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Publication date

2022

Document Version

Final published version

[Link to publication](#)

Citation for published version (APA):

Nedeski, N. (Author), & Nollkaemper, A. (Author). (2022). A guide to tackling the collective causation problem in international climate change litigation. Web publication or website, EJIL: Talk!. <https://www.ejiltalk.org/a-guide-to-tackling-the-collective-causation-problem-in-international-climate-change-litigation/>

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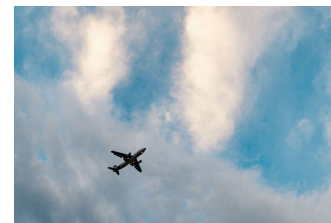
A guide to tackling the collective causation problem in international climate change litigation

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December 15, 2022

In the wide variety of arguments that defendants have brought up in climate change litigation, one argument is a constant. This is the argument that climate change is a problem of collective causation. That is: climate change harm is caused by actions and omissions of many actors and it would be scientifically impossible to attribute specific climate impacts to individual emitters.



Arguments that build on this problem of collective causation have come in different forms, but all aim to shield individual defendants from responsibility.

In *Billy et al v. Australia*, Australia stated before the Human Rights Committee that climate change “is a global phenomenon attributable to the actions of many States” and that “it is not possible to trace causal links” between Australia’s “contribution to climate change, its efforts to address climate change and the alleged effects of climate change on the enjoyment of the authors’ rights”. In *Sacchi et al v. Argentina et al* before the Committee on the Rights of the Child, Argentina similarly pointed to causal complexity to absolve itself of responsibility.

The problem of collective causation may leave victims of climate change empty-handed, and sideline courts as relevant agents in climate change governance. It may lead courts to find that claims are inadmissible if conduct of a defendant state did not directly affect plaintiffs, that a defendant state did not breach an obligation since nothing that that state could do would suffice to prevent climate change-related harms, or that a defendant state cannot be ordered to provide reparation since it cannot determine what part of the damage was caused by that defendant.

Pre-empting the collective causation argument by defendant states, the applicants in *Duarte Agostinho and others v. Portugal and 32 other states* stated in their application that “it would be no defence to assert that each Respondent’s contribution to global emissions, taken in isolation, would not cause such interferences”. The question is why that would be so. On what arguments can applicants in climate change cases rely to circumvent the problem of collective causation?

In the past few years, judicial decisions have provided building blocks for tackling the problem of collective causation. Research projects have also led to relevant findings; the emerging field of climate change attribution shows that it may well be possible to hold individual states responsible for particular harmful effects of climate change.

In this blogpost we unpack the problem of collective causation and systematize the arguments that plaintiffs can use to counter the assertion that the collective causation problem would stand in the way of certain climate change related claims.

Insights from climate science

While for a long time it was a commonplace assumption that climate change led to indivisible harm, recent attribution research (which made an appearance in the [IPCC's sixth assessment report](#)) has rebutted this assumption and can help establish a causal chain between state (in)action and harm.

Such research can help corroborate factual links between global greenhouse gas emissions and climate change-related harms, such as extreme weather events (heatwaves, storms or floods), as well as slow-onset impacts, such as sea level rise or ocean acidification. Attribution studies [have for example found](#) that anthropogenic climate change made the 2013-2014 heatwave in Argentina 400 percent more likely.

Moreover, attribution research [has yielded methods](#) that “enable quantifying individual emitters’ marginal contributions to extreme weather events and slow-onset changes”. This may allow courts to consider how much an individual state’s contribution has increased the severity or probability of a particular climate change-related event (see for instance [here](#), [here](#) and [here](#)). [This is done](#) by considering “model simulations comparable to the present-day climate, but for the cumulative emissions associated with that individual tortfeasor”. [For instance](#), thirty-seven per cent of the total increase in likelihood of the Argentinian heatwave in 2013-2014 was attributed to emissions of the member states of the European Union.

Against the backdrop of these advances in attribution research, we articulate possible responses to the collective causation problem for two settings where the problem is likely to arise: determination of breach of an obligation; and division of harm in the stage of reparation. We leave aside here the impact of the collective causation problem on admissibility of claims, though we do note that several of the arguments below may also be relied on in that context.

