CLIMATE LITIGATION #4

The Role of Attribution Science in Climate Litigation

Which country do you think is taking a leading role in examining how climate change can affect the probability and severity (risk) of extreme weather events? The answer is China! Given China is the largest emitter of greenhouse gases, it makes sense that they would, at a minimum, want to better understand the impacts of climate change. According to the London-based non-profit, China Dialogue, Chinese researchers studied the 2016 catastrophic flooding in the city of Wuhan. The researchers found that such a catastrophic flood has become almost ten times more likely over the last 55 years. They also concluded that approximately 60% of the risk (likelihood and severity) of this type of catastrophic flood can be attributed to human-caused climate change. Therefore, this event and the resulting damages can no longer be considered solely an uncontrollable supranational event. The question becomes – who is responsible, and can you attribute legal liability to them?

It is common to give attribution to someone who writes an article or to an artist who produces a work of art. The legal website definitions.uslegal.com defines attribution as "the act of regarding a quality or feature as a characteristic or inherent part of someone or something."[1] In climate litigation, "the act of regarding" typically involves scientific examination and technical research to help participants better understand climate-related causations. The objective is to produce clear evidence to facilitate attributing climate risks, damages, and potential liabilities. This field of study is sometimes called attribution science.

The "characteristic or inherent part" in legal attribution can take on different topics or themes. Columbia University's Earth Institute has organized its Climate Attribution Database (Climateattribution.org) into the following four themes.[2] This structure is based on the extensive work conducted by Burger, Wentz and Horton into the law and science of climate change attribution.[3]

- **Climate Change Attribution:** Examining how rising concentrations of heat-trapping gases (greenhouse gases or GHGs) in the atmosphere affect other aspects of the global climate system, such as global mean temperature, sea level, and sea ice.
- **Extreme Event Attribution:** Examining how changes in the global climate system affect the probability and characteristics of extreme events.
- **Impact Attribution:** Examining how changes in the global climate system affect humans and ecosystems.
- **Source Attribution:** Identifying the relative contributions of different corporations, sectors, and activities to climate change.

Technical output from the different attribution areas can work together to address various legal arguments. For example, understanding the details of how changes in GHGs can affect extreme events provides insight into the resulting impacts, such as damages to human and ecological systems. In turn, understanding the relative GHG contributions from major emitters to the total changes in GHGs helps inform litigants of their proportional responsibility for local damages.

1 Stephanie Morton, "How 'attribution science' is shifting the legal landscape - China Dialogue," China Dialogue, December 12, 2018,

2 The climate attribution database is the product of an ongoing collaboration between the Sabin Center for Climate Change Law and the Lamont-Doherty Earth Observatory, Home - Climate Attribution, last visited June, 2021.

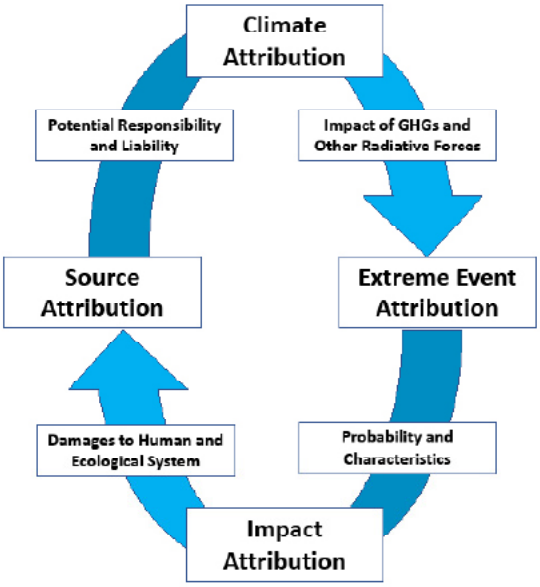
3 Burger, M., Wentz, J., & Horton, R. (2020). The Law and Science of Climate Change Attribution. Columbia Journal of Environmental Law, 45(1). https://doi.org/10.7916/cjel.v45i1.4730

Figure 1 illustrates how the technical output of one type of attribution can inform another type of attribution.

Each type of attribution must be addressed in order to argue who has contributed to climate change and their proportional liability for local damages. As Burger et. al. point out, attribution science can be used to establish key elements in tort litigation, such as foreseeability, causation, and injury. Of these elements, causation is identified as being the most challenging.[4] To succeed in a tort lawsuit, the authors argue a plaintiff needs to establish several lines of causation, such as the following:

- Linking a specific change or event to anthropogenic climate change (e.g., sea level rise or a flooding event). Research into the flooding in Wuhan, China is a good example.
- Linking a specific loss to that change or event (e.g., the cost of adaptation measures or residual losses that were not or could not be avoided through adaptation).
- Linking the defendant's conduct (i.e., greenhouse gas emissions) to anthropogenic climate change and identify the defendant's relative contribution to the harm incurred by the plaintiff.

Figure 1



From a plaintiffs' perspective this can be simplified to the following:

- Defendants help cause climate change
- Climate change caused specific injuries
- Therefore, defendants caused specific injuries

The defendants will likely focus on creating uncertainty around the technical data, assumptions, and analysis generated by the plaintiffs' experts.

From either perspective, attribution science will play an important role in bringing future clarity to key issues such as causation and other elements of climate litigation.

4 Ibid, p. 204.

About First Environment

First Environment is a full-service environmental consulting firm that provides climate change consulting and expert services to clients worldwide, including GHG reporting and verification/validation, mitigation and adaptation planning, risk management, resilience design and implementation, and global standards conformance development and auditing.

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