



C3: Measuring the costs of inaction on climate change: how impacts research can support climate change litigation

Host: **Dennis Van Berkel** (*Climate Litigation Network, Netherlands*)

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Rapporteur: Louise Jeffery (*PIK, Germany*)

Summary of themes covered in workshop

- The use of science in climate litigation was described using the example of the successful Dutch case in which the judge determined that the Netherlands emissions reduction target for 2020 was insufficient to meet the the duty of care responsibilities to protect its own citizens. The IPCC TAR was critical in establishing that a 25% reduction below 1990 emissions is a minimum level of effort that the Netherlands should be aiming for. The international political situation, with global goals that the Netherlands supported, was also key to the case.
- A 'climate lawyers wish list' was presented to highlight the facets of scientific evidence that can make a legal case easier. These facets included being transparent, relevant (timeframe, Paris relevant and higher emissions scenarios), and clear about areas where there is a high level of agreement (see below for full list).
- Katja Frieler responded with a modeller's perspective and described how the ISIMIP set-up could help to address some open questions and contribute knowledge to climate litigation cases. ISIMIP aims to identify the impacts expected at different levels of warming. In the current modelling set-up, it's also possible to distinguish between direct climate impacts and the contribution of socioeconomic factors.
- Md Arfan Uzzmann explained the use of cost-benefit analysis to examine different adaptation options to changing river salinity in Bangladesh and its impacts on crops. He

highlighted that some measures could be cost-effective but that initial investments were required.

- Finally, Massimiliano Pasqui described a case study from the Mediterranean in which the ‘winners’ and ‘losers’ of climate change impacts on agricultural systems were identified. They found that in the knowledge sharing system there are many dynamics and there is a need to link scientific and local knowledge to produce hybrid knowledge.
- In the discussion, the following topics were discussed (among others).
 - How much is damages about \$? No, can also be health. For example, the tobacco industry litigation was focussed on health. The damage is usually expressed in \$ if it has already occurred because it’s the only way to compensate but the action can also be preventative.
 - Transparency: the more complex the more difficult. but additional information can prove points. For example, knowing who experiences the worst impacts might give standing (cause for litigation) to that group of people
 - Litigation is one option for addressing climate change that complements and adds to other approaches. It can itself add to public awareness. In court you can have a balanced discussion and facts have a high weight. Vulnerability to litigation can act as a deterrent to investment.
 - Other: Is the ‘cost of inaction’ a valid concept? How has the Paris Agreement changed the situation? Role of extreme event attribution in climate litigation.

Most controversial question that came up in this workshop?

NA

Results of the discussion

Climate Impacts Research has the potential to provide relevant and important information and evidence for climate litigation. To do so, the impacts information needs to be provided clearly and to be relevant in time and space.

Some existing research and projects underway, such as ISIMIP, could provide relevant information particularly through differential impacts analysis and by delineating the role of climate change from other socioeconomic factors.

It can be important to identify who is affected and by how much as the most vulnerable and most affected are those in the best position to pursue litigation.

The field of climate litigation is only just beginning and there are lessons still to be learned but dialogue between climate lawyers and scientists can help to improve understanding on both sides.

Research gaps identified

“A Climate Lawyers Wishlist” (Dennis van Berkel)

- Climate Science for Dummies
- State consensus before discussing the areas of disagreement (how certain are we? what do we know??)
- Be transparent
 - emission scenarios
 - methodology and results (assessment of credibility by a court)
 - assumptions and uncertainties
- are the Impacts the results of anthropogenic emissions scenarios or other factors
- include Paris compatible scenarios as well as higher temp. ranges
- Tying the impacts to years (2030, 2050, 2070) [if an individual is suing then need to show that they will be affected]
- adaptation measures - how much do they cost, and what's the residual damage?
- what are the impacts of delayed mitigation? are there differences in impacts with NETs?
- how do ecosystems changes affect humans and the economy?
- The bigger picture: is the sum of all impacts greater than its parts?
- Doomsday Scenario: Would 4C mean the end of civilisation?

Next steps

Continued dialogue. Climate scientists could consider how their results are presented and /or engage with climate lawyers to explain their analysis. New climate litigation cases in the coming years are likely.

Other - full notes from the session

Some motivating questions:

What can impact science mean for climate litigation?

- how to reframe information for climate lawyers? what are some of the hurdles?

