like it has occurred anywhere else on the globe.
I think that underpinned the decision that the Scottish government took the policies issue not to pursuing fracking.

DR. WIL DINAN: It's kind of striking when you look at it in terms of what this debate is really about is that there was not really a dedicated Environmental Impact Assessment. So you had a really striking quite detailed -- I can go into some of the minutia later on but still I would say it was globally quite an impressive public health impact assessment.

And for some reason the Scottish government decided not to have an Environmental Impact Assessment. They would argue it was assumed under an opinion that came from the climate commission about climate impacts and stuff but you still -- there wasn't the depth in that approach that you saw in terms of public health. So I think that's quite striking.

DR. MICHELLE MALONEY: What poses the biggest health risks, either to humans or to animals?

DR. ANDREW WATTERSON: I think there's probably international agreement about what the risks will be. There will be air pollution. It's what level will the pollutants be there?

The hazard is there. Nobody disagrees about that. It's what the risks will be. What the exposure
The same would be true of water, and we're not just talking about accidental spills there, we're talking about waste water treatments and indeed the capacity, certainly in Europe and this has been flagged by other researchers, the capacity to deal with fracked water. So that would be an issue.

And then there is the problem afterwards about to what extent do we understand the geology, bearing in mind particularly in the central belt of Scotland is a coal mining area with lots of seams and shafts, that could be a major issue. I think that could be within England.

And then we've got the soil pollution issues. So I think there is, even in industry, there is a recognition that there are hazards. The argument is that the industry will be able to control soil, water and air pollution, and it will never be at levels that create a problem.

But that seems to ignore, from what we have seen and again, perhaps, it was underplayed in some of these Scottish government reports, it seems to ignore the issue of low level exposure, you know. And if people are focusing on parts per million or parts per billion they're missing the picture because if we're
looking at endocrine disruptors and some of the other
effects we're looking at parts per trillion having an
effect.

So the argument, well, there will only be very
low exposure, it won't be a problem, simply isn't the
case.

And what's perfectly clear from the work of
environmental scientists in the UK, highly respected
ones, is that the view that if we pursue this as an
energy source then the climate impacts are going to be
considerable and those impacts will adversely affect
public health.

So I think our focus has always been public
health. And the big global picture will come back to
Scotland. People in Scotland won't escape the
implications -- about the public health implications of
climate change. So the big picture is that it's a
no-no.

There are alternatives that are likely to be,
certainly in the middle term, again, leading to greater
prosperity, you know, tourism and the green image of
Scotland. So all of these things would be damaged by
having hundreds or thousands of wells. And, you know,
there is the threat of livelihood as a public health
issue.
The benefits perhaps, the economic benefits, that have been identified seem to be very, very small. And it's not a sustainable approach even in terms of the industry for more than a decade or two.

DR. WIL DINAN: I think I would like to jump back to his last point being that the economic analysis I think, but even the best projections that were estimated on the impact, long term impact of fracking in Scotland were still disappointingly low, in fact disproportionately low I thought.

But, you know, it really made it difficult for the Scottish government to make a case based on kind of the benefit in terms of economics. So I think all these issues that Andrew raised around the difficulties — you know, it would almost force government into a precautionary approach.

And I think what's really striking in terms of the Scottish posture on this compared to the UK posture is that the Scottish government has kind of adopted, they don't use that language precisely, but there's very definitely precaution in our policy-makers who have proceeded with this whereas you compare it to Westminster it's kind of an economical dash for cash and they're doing it in the face of quite, you know, public opposition. And, as Andrew pointed out, actually a huge
amount of questions and evidence, comments before, that
really questions the sense of this in terms of
sustainability, economics and the kind of global
impacts.

MS. LISA MEAD: That's the end of the
video. Do we have Michelle there?

DR. MICHELLE MALONEY: Yes, I'm still
here. Thank you, Lisa. Thank you very much for showing
that video material.

I'll just bring up our slides again so that we
can move into our closing statements. Okay.

So I really want to thank Lisa for having that
discussion with the researchers in Scotland. I think
it's very important that we learn about all this
analysis the reasoning that they used to actually impose
this moratorium or a ban on fracking. It's a very
valuable report as well for the rest of us.

So we're very pleased to be coming to the end
of basically the four hours of discussion about earth
rights within the context of this Permanent Peoples'
Tribunal on the impacts of fracking.

