

# By failing to rein in climate change, our children's rights are being disregarded

A paper from the prominent Nasa climate scientist James Hansen reminds us of the debt young people face if we continue our high fossil fuel emissions

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The past is a different country - take the USSR during 1988 which was being convulsed as Mikhail Gorbachev's perestroika swept through the nation. A nation that three years later would no longer exist. The world's greatest experiment with communism was coming to an end.

In June that same year, a scientist would testify to the United States Senate that another experiment was well underway. In explaining this experiment he presented evidence that painted a future as dystopian as any conjured up by the then President Ronald Reagan about the dangers of communism.

"Global warming has reached a level such that we can ascribe with a high degree of confidence a cause and effect relationship between the greenhouse effect and observed warming ... It is already happening now," he said.

That scientist was James Hansen, who was to become one of the most prominent advocates for addressing global warming, both in his leadership of climate science as the head of Nasa's Goddard Institute, and in later years via activism and occasional peaceful civil disobedience.

Global emissions of greenhouse gases have increased by 60% since 1988. While Hansen's testimony is responsible for a significant increase in people's awareness of climate change, the consequences appear yet to sink in.

Twenty six years later, Hansen is now seeking to have his day in court to effectively force the US government to significantly reduce emissions of greenhouse gases. Next month the district court of Oregon will rule whether to allow Hansen's and 21 young American citizen's case against the US government to proceed to trial.

“It seemed to me that, at least in the US, the most fundamental concepts on which our country was founded were equal rights, equal protection of the laws. All people should have equal rights to life, liberty, property, and pursuit of happiness. The same as for civil rights,” says Hansen.

By failing to rein in climate change impacts, the rights of young people alive today and those that will be born in the future are being disregarded. There is also a fundamental failure of governments to manage natural resources and so protect the public trust.

Hansen has long argued that humanity should move towards a safe limit for CO<sub>2</sub> in the atmosphere of 350ppm - a value that the organisation 350.org takes its name from - moving that boundary up or down as new evidence comes in. CO<sub>2</sub> is currently above 400ppm and rising. If we do nothing, then a child born today will never experience safe levels of greenhouse gases and we will be forcing future generations to suck out CO<sub>2</sub> directly from the atmosphere in order to avoid dangerous climate change.

Some of this could be achieved with better soil management and replanting trees, but the longer we delay the more reliant we become on negative emissions technologies such as carbon capture and storage which is still effectively at the prototype stage. Hansen and an international team of scientists have recently attempted to calculate the costs of the range of negative emissions that would be required to avoid dangerous climate change - and came to \$104-570tn this century.

Compare that to the current total size of the global economy, which is a little under \$80tn. One argument against cutting greenhouse gas emissions is that it may threaten economic growth. It may be better to leave it to future generations to clean up our fossil-fuelled mess as presumably they will have the smarts and technology to do so. But we have to consider how likely it is that future generations will be able to afford such sums, at the same time as figuring out how to feed, clothe and house more than 9 billion people.

Hansen and his team's calculations are contained in a paper that is currently in review in the journal *Earth System Dynamics - ESD* - and so may well be revised, or potentially rejected. Here I must disclose that I am on the editorial board of *ESD*, but I write this independently and do not claim to represent the views of the other editors. It is usual practice to not publicly discuss a paper that is in review - even an open access review model that *ESD* operates in which the original manuscript is made available online, along with reviewer's reports, author's responses and editorial judgements.

I am a big fan of this process as everything is made transparent. And so is Hansen as his recently published paper on megastorms and rapid multi-metre sea level rise was published in a similar open review journal. Some scientists expressed concerns over how that paper was reported prior to publication.

If Hansen's current work is accepted for publication then I would welcome the opportunity to discuss it in detail. Right now its significance is that it may have a bearing on next month's legal case as well as generating academic interest and discussion in its own right - published or not.

That humans are affecting the Earth's climate is one of the most thoroughly researched and well-established scientific findings of all time. What should be done with that knowledge is something that people have been struggling with since before 1988. If we are to avoid crippling future generations with debts and dangerously degraded environments, then time is running out for us to come to workable solutions.

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