Talks

A climate lawyer's wish list

Dennis Van Berkel (Urgenda)

- Urgenda won a Dutch climate case in 2009. The court ordered the Dutch government to reduce its emissions by at least 25% below 1990 by 2020. Rationale based on the evidence of the IPCC reports (TAR at the time) and the UNFCCC framing (Convention and Copenhagen). There was an agreement but no real action
- Didn't use international law, but 'Tort Law' which means that there is an open norm of a duty of care / responsible behaviour (example of neighbour's tree dangerously hanging into your garden).
- These open norms are present in most laws of countries around the world, e.g. administrative, constitutional, and human rights. This means that the approach taken in the Dutch case is applicable in other scenarios and Urgenda have pursued that principle.
- Frame of reference is "risk". It's familiar to the courts and could be proved.
- Just because the Netherlands was only responsible for a small part, doesn't mean they shouldn't take responsibility for their part.
- Is climate change an issue for the court: In the Dutch case, the question was asked if the rights of the 900 people were violated, and decided that they were.
- What changed? The state is appealing but acting on the ruling to improve its emissions target, and it has impacted the political landscape in the Netherlands.
- Judge ruled on the minimum target, but politics to decide on the 'right' target.
- Other cases:
 - Mitigation targets
 1. Youth vs Trump (Our Children's trust)
 2. Law student vs New Zealand
 3. Climate Seniors v. Switzerland
 - "Grannies" used here because older women are some of the most vulnerable to heat stress, which is a major impact in Switzerland
 - Adaptation
 1. PAKistan (Lahore)
 - Corporations
 1. Peruvian farmer suing RWE because dam breaking due to climate change will damage his land

- San Francisco vs. big oil
 1. suing for costs of adaptation to sea level rise and vulnerabilities of coastal infrastructure
- Attribution science
 - Ekwurzel et al., Climatic Change 2017 attribution of SLR to CO2 emissions
- What to prove in a climate case?
 - Standing: who is affected, how and when?
 - Duty of care? how bad is the damage? is it foreseeable? can it be prevented? how onerous would it be to prevent it?
 - Causal connection
 - Redress: e.g. would emission reductions lead to the prevention of the harm?
- A Climate Lawyers Wishlist
 - Climate Science for Dummies
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- Evidentiary value of the IPCC in court is very high. How does your work add to the IPCC findings?

Katja Frieler (PIK)

An impact modeller's response:

- central questions for climate litigation
 - what are the current and future impacts related to anthropogenic emissions?
 - How do NDC impacts differ from impacts at well below 2°C?
 - Whos is most likely to be affected and when?
- respond to the first two questions from the perspective of ISI-MIP
- natural and human systems are being affected by two things:
 - climate change
 - changes in management and human systems, eg. increasing population

- ISI-MIP set-up
 - ISIMIP is an impact model inter-comparison project that covers many sectors and scenarios
 - provides scenarios that enable scientists to separate out these two aspects and enable us to identify a 'pure climate effect'.
 - can be used to look at the historical period and also for the future to look at different drivers of impacts
 - link the results to global mean temperature - plot the impact (e.g. crop yields) against the temperature in that year under different emissions scenarios. Sometimes there is a close and simple relationship.
 - Using a relationship between emissions and global mean temperature change, calculations using scenarios with and without emissions of a company or country can be used to determine the contribution of that entity to global mean temperature change and subsequently climate impacts.
 - The socioeconomic dimension can also be extracted from the climate change scenarios

Quantifying the cost of inaction of climate change impacts in the vulnerable delta region
Md Arfan Uzzmann, International Business Forum of Bangladesh

- Bangladesh is particularly vulnerable to climate change impacts,
 - e.g. tropical cyclones, flash flood, river bank erosion ,storms, and sea level rise
 - significant economic losses in last 25 years
 - 1°C temperature rise is associated with about 2% loss of GDP
 - with low crop productivity and climate change, expect to see a net increase in poverty of 15% by 2030
- Some adaptation options have been identified, e.g.. infrastructure adaptation for coastal vulnerabilities
- e.g. river salinity
 - look at # days above certain salinity levels, and the actual salinity
 - Performed a cost-benefit analysis of multiple options to estimate costs of adaptation measures
 - estimate costs of action and inaction to calculate difference and a benefit cost ratio
 - one adaptation option is to switch to saline tolerant rice, other options include short duration rice varieties, raising mud walls, and using nets to surround Ghers
- Climate actions can cost but can be turned into a benefit, but need support and investment. High vulnerability to extreme events. Availability of soft credit would help.