What I would like to do is give a brief
summary of the overall case that we've presented to the
Tribunal and then I'll hand over to Lisa to talk about
what we would request the Tribunal consider and
recommend.

So in a very brief overview of the session today we've heard from Mari Margil at CELDF about the work they've been doing in the United States to not just activate bans on specific areas related to fracking but to actually look at transforming the system by using community rights and nature rights to, I guess, to impose a local law that actually bans those activities but also protects the right of nature.

We have also heard evidence about linking to greenhouse gas emissions and other aspects that I'll talk about. But in summary by drawing on the Universal Declaration of The Rights of Mother Earth, the UDRME, we argue that nature's rights are being violated by unconventional gas and oil extraction in four main or four significant areas.

It violates the rights of rivers, aquifers and waterways and by linking specifically to the wording of the UDRME we believe fracking violates waterways and rivers in that it violates their right to continue their vital cycles and processes free from human disruptions;

It violates the right to integral health, which Lisa spoke about before as a way of explaining or articulating the interconnectedness or the vital inter-connectedness of the good ecological health;
It also violates the right of water systems to be free from contamination, pollution toxic or radioactive waste;

We heard from Gavin Mudd in Australia where the Condamine River has now quite famously been set alight because it had so much gas or methane bubbling up into the waterways, this in an extremely arid area.

We also heard that sometimes when the fracking and coal seam gases process takes place no one can guarantee that they can repair the aquifers, the actual structural damage to the rocks and the soil and earth as they break through.

And the interconnectivity of the waterways means that when you violate the rights of a river in one place that water flows and interconnects to ground water and other places. So we strongly believe fracking absolutely violates the rights of rivers, aquifers and all things liquid in the living world.

We also just today heard from Damien Maher about the research that's been undertaken to look at fugitive emissions from coal seam gas in Australia but research around the world shows that methane, which is the most damaging greenhouse gas emission, is leaking from coal seam gas and other forms of fracking.
about Damien's evidence is that they've got a very
specific process of proving that methane emissions are
coming from the industrial gas processes. It's not
background -- in the background of nature.

There is an absence of information. There are
no baseline studies undertaken about what's going on in
the atmosphere or many other aspects earth before these
coal seam gas and other gas fields are constructed.

We can not, at the moment, quantify the volume
of methane that is entering the atmosphere.

I find this particularly worrying that
scientists have been continuously stating that they can
prove methane is coming out, they don't know how much,
and if we've got 7,000 to 10,000 gas wells in Australia
that's tiny in proportion to what's in the US,
therefore, the greenhouse impacts of fracking and
unconventional oil and gas exploration is absolutely
without doubt the extent to which we don't even
understand.

This is a horrific violation of global efforts
to reduce greenhouse gas emissions. And it's also a
violation of the rights of the climate system that has
evolved over billions of years to provide life, to have
a right to integral health, to be free from
contamination and to support life.
The third and second to last area is the violation of the rights of land and subsurface. Again, in today's session Lisa Mead gave a good overview of some of the research presented in our submission that indicates fracking and the violence of pushing down through the land has created seismic activities, earthquakes and some of those really devastating mud pools and mud slides in other places.

The evidence that's emerging around the world of the violation of the land and subsurface definitely, from the point of view of the UDRME, violates the right to well-being, the right for the land to be a place to support Mother Earth, the right to continue vital cycles, integral health and, again, to be free from contamination, pollution or radioactive and toxic waste.

Finally we saw devastating information from Michelle Bamberger about the impact of fracking in the US on animals.

We heard from David Paul about, again, the absence of information and significant research that can prove that there is no harm from gas wells and others to natural systems.

The impacts on water alone can have a devastating impact on plants and animals. So we would argue or put to the Tribunal that unconventional oil and
gas extraction absolutely violates the rights of animals and plants in terms of their right to well-being, the right to a place, somewhere safe to live, to play their role in the ongoing evolutionary functioning of the earth. A right to continue their vital cycles and to be free from contamination.

About the only other thing I wanted to mention was that throughout the evidence, particularly from the scientists in our session, we have seen not only the violation of the natural systems but really some very fundamental violations of existing international law including the precautionary principle.

