

# Climate Injustice: Who Pays for the Escalating Costs of Climate Disasters?

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## Abstract

The notion that those least at fault for climate change are shouldering the greatest burdens is referred to as *climate injustice*. However, assigning a divide between 'polluters' and 'impactors' is incredibly difficult in practice.

Also, much research indicates that people resist the notion of blame associated with attribution, which makes them less likely to want to discuss how to fix the problem.

In '*Attribution Modelling*' we collectively have the strongest evidence that climate change is due to human activity, and who the primary offenders are.

This article outlines the history behind the historic deal to create a new "*Loss and Damages Fund*" in *COP 27*; in which countries responsible for high carbon emissions will compensate vulnerable countries suffering from climate impacts.

## Introduction

In 2022, the *Emergency Event Database EM-DAT* recorded 387 natural hazards and disasters worldwide, resulting in the loss of 30,704 lives and affecting 185 million individuals. Economic losses totalled around US\$ 223.8 billion.

In 2023 there have been: (a) Cyclones in India, Bangladesh, Myanmar, Peru, Ecuador, Solomon Islands; (b) Flooding in Ecuador, Democratic Republic of the Congo, Brazil, Somalia, Eswatini and South Africa and (c) Wildfires in Chile that have resulted in even more economic hardship for affected nations.

In 2022, heat waves caused over 16,000 excess deaths in Europe, while droughts affected 88.9 million people in Africa. Hurricane Ian single-handedly caused damage costing US \$ 100 billion in the Americas. Notable drought events also occurred in China (where 6.1 M people were affected, costing damage worth US\$ 7.6 B), in the USA (US\$ 22 B), and in Brazil (US\$ 4 B).

The Pakistan June-September 2022 floods affected 33 million people, causing 1,739 deaths and economic damage costing US\$ 15 billion. Monsoon floods also struck India (2,035 deaths, US\$ 4.2 B), Bangladesh (7.2 M people affected), and China (US\$ 5 B). In Nigeria, floods caused 603 deaths and resulted in an economic cost of US\$ 4.2 billion, while there were 544 flood-related lives lost in South Africa. The February flood in Brazil killed 272 people, and the floods in Eastern Australia in February and March 2022 cost US\$6.6 billion.

## The Record in 2022

The past year (2022) was marked by three major storm events, including two in the Philippines: Tropical Storm Megi in April (346 fatalities) and Tropical Storm Nalgae in October (3.3 M people affected). Hurricane Ian struck the USA, causing damage worth US\$ 100 billion, making it the costliest disaster event of 2022.

The economic toll of Pakistan's record-breaking, protracted heat wave from March to May 2022 followed only a few weeks later, by brutal, crushing rains that caused severe floods was astronomical—about \$40 billion, or more than 10% of the nation's yearly GDP.

These catastrophes, though, are not "natural" ones. Scientists identified a clear culprit for the disasters in 2022 just a few weeks after they started: human-caused climate change, which exacerbated the rains by up to 75% and increased the likelihood of the heat wave by 30 times.

These results underscore a long-simmering annoyance for Pakistan's authorities. The fact is that although Pakistan contributes less than 1% of the emissions that cause climate change, it directly experiences a multitude of disasters as a result of it.

## Strong Moral and Scientific Justifications

*Can we determine whether human-caused climate change played a role in these disasters?*

Scientists have long suspected that climate change is having an impact on weather, but they could not definitively state that any one instance was made worse by it. Global climate simulations using less sophisticated computers were not accurate enough in the early 2000s to replicate specific weather occurrences. Thanks to increasingly potent climate models and scientific developments connecting global climate trends with local weather, a lot has changed since then.

Today modelling methods are sufficiently advanced that they can also be used to examine the effects of phenomena with a slower beginning, like sea level rise or heat-related losses to agriculture. The clarity with which scientists can explain just how climate change is affecting things has vastly improved.

This improvement in the science initiates the conversation around injustices. For example, consider Pakistan. Following the flooding in 2022, the secretary general of the United Nations urged *"massive financial support to overcome this crisis."*

*This is "not a matter of generosity, it's a matter of justice,"* he declared.

## Action-based Attribution

*'Attribution'* of causes of climate change is the process of establishing the most likely causes for the detected change with some defined level of confidence. While *'Attribution Science'* has made enormous technical strides, there is still much disagreement over how to apply the science.

*Attribution Modelling* is a new sort of analysis that mostly uses computer modelling to show how precisely climate change exacerbates calamities like heat waves, extremely severe rainstorms, and sea level rise.

In its most basic form, attribution contrasts the probability or severity of an event—such as a storm, a heat wave, or a flood brought on by melting glaciers—in a hypothetical world free of

climate change with that of the real world. The "attributable" effect of climate change is what separates those two.

For example, in its most straightforward form, some argue that if an attribution study reveals that Pakistan's rainfall was 75% higher than it should have been, the cost of the additional water damage should be distributed among those accountable, such as Western nations, after it has been totalled up. A nation like the U.S., which has contributed around 25% of all greenhouse gas emissions induced by human activity since the beginning of the industrial revolution in the 1850s, may be responsible for 25% of the expenditures. Over 3% of all emissions since then are attributed to American oil producers like Chevron and Exxon.