Winners and losers from climate change in agriculture: Insights from case study in mediterranean basin
Massimiliano Pasqui

- Presenting experiences from a case study of understanding climate change impacts on agriculture in the med. basin
- In learning space there are many dynamics, need to link scientific and local knowledge to produce hybrid knowledge
- Challenges in developing an adaptive system include the ability to integrate different sources of knowledge
- Developed an integrated modelling framework to evaluate interactions in a district to see how they were able to adapt
- Result: Map of specific income changes for different farming systems
- Lessons learned:
 - institutional set-up is crucial to establish deep level of understanding
 - relationships between stakeholders is unbalanced
 - only a few stakeholders aware of threats of climate change
 - need for an informal space for easier debate to integrate scientific and local knowledge
 - Command-Control approaches don't work -> cannot simply produce one solution to the problem
 - need for scientific research methods to support non-litigious mediation of environmental conflicts

Questions/Discussion:

What can climate science do for litigation and vice versa?

To what extent is the separation of climate and socioeconomic influences on the environment important? As a lawyer, cannot be certain but can say that it is conceivable.

How much is damages about \$? No, can also be health. For example, the tobacco industry litigation was focussed on health. The damage is usually expressed in \$ if it has already occurred because it's the only way to compensate but the action can also be preventative.

Transparency: Is a complex economic model inherently prohibitive for the type of litigation discussed here? Is it better to go for the simpler situations? Yes, the more complex the more difficult. Having said that, we're still looking for additional information to prove these points. For example, the complex agricultural model demonstrates who has the worst impacts, which might give standing to that group of people for users.

Which strategy is successful? It's also important to find partners around you. There are many you can use. It's important to build up a pressure in society to make them aware of what's going on. What can we learn on the level of the farmers? There are international farmers organisations.

Increased risk of litigation in the fossil fuel industry may reduce likelihood and volume of investment in that industry.

Litigation is one option for addressing climate change that complements and adds to other approaches. It can itself add to public awareness. In court you can have a balanced discussion and facts have a high weight.

What's the validity of the concept of the cost of inaction? Is it in the IPCC report?

- Concept of preventative action - need to prove what would happen if we did not act. Concept has been used in court.
- example / suggestion of definition: for the recent past we can see what's happened and can estimate cost of damage of facing current climate. The farmers have clear perception of how the number of good years has decreased in last 30 years. Gives a clear perspective of economic exposure
- if the role of climate change can be clearly identified and the people affected then it can formulate the basis for a litigation case.

Does the Paris Agreement change anything wrt the mitigation situation? Yes, it strengthens the case because it implies that all will act. Individual countries do not see the value of their efforts in the absence of other's efforts. Individual responsibility under a collective goal.

Does it cut the relevance of the impacts? Is the goal in itself not sufficient? Not really, because you need the impacts to get into the court in the first place - to identify a vulnerable person or group of people. Now we have both the specific impacts and a global political decision.

Do you follow any criteria to establish what impacts should be considered for a valid claim in the courts? Not really, but currently focussed on developed world because they have the highest emissions that we want to reduce. However, with loss and damage under the UNFCCC, litigation from developing to developed countries is not excluded. A big challenge is the lack of capacity, particularly in the developing world. Still trying to establish the right forum.

Having information that is both simple and transparent is quite difficult, at the moment it's not clear how this is possible. Response: Maybe simple statements supported by a large annex can help.

Whether the scientists agree or not is relevant. Level of confidence is important. Dutch court recognises science as a risk-management model.

If you hadn't won the Dutch case, do you think it would still have had an impact? The C boomerang - climate litigation risks for investors. The type of litigation - citizens against governments - might not be successful but might still be impactful if there are a wave of those cases. Highlights that climate change is a justice issue.

It's not only big companies that have high emissions, but also the agriculture sector. It's not so easy to litigate emissions in this sector. Does your group also litigate against agricultural groups? In the original case only total emissions and the target were addressed, not the mitigation approaches. Doubts that agricultural entities will be addressed, it's a higher priority to go for large fossil fuel entities.

Role of social cost of carbon in climate litigation outside the US? There's a lot of litigation in the US... and the SCC is commonly used there. The climate litigation discussed here is quite different to the situation in the US. In the US an existing regulation is used as a basis. There is the litigation to ensure that the state set standard is met. The newer legislation is to state whether or not the targets and standards themselves should be enhanced.

Extreme event attribution: improved analysis in this field recently. It's close to the needs of litigation.

3-5 keywords that characterize the session

Law, Transparency, Communication, Differential impacts