We have seen a plethora of evidence that shows no baseline studies, no real understanding of the impact of these stresses and in the face of a principle as simple as a precautionary principle, if we are uncertain as to the extent of damage but we know that there could be damage we simply shouldn't go ahead.

When you combine the precautionary principle with some of the information that Damien Maher suggested at the end of his testimony, which is in light of the methane emissions alone the argument used by the industry to support the expansion of fracking that fracking and gas is our bridging fuel I think have been actually shown to be erroneous. It cannot be a bridging
fuel if it's actually leaking methane into climate change processes.

And, in fact, as Mari Margil said by having these industries in place we are preventing our communities and societies from shifting to clean energy and clean fuel.

So with that I am going to hand over to Lisa. We believe that the rights of nature are extremely violated. We feel that the UDRME, if it was the basis today of current and existing law globally and in Australia, we would have legal grounds to ban fracking and coal seam gas.

I would now like to hand it over to Lisa to talk about what we would like to recommend to the tribunal.

MS. LISA MEAD: Thank you, Michelle. Can I shift down to our request to the Tribunal?

So we ask the esteemed judges of the Tribunal to acknowledge and recognize nature's rights as fundamental to the health of nature of which humans are a part and of ecosystems. And we ask the Tribunal to declare the continued exploitation of unconventional oil and gas as entirely indefensible from the perspective of climate change and we ask the Tribunal to condemn the devastating impacts of unconventional oil and gas.
extraction on the natural world in all jurisdictions where it takes place.

And we lastly ask the tribunal to call for a cessation of all unconventional oil and gas immediately and for a worldwide ban on the industry for all the reasons we've stated.

And the next slide. So furthermore, in terms of restorative measures, which is a fundamental principle of earth jurisprudence, we ask the Tribunal to call for a full and prompt restoration for the violations of the rights recognized in the Declaration Of The Rights Of Mother Earth caused by human activities.

And we also ask the Tribunal to order that governments and corporations in all affected jurisdictions create a special fund which communities can use to, wherever possible, restore the natural world to the conditions that it was in before the industry's actions took place where this is possible.

And in closing just a couple of final thoughts. Of course, we are nature. We humans are a part of nature. And this just reminded me of the street slogan that emerged during the Paris Climate Change talks which said we are not fighting for nature. We are nature defending itself.
And if we look beyond ourselves, beyond the planet to the wider picture, we see that we need to think systemically because everything we do needs to operate within the limits of the system we are in.

So, of course, our economic system is just a subsystem of a much larger planetary system and we simply cannot keep behaving as if we can have endless growth on a finite planet.

And, of course, the dash for gas and oil in so many places at the moment is part of this ignorant dinosaur thinking, with all due respects to dinosaurs.

So really it comes down to us recognizing that nature has non-negotiable constraints that must be respected and complied with. And, of course, we ignore this at our continuing peril.

So I would like to thank the judges who have been present today who have stayed with us and also for the PPT for giving us the chance to present these arguments and ideas on behalf of nature to allow us to speak on behalf of nature.

So thank you also to our witnesses, our fellow lawyers, to Phoebe and Cassie who helped us put our evidence together. They were amazing. And really to everyone who has been part of this.

Thank you and good night.

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DR. MICHELLE MALONEY: Or, in my case, good morning.

As closing remarks if the Tribunal would like to explore any of the documentation or the evidence we've presented in our submission please e-mail us at anytime. We would be very happy to provide you data or details but on that I guess we'll close, is that right?

DR. THOMAS KERNS: We have time for questions.

MR. GILL BOEHRINGER: Just one comes to mind. You talked about a special fund. Did you have any particular targets from whom you wanted to attract the money or extract the money?

DR. MICHELLE MALONEY: I personally think that's quite a complex issue because some of the companies in Australia and the government liability would have to be kind of thought through.

And particularly in the US it's been an industry that is now incredibly extensive. So I think, quite frankly, if we were to succeed in some kind of ban any company anywhere that has been engaging in that industry activity would be targeted.

MR. GILL BOEHRINGER: Yes, I agree. It certainly shouldn't be the taxpayers.

DR. MICHELLE MALONEY: Oh, definitely.
DR. THOMAS KERNS: I have a response to
that. Just something that I had hoped we'd been able to
enter in to the Tribunal. Maybe this is the place to do
it.

Mary Wood teaches law at the University of
Oregon who initiated the whole idea of the Public Trust
Doctrine that led to the our Children's Trust Cases.
Are you familiar with her?