But the power of attribution modelling has its bounds, and these bounds frequently trace the contours of historical injustices. The method needs accurate regional climate and weather models, which need reliable historical data like daily weather observations. In the 2022 Pakistan assessments, this was more difficult to do in areas lacking accurate weather records because so much scientific talent has been concentrated in the Global North.

## Financial Responsibility

In early 1990, before one of the first international climate conferences, a number of low-lying island nations, notably Vanuatu and Barbados, banded together to fight against 'Climate Injustice'. Although together they were responsible for well under 1% of all glasshouse gas emissions that cause climate change, they claimed that their small countries were in danger of drowning in rising waters.

They suggested an *international insurance pool* to be funded by industrialised nations—divided up by their proportionate contributions to the climate problem—to make up for that imbalance. You were charged extra for each unit of previous and present emissions. Wealthier nations flatly rejected that proposal; they were willing to discuss ways to reduce emissions or even how to finance adaptation efforts, but they refused to accept financial accountability for prior actions and link that to compensation for those harmed by climate change impacts.

Unfortunately, at that time, developed countries recognised their responsibility for climate change, but did not want to acknowledge their 'financial responsibility'.

The island nations, though, persisted. They incrementally advanced their argument as they attracted additional partners who were also at serious risk from climate change, including sea level rise and extreme weather. However, it wasn't until 2013, more than 20 years later, that the idea was formally incorporated into global climate treaties. The term "*loss and damages*", which was first used at COP19 in Poland, referred to the costs—both monetary and social—associated with climate-related issues that go beyond those that can be solved through adaptation.

After several more years of tense discussions, 'loss and damages' finally received a paragraph in the historic *Paris Agreement of 2015*—but only with a commitment to examine the issue. Then, at the Scotland summit in 2021, negotiators specifically requested to establish a fund for loss and damages. Once more, the meeting ended with just commitments to continue speaking.

## Deniability is No Longer an Option

The notion that those least at fault for climate change are shouldering the greatest burdens is referred to as *climate injustice*. Most developing nations are tired of accepting this injustice as some sort of '*karma*'.

Conversely, many major polluters, whether they be nations or businesses, assert that their responsibility for addressing climate change does not necessarily coincide with their role in causing it.

Numerous major polluters have also contended that it is hard to connect their precise emissions with any specific results or events since gases like carbon dioxide quickly travel throughout the atmosphere, making it impossible to pinpoint the origin of any one molecule.

Recent analyses using ‘*Attribution Modelling*’ are dissecting that claim. A team from Dartmouth demonstrated in August 2022 that it was possible to connect past emissions from any nation to external economic losses. They discovered that the rest of the world suffered damages totalling \$1.8 trillion as a result of U.S. emissions beginning in 1990, two years after climate scientist *James Hansen* testified before Congress that human-caused climate change was certainly occurring. And it is possible that is an understatement.

The Dartmouth study's principal author, asserted that *"Emitters can no longer hide behind a veil of plausible deniability." "Individual emitters can be held accountable for damages in a quantifiable way."*

Therefore, strengthened by the precision of *"attribution" science*, a number of disgruntled developing nations lobbied to create a *"Loss and Damages Fund"* during last year's COP27 U.N. climate conference in Egypt. For those activists from developing nations who have long had their demands for climate justice disregarded, attribution highlighted the basic moral imbalance of cause and effect.

In November 2022, they all went to Egypt for the *27th UN Climate Change Conference (COP27)*.

## Historic Win

COP 27 ended with an historic deal to create a new fund, in which countries responsible for high carbon emissions will compensate vulnerable countries suffering from climate impacts.

*"Creating the loss and damage fund is a first, important step. It is an important moment in the global climate justice movement,"* said Dr Siobhan McDonnell, a COP27 negotiator on loss and damage for the island state of Palau.

In theory, the fund would cover losses brought on by climate change in nations that haven't done anything to cause the issue, and it would be funded by the wealthy nations most responsible for climate change. As known by most, over 20% of all historical worldwide emissions of gases like carbon dioxide and methane that contribute to climate change are solely attributable to the United States.

This year (2023), countries hope to produce recommendations on how to operationalise this new loss and damage fund through a *Transitional Committee*. In these discussions, the United States has a moral obligation to champion climate justice and centre the needs of the most vulnerable communities, offering solidarity, constructive negotiating positions, and credible finance solutions.

## Summary

The notion that those least at fault for climate change are shouldering the greatest burdens is referred to as *climate injustice*. However, assigning a divide between ‘polluters’ and ‘impactors’ is incredibly difficult in practice.

Also, much research indicates that people resist the notion of blame associated with attribution, which makes them less likely to want to discuss how to fix the problem.

In *'Attribution Modelling'* we collectively have the strongest evidence that climate change is due to human activity, and who the primary offenders are.

As a result of the historic deal to create a new *"Loss and Damages Fund"* in COP 27 — in which countries responsible for high carbon emissions will compensate vulnerable countries suffering from climate impacts — a political, social, and ethical discussion can now commence.