Collective causation and the determination of breach of an international obligation

Several obligations to prevent climate change are contingent on the (risk of) harm. Examples are obligations to protect the rights to life; health; private and family life and culture. Also the [customary no-harm obligation](#), which is one of the primary candidates to “ground the argument that States should do more to prevent dangerous climate change” [before the International Court of Justice](#), is contingent on the (risk of) harm.

In several cases, defendants argued the problem of collective causation would stand in the way of a determination of breach of such obligations, since plaintiffs would have to establish a causal link between the measures that a state must arguably take and the (risk of) harm.

This will be challenging if one applies the but-for test of causation, requiring that a plaintiff proves that ‘but-for’ the conduct of that individual state those harms would not have materialized. The Netherlands relied on a variation of this test in *Urgenda* when it advanced the ‘drop in the ocean’ argument. It argued that it had not breached its duty of care under Dutch tort law and could not be required to take more ambitious action, since its contribution was only minor and reducing its emissions would hardly make a difference on a global scale.

The collective causation problem in this context can relatively easily be overcome, however. In international law, a plaintiff does not need to demonstrate that the link between the conduct of an individual state and the harm that is to be prevented satisfies the “but for” test of causation (as also argued [here](#) and [here](#)).

What *is* needed is that a defendant state is or should have been aware of the risk of harm occurring as a result of activities within its control and could have taken measures aimed at prevention of that harm. On this point, attribution science can strengthen a plaintiff’s claims. Findings that future emissions will make sea level rise X times more likely or intense, or that such emissions will make heatwaves more likely, may help substantiate the argument that a state contributes, in causal terms, to a real risk of harm and that that state should take measures to prevent that risk. Moreover, plaintiffs can rely on methods that scientifically link an individual emitter’s contribution to climate change to the likelihood or intensity of climate change-related harms, to argue that an emitter can, by taking preventative measures, *decrease* the likelihood or intensity of harm.

We note that what exactly is needed, in terms of evidence, may vary between jurisdictions and stages of proceedings, and will be influenced by the substantive contours of a claim. In particular cases, more general scientific evidence on the causes and impacts of climate change could suffice for establishing a violation, as in the *Urgenda* case, and attribution science may play a less decisive role.

Either way, the fact that no state can prevent climate change on its own then cannot serve as a defense for an individual contributor. Obligations to prevent harm in the context of climate change are shared obligations that oblige individual states to do their part in a collective endeavor. An individual state might not be able to prevent the totality of climate impacts in isolation, but it could come a far way in combination with the efforts of others. This line of argument echoes the approach of the ICJ in the Bosnian Genocide case when it concluded that it was irrelevant to the determination of breach that Serbia by its conduct alone would not have been able to prevent the Srebrenica genocide, and underlined the importance of Serbia’s individual contribution to what could have been a collective effort. The collective context of preventing climate change-related harms can then inform the interpretation of each state’s ‘share’ of the obligation (as argued [here](#), [here](#) and [here](#)), so that combined efforts are appropriate for achieving this collective aim.

The Committee on the Rights of the Child confirmed this approach in Sacchi et al v. Argentina, though in a decision on admissibility rather than merits, when it considered that “the collective nature of the causation of climate change does not absolve the State party of its individual responsibility that may derive from the harm that the emissions originating within its territory may cause”. This mirrors the Dutch Supreme Court’s finding in Urgenda that “each country can be effectively called to account for its share of emissions”. These rulings illustrate, as stipulated in the Guiding Principles on Shared Responsibility, that responsibility can very well be (and often is) the result of multiple contributions to harm each of which in isolation would not have been able to prevent or cause that harm. The fact that causation is a collective phenomenon does not preclude responsibility.

Collective causation at the stage of reparation

If breach of an obligation to prevent climate change harm is established, plaintiffs still may need to tackle the collective causation problem in relation to claims for reparation. Under the law of international responsibility a state only has an obligation to make full reparation for injury *caused* by its internationally wrongful act.

So far, there are few international cases where the implications of collective causation for reparation have come up. Plaintiffs generally have demanded that states take more ambitious climate action without asking for compensation. An exception is Billy et al v. Australia, where the Human Rights Committee concluded (without addressing causation) that Australia is obligated to provide – amongst others – adequate compensation in view of its failure to take adequate adaptation measures.

However, reparation claims against states may arise in the future. Considering that COP27 did not succeed in fleshing out details on a loss and damage fund for developing countries or in raising mitigation ambitions, it is a realistic possibility that, for instance small island states institute proceedings.