She has a new prospectus that directly
addresses your suggestion there Lisa. She refers to the
carbon majors and that there are suits already underway
against some corporations for billions of dollars for
reparations.

And her prospectus put it together and I heard
her outline this at a law conference a couple of months
ago and she's summarized it into a little three or four
page prospectus that I would have liked to be part of
the Tribunal as one of the things that we could ask the
Tribunal judges to recommend.

MR. GILL BOEHRINGER: Is that available?

DR. THOMAS KERNS: It's available, yeah,
and I would be happy to enter it into the record.

MR. GILL BOEHRINGER: I think we'd be
happy to see it.
DR. MICHELLE MALONEY: And we can add it as an addendum to our submission as well. And I think she looks more broadly across the fossil fuels and not just at fracking. So I think it would be an excellent suggestion. Thank you.

DR. THOMAS KERNS: That's right. And the whole focus of it is the public trust which she sees, and I kind of agree, as a human rights issue. And I would be interested to hear your thoughts as to the public trust ideas notion, how that connects with rights of nature, if at all.

DR. MICHELLE MALONEY: Well, it does, and I'll go first but if Lisa would like to comment too.

The Public Trust Doctrine is particularly used in the US. It has limitations in other jurisdictions because it's either not historically used or there's no structure for it. So for many people in the US they think it's like a generic legal thing. It's not. In Australia it's very rarely engaged.

From the point of view of the rights of nature, if I was to be a purest, I would say that the Public Trust Doctrine in the US and in a few other places that it engages with it's predominantly focused on the government as the holder of the trust of the people.
So it's actually very, very powerful and very useful. But if, in fact, the government is the holder of the so-called property rights over nature the Rights Of Nature Movement, in a way, challenges that notion and looks for more ecologically democratic and guardianship based structures to support the rights of nature.

So that's a very simple, as you can imagine, simplified analysis. It's very powerful but if you're to be a purest it's not the most effective way.

DR. THOMAS KERNS: If you were try to make them compatible in some way do you think that's even possible?

DR. MICHELLE MALONEY: Yes, of course.

DR. THOMAS KERNS: Because, in some ways, the Public Trust Doctrine is basically that governments are the holders of a trust for future generations that they will be able to have the same resources that this generation has.

So it kind of looks at public lands as stuff, you know, things, to be held in trust for future humans.

It seems like it would be hard to fit them together but if there was some way to make all three of those things, human, rights of nature and public trust fit together that could be a powerful --

DR. MICHELLE MALONEY: I would agree.
But I would also suggest that you don't need public trust to create powerful mechanisms to support the natural world.

For example, what's happened with the Whanganui River has nothing to do with the public trust. The Maori people who see their world view as deeply connected to the spirit and material values of that river are now guardians in conjunction with the Crown.

There's no need for public trust because -- but, you know, the essence at the end of the day, a trust structure created in western legal concepts was always about creating a beneficiary and a distance between the people managing it and the folks who would benefit from it.

So we can definitely create a manner of frameworks to support better custodianship of the natural world and human rights. I think public trust has a lot of offer.

And in the same way as we see legal personhood as, in some ways, an easy step for western legal systems to comprehend and understand or act, public trust mechanisms are similar. They can be a system that can move away from the excessive privatization of everything and hold things in a public trust.

However, I would suggest that in this day and
age we can't rely on governments to be the public trust holders because they are so often influenced, and I'm being polite here, by corporate interests. So community land trusts, indigenous structures of custodial responsibility enshrined in modern legal systems are actually what's most exciting in the rights of nature space I would suggest.

DR. THOMAS KERNS: Thank you.

DR. MICHELLE MALONEY: Thank you. I do actually have to run. I'm so sorry. We've got a very tight time frame this week for my activities but then if you've got one more quick question and I'm happy to take it or I can jump off with great humility and gratitude and leave you with Lisa.

DR. THOMAS KERNS: Other questions?

Okay. Shelly is probably going to come back on here in a second and say --

DR. MICHELLE MALONEY: Well, I think we've all done marvelously. I'm very impressed that it's 8:30 my time and we're finished.

DR. THOMAS KERNS: You even started three or four minutes late I think.

DR. MICHELLE MALONEY: I think it was more like ten minutes late.