

Research identifies climate change fingerprints and emitters' liability

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On 26 February during her visit to Fiji, Prime Minister Jacinda Ardern announced \$2 million in New Zealand funding towards the relocation of the island's communities displaced by climate change.

New research, however, provides a step towards helping Fiji, other Pacific Islands and anyone else harmed by [climate change](#) to hold those causing the change to more precise account.

An international team of scientists and economists, led by Professor

Dave Frame, Director of Te Herenga Waka—Victoria University of Wellington's New Zealand Climate Change Research Institute, and Professor Ilan Noy, Chair in the Economics of Disasters and Climate Change in the University's Wellington School of Business and Government, have contributed to development of methods to quantify how much of an extreme weather event can be attributed to human-caused [climate](#) change and then the cost of that contribution because of damage and loss.

This in turn could enable countries such as Fiji—as well as other, smaller communities—to demand emitters pay recompense based on their proportion of total global emissions. These demands might be made through domestic or international courts or through international negotiations initiated by the United Nations Framework Convention on Climate Change.

Professor Frame and Professor Noy—along with climate science expert Professor Peter Stott, Science Fellow in Attribution at the Met Office Hadley Centre and Professor of Detection and Attribution at the University of Exeter in the United Kingdom—explained their research and its potential during a two-day Victoria University of Wellington international summit exploring the changing face of the Asia–Pacific.

Co-hosted by the University and international higher education network QS Quacquarelli Symonds, 'Power Shifts in the Asia–Pacific: Large and Small State Perspectives' was part of the QS Subject Focus Summit series, the focus on this occasion being Politics and International Studies.

The summit, organised by the Politics and International Relations programme in the University's Wellington Faculty of Humanities and Social Sciences, brought together speakers and delegates from more than 15 countries, with more than 10 speakers from the University itself.

Professor Frame said the research he and his colleagues are conducting means they can "identify the human climate change fingerprint on extreme events" and "help decision-makers have a richer, better and more accurate understanding of the effects of climate change on the economy."

Professor Noy compared their research to the work done linking smoking to cancer and the legal cases brought against tobacco companies.

"Seventy years ago, most people didn't think smoking causes cancer," he said. "We had a long battle and a long period of denial. But we now agree smoking causes, for example, lung cancer. But strictly speaking it doesn't. Some people smoke and don't get lung cancer and some people don't smoke and do get lung cancer. Smoking increases the likelihood you will get lung cancer. In the same way, climate change increases the likelihood you will experience, for example, the heatwave that happened last summer in Europe.

"We take exactly the same approach and argue that if you can say smoking causes cancer you can say climate change causes a specific event and you can actually quantify it, quantify its costs, and attach a liability to it."

Using examples of droughts in New Zealand and extreme rainfall events in New Zealand and the United States, Professor Frame and Professor Noy showed how expertise from climate science could be combined with economic estimates to help provide new lines of evidence for those harmed by climate change.

The hope is communities will be able to use these to seek support.

"Someone may be liable for those damages," said Professor Noy. "And

who is that somebody? Well, anybody that emitted greenhouse gases into the atmosphere."

As the science of climate change event attribution evolves, researchers will be able to examine more and more events and quantify the influence of climate change on those events. This is useful for those assessing risks, such as financial institutions and insurers, as well as for those who believe they have a case against major emitters.

It was largely through court cases brought against tobacco companies that the world changed in terms of smoking, said Professor Noy.

"The idea of using attribution science in lawsuits dates from British climate scientist Professor Myles Allen's work in 2003, but we think the additional step of integrating economic consequences with attribution science will make legal claims much more powerful. This is where I think our work can be very useful and has not been used before. It is easy to see how this has a lot of potential."

Provided by Victoria University of Wellington

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