In a future reparation claim, attribution science may make it possible to establish that a particular state’s conduct constitutes a causally relevant contribution to harm and gives rise to reparation obligations. While a defendant state in most instances will be able to claim that *but for* its contribution to harm, a particular climate impact still would have occurred, other causal tests are more helpful in cases of multiple contributions to harm and could be met with the help of attribution science. For instance, attribution studies can help determine whether the emissions of a particular state qualify as a material contribution to climate harms, which is the case when its “wrongful conduct played a more than minimal role in a mechanism which was causally sufficient for the claimant’s damage”.

Climate science also can help to pass the test that requires a plaintiff to determine that emissions are part of a jointly sufficient set of contributions. The fact that one can scientifically establish a link between global GHG emissions (to which an individual state has

contributed) and concrete harm supports the argument that an individual state's conduct was part of a jointly sufficient set of contributions to harm. Individual emissions may not have been *the* cause but were certainly a cause of the harm suffered, together with GHG emissions emanating from other states.

In relation to each of these causation tests, the fact that climate change impacts are also caused by other factors (including natural factors and societal vulnerabilities) need not preclude imposition of obligations of reparation. The International Law Commission rightly noted that “international practice and the decisions of international tribunals do not support the reduction or attenuation of reparation for concurrent causes, except in cases of contributory fault”.

Should reparation obligations indeed arise, a final challenge for plaintiffs that is particularly vulnerable to the collective causation argument relates to the *scope* of such obligations. How much should an individual state pay for the harm it has contributed to, since it has done so together with many others? One strategy that plaintiffs can use is to rely on the ‘market share’ of contributors. Damages then would be divided in proportion to the emissions of defendant states. This is the approach taken in the case of Saúl Luciano Lliuya against German energy company RWE, who is asking the Higher Regional Court of Hamm to order that RWE pays 0.46 per cent of costs for setting up flood protections against melting mountain glaciers near his town in Huarez.

Attribution science also may make it possible to go beyond market share-based allocation. If such studies indeed are able to determine the extent in which an individual actor's conduct has increased the likelihood or severity of specific harms, they could be relied on as a basis for dividing climate harms and resulting damages amongst states. For this purpose plaintiffs could even rely on a variation of the but-for test's logic. In the above-mentioned example of the 2013-2014 Argentinian heatwave, which has been made 400 per cent more likely by global GHG emissions, EU member states could then be required to provide compensation in proportion to their contribution to this increase in probability, which attribution studies have set at thirty-seven per cent, and hence would not have been as high *but for* their contribution.

The trump card of joint and several responsibility

If plaintiffs can rely on attribution science to divide harm and hold individual states responsible for their contribution to climate impacts, there may be no need to resort to the principle of joint and several liability.

The argument that states are jointly and severally responsible for climate change damage intuitively is appealing for plaintiffs. It can even be said to be the logical consequence of the problem of collective causation: if states have caused climate change together, and it cannot be determined which state caused what part of the harm, they should be responsible together. Joint and several responsibility then would mean that each individual contributing

state could be held responsible for the full harm. This may seem harsh for an individual pollutant, which may say that it is held responsible for the contributions of others. But it is not obvious that the interest of that defendant should outweigh the interest of those impacted by climate change who would otherwise be left empty-handed. Moreover, as articulated in the Guiding Principles on Shared Responsibility, there are grounds for applying this test in international law.

Nonetheless, joint and several responsibility is a rather sweeping responsibility rule, and it will require a very courageous court to apply it, given the relatively undeveloped nature of international law on this point. Developments in attribution science may allow courts to prevent an outcome where one state would have to shoulder the entirety of the harm suffered by, for instance, an island state that is facing immense adaptation costs or even threats to its continued existence as a result of sea level rise. Attribution science may allow concretizing the amount that a responsible state can recover from others in exercising its right of recourse; or by providing grounds for plaintiffs to claim a portion of their damages from a responsible actor.

Attribution science is a field that has been rapidly developing. Each step forward increases the relevance of findings for determining responsibility of states (and other actors) for their contributions to climate change-related harm. Collaborative research by legal scholars and climate scientists would be useful to further connect such findings to law, and to translate scientific findings into applicable legal concepts, including that of causation. But (as also noted [here](#) and [here](#)) it seems that the state of science has already reached a stage where it can be tried and tested in litigation.